

**Experiment Number:** 20614 - 02  
**Test Type:** CHRONIC  
**Route:** DOSED FEED  
**Species/Strain:** RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
Perfluorooctanoic Acid  
**CAS Number:** 335-67-1

**Date Report Requested:** 07/24/2018  
**Time Report Requested:** 12:59:13  
**First Dose M/F:** 07/27/09 / NA  
**Lab:** BAT

Final 1\_Core Only

<b>NTP Study Number:</b>	C20614B		
<b>Lock Date:</b>	01/10/2012		
<b>Cage Range:</b>	ALL		
<b>Date Range:</b>	ALL		
<b>Reasons For Removal:</b>	25021 TSAC	25020 NATD	25019 MSAC
<b>Removal Date Range:</b>	ALL		
<b>Treatment Groups:</b>	Include ALL		
<b>Study Gender:</b>	Male		
<b>TDMSE Version:</b>	3.0.2.3_002		
<b>PWG Approval Date:</b>	07/24/2018		



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P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

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First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 2

TRT#: 1

SEX: Male

DAY ON TEST: 743

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101302

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Prostate
- \* Stomach, Glandular
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Salivary Glands
- \* Testes
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Seminal Vesicle
- \* Trachea

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- \* Adrenal Cortex
- \* Kidney
- \* Liver
- \* Lung
- [ Infiltration Cellular TGLs = 2 - 4+5 ]
- Lymph Node
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Skin
- [ Keratoacanthoma TGLs = 1 - 16 ]
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Hypertrophy
- Nephropathy
- Clear Cell Focus
- Inflammation
- Infiltration Cellular
- Inflammation
- Inflammation
- Accumulation, Hyaline Droplet
- Atrophy
- Hyperplasia
- Foreign Body
- Inflammation
- Keratoacanthoma
- Pigment
- Atrophy
- Adenoma
- Minimal
- Chronicprogr, Mild
- Focal, Minimal
- Histiocyte, Mild
- Multifocal, Granulomatous, Minimal
- Granulomatous, Moderate
- Minimal
- Minimal
- Mild
- Marked
- Mild
- Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

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Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 3

TRT#: 1

SEX: Male

DAY ON TEST: 747

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101303

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| Blood Vessel                | * Bone                   | * Bone Marrow              | * Brain                   |
| * Epididymis                | * Esophagus              | * Eye                      | * Harderian Gland         |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lymph Node, Mandibular    | * Mammary Gland          | * Pancreas                 | * Pituitary Gland         |
| * Preputial Gland           | * Prostate               | * Salivary Glands          | * Seminal Vesicle         |
| * Skin                      | * Stomach, Forestomach   | * Stomach, Glandular       | * Testes                  |
| * Trachea                   | * Urinary Bladder        |                            |                           |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                          |               |                               |                        |
|--------------------------|---------------|-------------------------------|------------------------|
| * Adrenal Cortex         |               | Hypertrophy                   | Mild                   |
| * Adrenal Medulla        |               | Hyperplasia                   | Minimal                |
| * Kidney                 |               | Nephropathy                   | Chronicprogr, Moderate |
| * Liver                  |               | Clear Cell Focus              |                        |
|                          | Bile Duct     | Hyperplasia                   | Minimal                |
|                          |               | Inflammation                  | Focal, Minimal         |
| * Lung                   |               | Infiltration Cellular         | Histiocyte, Minimal    |
| * Lymph Node, Mesenteric |               | Hyperplasia                   | Lymphoid, Mild         |
| * Nose                   | Olfactory Epi | Accumulation, Hyaline Droplet | Mild                   |
| * Spleen                 |               | Extramedullary Hematopoiesis  | Minimal                |
| * Thymus                 |               | Atrophy                       | Moderate               |
| * Thyroid Gland          | C Cell        | Hyperplasia                   | Mild                   |

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Test Type: CHRONIC

Route: DOSED FEED

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P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 4

TRT#: 1

SEX: Male

DAY ON TEST: 747

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101304

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Blood Vessel
- \* Bone
- \* Brain
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- Lacrimal Gland
- Larynx
- \* Mammary Gland
- \* Nose
- \* Pancreas
- \* Parathyroid Gland
- \* Preputial Gland
- \* Prostate
- \* Salivary Glands
- \* Seminal Vesicle
- \* Skin
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Testes
- \* Thyroid Gland
- \* Trachea
- \* Urinary Bladder

OBSERVATIONS

- \* Bone Marrow
  - \* Heart
  - \* Kidney
  - \* Liver
  - Bile Duct
  - \* Lung
  - \* Lymph Node, Mandibular
  - \* Lymph Node, Mesenteric
  - \* Pituitary Gland
  - \* Spleen
  - [ Leukemia Mononuclear TGLs = 1 - 16 ]
  - \* Thymus
- Hyperplasia
  - Cardiomyopathy
  - Nephropathy
  - Clear Cell Focus
  - Degeneration
  - Hyperplasia
  - Leukemia Mononuclear
  - Necrosis
  - Infiltration Cellular
  - Leukemia Mononuclear
  - Leukemia Mononuclear
  - Hyperplasia
  - Hypertrophy
  - Extramedullary Hematopoiesis
  - Leukemia Mononuclear
  - Atrophy
- Mild
  - Mild
  - Chronicprogr, Mild
  - Cystic, Minimal
  - Minimal
  - Minimal
  - Histiocyte, Minimal
  - Moderate
  - Moderate
  - Mild
  - Moderate

\* PROTOCOL REQUIRED TISSUE

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P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

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Date Report Requested: 07/24/2018

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First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 5

TRT#: 1

SEX: Male

DAY ON TEST: 718

DOSE: 0/0 ppm

DISP: Natural Death

HISTO: 1101305

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                      |                   |                           |
|-----------------------------|----------------------|-------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla    | Blood Vessel      | * Bone                    |
| * Bone Marrow               | * Brain              | * Epididymis      | * Esophagus               |
| * Eye                       | * Harderian Gland    | * Heart           | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Islets, Pancreatic | * Liver           | * Lung                    |
| * Mammary Gland             | * Pancreas           | * Pituitary Gland | * Preputial Gland         |
| * Prostate                  | * Seminal Vesicle    | * Skin            | * Stomach, Forestomach    |
| * Stomach, Glandular        | * Testes             | * Trachea         |                           |

MISSING

- |                          |                          |                          |                            |
|--------------------------|--------------------------|--------------------------|----------------------------|
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Parathyroid Gland      | * Salivary Glands          |
| * Thyroid Gland          | * Urinary Bladder        |                          |                            |

OBSERVATIONS

- |          |               |                               |                    |
|----------|---------------|-------------------------------|--------------------|
| * Kidney |               | Nephropathy                   | Chronicprogr, Mild |
| * Nose   | Olfactory Epi | Accumulation, Hyaline Droplet | Minimal            |
| * Spleen |               | Pigment                       | Minimal            |
| * Thymus |               | Atrophy                       | Moderate           |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

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Perfluorooctanoic Acid

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First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 6

TRT#: 1

SEX: Male

DAY ON TEST: 745

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101306

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| Blood Vessel                | * Bone                   | * Bone Marrow              | * Brain                   |
| * Epididymis                | * Esophagus              | * Eye                      | * Harderian Gland         |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            | * Parathyroid Gland       |
| * Preputial Gland           | * Prostate               | * Salivary Glands          | * Seminal Vesicle         |
| Skeletal Muscle             | * Stomach, Forestomach   | * Stomach, Glandular       | * Testes                  |
| * Trachea                   | * Urinary Bladder        |                            |                           |

OBSERVATIONS

- |                   |  |                               |                                    |
|-------------------|--|-------------------------------|------------------------------------|
| * Adrenal Cortex  |  | Degeneration                  | Cystic, Minimal                    |
| * Adrenal Medulla |  | Hyperplasia                   | Minimal                            |
| * Kidney          |  | Nephropathy                   | Chronicprogr, Mild                 |
| * Liver           |  | Clear Cell Focus              |                                    |
|                   | Bile Duct  | Extramedullary Hematopoiesis  | Minimal                            |
|                   |  | Hyperplasia                   | Minimal                            |
|                   |  | Inflammation                  | Focal, Minimal                     |
| * Lung            |  | Infiltration Cellular         | Histiocyte, Moderate               |
|                   |  | Inflammation                  | Multifocal, Granulomatous, Minimal |
|                   | [ Infiltration Cellular TGLs = 3 - 4+5 ]                                       |                               |                                    |
| * Nose            | Olfactory Epi  | Accumulation, Hyaline Droplet | Moderate                           |
| * Pancreas        | Acinus   | Hyperplasia                   | Mild                               |
| * Pituitary Gland | Pars Distalis  | Hyperplasia                   | Moderate                           |
| Skel Muscle       |  |                               |                                    |
|                   | Note: Skeletal muscle examined as control tissue sample for molecular biology. |                               |                                    |
| * Skin            |  | Basal Cell Adenoma            |                                    |
|                   | [ Basal Cell Adenoma TGLs = 1 - 18 ]   |                               |                                    |
| * Spleen          |  | Extramedullary Hematopoiesis  | Mild                               |
| * Thymus          |  | Atrophy                       | Mild                               |
| * Thyroid Gland   | C Cell   | Hyperplasia                   | Mild                               |

\* PROTOCOL REQUIRED TISSUE

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First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 7

TRT#: 1

SEX: Male

DAY ON TEST: 675

DOSE: 0/0 ppm

DISP: Natural Death

HISTO: 1101307

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Preputial Gland
- \* Skin
- \* Thyroid Gland
- \* Bone
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Pancreas
- \* Prostate
- \* Stomach, Forestomach
- \* Trachea
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Adrenal Medulla
  - [ Pheochromocytoma Benign TGLs = 2 - 9 ]
- Blood Vessel
- \* Bone Marrow
- \* Heart
- \* Kidney
  - [ Liposarcoma TGLs = 1 - 15 ]
- \* Liver
- \* Lung
- \* Nose
- \* Spleen
- \* Thymus
- Pheochromocytoma Benign
- Inflammation
- Hyperplasia
- Cardiomyopathy
- Liposarcoma
- Nephropathy
- Single Cell Death
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Atrophy
- Extramedullary Hematopoiesis
- Atrophy
- Chronic, Mild
- Moderate
- Minimal
- Chronicprogr, Marked
- Minimal
- Histiocyte, Minimal
- Minimal
- Moderate
- Moderate
- Moderate

PRIMARY CAUSE OF DEATH - Kidney Liposarcoma

\* PROTOCOL REQUIRED TISSUE





Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

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**ANIMAL ID:** 8

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 747

**DOSE:** 0/0 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101308

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* Thymus

Atrophy

Mild

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

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First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 9

TRT#: 1

SEX: Male

DAY ON TEST: 689

DOSE: 0/0 ppm

DISP: Moribund Sacrifice

HISTO: 1101309

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Preputial Gland
- \* Skin
- \* Urinary Bladder
- Blood Vessel
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Pancreas
- \* Prostate
- \* Stomach, Glandular
- \* Bone
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Salivary Glands
- \* Testes
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
  - \* Bone Marrow
  - \* Brain
  - \* Kidney
  - \* Liver
  - \* Lung
    - [ Infiltration Cellular TGLs = 2 - 4+5 ]
  - \* Lymph Node, Mandibular
  - \* Nose
    - Olfactory Epi
    - Respirat Epith
  - \* Spleen
    - [ Leukemia Mononuclear TGLs = 1 - 15 ]
  - \* Stomach, Forestomach
    - Epithelium
  - \* Thymus
  - \* Thyroid Gland
    - Follicular Cel
- Leukemia Mononuclear
  - Hyperplasia
  - Necrosis
  - Nephropathy
  - Leukemia Mononuclear
  - Infiltration Cellular
  - Leukemia Mononuclear
  - Accumulation, Hyaline Droplet
  - Inflammation
  - Leukemia Mononuclear
  - Hyperplasia
  - Inflammation
  - Atrophy
  - Hypertrophy
- Marked
  - Moderate
  - Chronicprogr, Mild
  - Histiocyte, Minimal
  - Minimal
  - Minimal
  - Squamous, Mild
  - Mild
  - Marked
  - Moderate

PRIMARY CAUSE OF DEATH - Spleen Leukemia Mononuclear

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

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Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

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First Dose M/F: 07/27/09 / NA

Lab: BAT

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**ANIMAL ID:** 10

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 745

**DOSE:** 0/0 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101310

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* Thymus

Atrophy

Minimal

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

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First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 11

TRT#: 1

SEX: Male

DAY ON TEST: 624

DOSE: 0/0 ppm

DISP: Moribund Sacrifice

HISTO: 1101311

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| Blood Vessel              | * Bone                      | * Brain                  | * Epididymis               |
| * Esophagus               | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Mammary Gland             | * Parathyroid Gland      | * Pituitary Gland          |
| * Preputial Gland         | * Salivary Glands           | * Seminal Vesicle        | * Skin                     |
| * Stomach, Forestomach    | * Stomach, Glandular        | * Testes                 | * Trachea                  |
| * Urinary Bladder         |                             |                          |                            |

OBSERVATIONS

- |                          |  |                               |                      |
|--------------------------|--|-------------------------------|----------------------|
| * Adrenal Cortex         |  | Lymphoma Malignant            |                      |
| * Adrenal Medulla        |  | Hyperplasia                   | Mild                 |
| * Bone Marrow            |  | Lymphoma Malignant            |                      |
| * Eye                    | Retina   | Degeneration                  | Minimal              |
|                          | Retina   | Inflammation                  | Minimal              |
| * Heart                  |  | Lymphoma Malignant            |                      |
| * Kidney                 |  | Lymphoma Malignant            |                      |
|                          |  | Nephropathy                   | Chronicprogr, Marked |
|                          | [ Lymphoma Malignant TGLs = 5 - 19 ]           |                               |                      |
| * Liver                  |  | Lymphoma Malignant            |                      |
|                          |  | Necrosis                      | Mild                 |
| * Lung                   |  | Lymphoma Malignant            |                      |
| Lymph Node               | Iliac, Lumbar, Pancreatic                      | Lymphoma Malignant            |                      |
|                          | [ Lymphoma Malignant TGLs = 4,7,8 - 18+21+22 ] |                               |                      |
| * Lymph Node, Mandibular |  | Lymphoma Malignant            |                      |
|                          | [ Lymphoma Malignant TGLs = 2 - 16 ]           |                               |                      |
| * Lymph Node, Mesenteric |  | Lymphoma Malignant            |                      |
|                          | [ Lymphoma Malignant TGLs = 3 - 17 ]           |                               |                      |
| * Nose                   | Olfactory Epi                                  | Accumulation, Hyaline Droplet | Minimal              |
| * Pancreas               | Acinus   | Atrophy                       | Minimal              |
| * Prostate               | Epithelium, Ventral                            | Hyperplasia                   | Minimal              |
| * Spleen                 |  | Lymphoma Malignant            |                      |

\* PROTOCOL REQUIRED TISSUE

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Lab: BAT

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**ANIMAL ID:** 11

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 624

**DOSE:** 0/0 ppm

**DISP:** Moribund Sacrifice

**HISTO:** 1101311

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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[ Lymphoma Malignant TGLs = 1 - 15 ]

\* Thymus

Lymphoma Malignant

[ Lymphoma Malignant TGLs = 6 - 20 ]

\* Thyroid Gland

Follicular Cel

Hypertrophy

Minimal

---

PRIMARY CAUSE OF DEATH

- Spleen Lymphoma Malignant

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

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Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 12

TRT#: 1

SEX: Male

DAY ON TEST: 697

DOSE: 0/0 ppm

DISP: Moribund Sacrifice

HISTO: 1101312

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex         | Blood Vessel               | * Bone                    | * Bone Marrow               |
| * Brain                  | * Epididymis               | * Esophagus               | * Harderian Gland           |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    |
| * Lymph Node, Mesenteric | * Mammary Gland            | * Pancreas                | * Parathyroid Gland         |
| * Pituitary Gland        | * Preputial Gland          | * Prostate                | * Salivary Glands           |
| * Seminal Vesicle        | * Skin                     | * Stomach, Forestomach    | * Stomach, Glandular        |
| * Thyroid Gland          | * Trachea                  | * Urinary Bladder         |                             |

MISSING

- \* Thymus

OBSERVATIONS

- |                   |  |                              |                          |
|-------------------|--|------------------------------|--------------------------|
| * Adrenal Medulla |  | Pheochromocytoma Benign      | Multiple                 |
| * Eye             | Retina                                   | Degeneration                 | Minimal                  |
| * Heart           |  | Cardiomyopathy               | Minimal                  |
| * Kidney          | [ Nephropathy TGLs = 1 - 6+15 ]          | Nephropathy                  | Chronicprogr, Marked     |
| * Liver           |  | Clear Cell Focus             |                          |
|                   | Bile Duct                                | Hyperplasia                  | Minimal                  |
| * Lung            |  | Infiltration Cellular        | Histiocyte, Marked       |
|                   | [ Infiltration Cellular TGLs = 2 - 4+5 ] | Inflammation                 | Chronic Active, Moderate |
| * Nose            | Olfactory Epi                            | Inflammation                 | Minimal                  |
| * Spleen          |  | Extramedullary Hematopoiesis | Mild                     |
| * Testes          | Germinal Epith                           | Degeneration                 | Minimal                  |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy  
 CONTRIBUTORY CAUSE OF DEATH - Lung Infiltration Cellular

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 13

TRT#: 1

SEX: Male

DAY ON TEST: 743

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101313

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Lung                    | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric |
| * Mammary Gland            | * Parathyroid Gland       | * Preputial Gland           | * Salivary Glands        |
| * Seminal Vesicle          | * Skin                    | * Stomach, Forestomach      | * Stomach, Glandular     |
| * Testes                   | * Trachea                 | * Urinary Bladder           |                          |

OBSERVATIONS

- |                      |                     |                               |                         |
|----------------------|---------------------|-------------------------------|-------------------------|
| * Islets, Pancreatic |                     | Adenoma                       |                         |
| * Kidney             |                     | Nephropathy                   | Chronicprogr, Moderate  |
| * Liver              |                     | Basophilic Focus              |                         |
|                      |                     | Clear Cell Focus              |                         |
|                      | Bile Duct           | Hyperplasia                   | Minimal                 |
|                      |                     | Inflammation                  | Chronic Active, Minimal |
| * Nose               | Olfactory Epi       | Accumulation, Hyaline Droplet | Moderate                |
| * Pancreas           | Acinus              | Hyperplasia                   | Marked                  |
| * Pituitary Gland    | Pars Distalis       | Hyperplasia                   | Minimal                 |
| * Prostate           | Epithelium, Ventral | Hyperplasia                   | Minimal                 |
| * Spleen             |                     | Extramedullary Hematopoiesis  | Minimal                 |
|                      |                     | Pigment                       | Minimal                 |
| * Thymus             |                     | Atrophy                       | Moderate                |
| * Thyroid Gland      | C Cell              | Hyperplasia                   | Mild                    |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 14

TRT#: 1

SEX: Male

DAY ON TEST: 718

DOSE: 0/0 ppm

DISP: Natural Death

HISTO: 1101314

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            |
| * Pancreas                | * Parathyroid Gland         | * Preputial Gland        | * Prostate                 |
| * Salivary Glands         | * Seminal Vesicle           | * Stomach, Forestomach   | * Stomach, Glandular       |
| * Testes                  | * Thyroid Gland             | * Trachea                | * Urinary Bladder          |

OBSERVATIONS

- |   |                               |                               |                         |
|---|-------------------------------|-------------------------------|-------------------------|
| * Heart   | Myocardium                    | Inflammation                  | Mild                    |
| * Kidney  |                               | Nephropathy                   | Chronicprogr, Minimal   |
| * Liver   |                               | Clear Cell Focus              |                         |
| * Lung  |                               | Inflammation                  | Chronic Active, Minimal |
| * Nose  | Olfactory Epi                 | Accumulation, Hyaline Droplet | Mild                    |
|   | Olfactory Epi, Respirat Epith | Inflammation                  | Marked                  |
| Note: Inflammation largely = exudate throughout.    |                               |                               |                         |
| * Pituitary Gland                                   | Pars Distalis                 | Hyperplasia                   | Mild                    |
| * Skin  |                               | Foreign Body                  |                         |
|   |                               | Inflammation                  | Marked                  |
| Note: Several hair shafts lie within the abscesses. |                               |                               |                         |
| [ Inflammation TGLs = 1 - 15 ]                      |                               |                               |                         |
| * Spleen  | Lymph Follic                  | Atrophy                       | Moderate                |
|   |                               | Pigment                       | Mild                    |
| * Thymus  |                               | Atrophy                       | Marked                  |

PRIMARY CAUSE OF DEATH - Skin Inflammation

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 15

TRT#: 1

SEX: Male

DAY ON TEST: 304

DOSE: 0/0 ppm

DISP: Natural Death

HISTO: 1101315

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Liver                     | * Lung                   |
| * Lymph Node, Mandibular   | * Lymph Node, Mesenteric  | * Mammary Gland             | * Pancreas               |
| * Pituitary Gland          | * Preputial Gland         | * Prostate                  | * Salivary Glands        |
| * Seminal Vesicle          | * Skin                    | * Stomach, Forestomach      | * Stomach, Glandular     |
| * Thyroid Gland            | * Trachea                 | * Urinary Bladder           |                          |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |          |                |                               |                       |
|----------|----------------|-------------------------------|-----------------------|
| * Kidney |                | Nephropathy                   | Chronicprogr, Minimal |
| * Nose   | Olfactory Epi  | Accumulation, Hyaline Droplet | Mild                  |
| * Spleen |                | Pigment                       | Mild                  |
| * Testes | Germinal Epith | Degeneration                  | Marked                |
| * Thymus |                | Atrophy                       | Minimal               |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 16

TRT#: 1

SEX: Male

DAY ON TEST: 747

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101316

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| Blood Vessel              | * Bone                      | * Bone Marrow            | * Brain                    |
| * Epididymis              | * Esophagus                 | * Harderian Gland        | * Intestine Large, Cecum   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            |
| * Parathyroid Gland       | * Preputial Gland           | * Prostate               | * Salivary Glands          |
| * Seminal Vesicle         | * Stomach, Forestomach      | * Stomach, Glandular     | * Testes                   |
| * Trachea                 | * Urinary Bladder           |                          |                            |

OBSERVATIONS

- |                          |                           |                               |                        |
|--------------------------|---------------------------|-------------------------------|------------------------|
| * Adrenal Cortex         |                           | Hypertrophy                   | Minimal                |
| * Adrenal Medulla        |                           | Pheochromocytoma Benign       |                        |
| * Eye                    | Retina                    | Degeneration                  | Minimal                |
| * Heart                  |                           | Cardiomyopathy                | Mild                   |
| * Intestine Large, Colon |                           | Parasite Metazoan             |                        |
| * Kidney                 |                           | Nephropathy                   | Chronicprogr, Moderate |
| * Liver                  |                           | Clear Cell Focus              |                        |
| * Lung                   |                           | Infiltration Cellular         | Histiocyte, Moderate   |
| * Nose                   | Olfactory Epi             | Accumulation, Hyaline Droplet | Minimal                |
| * Pancreas               | Acinus                    | Adenoma                       |                        |
|                          | Acinus                    | Hyperplasia                   | Marked                 |
|                          | [ Adenoma TGLs = 1 - 15 ] |                               |                        |
| * Pituitary Gland        | Pars Distalis             | Hyperplasia                   | Mild                   |
| * Skin                   | Subcut Tiss               | Fibroma                       |                        |
|                          | [ Fibroma TGLs = 2 - 16 ] |                               |                        |
| * Spleen                 |                           | Extramedullary Hematopoiesis  | Mild                   |
| * Thymus                 |                           | Atrophy                       | Mild                   |
| * Thyroid Gland          | C Cell                    | Adenoma                       |                        |
|                          | C Cell                    | Hyperplasia                   | Marked                 |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 17

TRT#: 1

SEX: Male

DAY ON TEST: 745

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101317

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Salivary Glands
- \* Stomach, Forestomach
- Blood Vessel
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Seminal Vesicle
- \* Stomach, Glandular
- \* Bone
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- Skeletal Muscle
- \* Trachea
- \* Bone Marrow
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Preputial Gland
- \* Skin
- \* Urinary Bladder

OBSERVATIONS

- \* Adrenal Medulla
- \* Brain
  - [ Glioma Malignant TGLs = 4 - 10 ]
- \* Kidney
- \* Liver
- \* Lung
  - [ Squamous Cell Carcinoma TGLs = 1 - 18 ]
- Lymph Node
  - [ Hyperplasia TGLs = 2 - 20 ]
- \* Lymph Node, Mandibular
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Prostate
- Skel Muscle
  - Note: Examined as putative mass (TGL-3) but was microscopically normal.
- \* Spleen
- \* Testes
- Hyperplasia
- Glioma Malignant
- Nephropathy
- Clear Cell Focus
- Eosinophilic Focus
- Bile Duct
- Hyperplasia
- Infiltration Cellular
- Squamous Cell Carcinoma
- Hyperplasia
- Hyperplasia
- Hyperplasia
- Accumulation, Hyaline Droplet
- Hyperplasia
- Hyperplasia
- Adenoma
- Inflammation
- Pigment
- Degeneration
- Mild
- Chronicprogr, Mild
- Minimal
- Histiocyte, Minimal
- Lymphoid, Minimal
- Lymphoid, Mild
- Mild
- Mild
- Moderate
- Chronic Active, Minimal
- Minimal
- Marked

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 17

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 745

**DOSE:** 0/0 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101317

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thymus

Atrophy

Mild

\* Thyroid Gland

C Cell

Hyperplasia

Moderate

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 18

TRT#: 1

SEX: Male

DAY ON TEST: 745

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101318

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Skin
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Prostate
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Salivary Glands
- \* Trachea

OBSERVATIONS

- \* Adrenal Medulla
- \* Heart
- Note: Ectopic parathyroid tissue present at heart base.
- \* Kidney
- \* Liver
- \* Lung
- [ Infiltration Cellular TGLs = 1 - 4+5 ]
- \* Nose
- \* Pancreas
- \* Spleen
- \* Stomach, Forestomach
- \* Testes
- \* Thymus
- \* Thyroid Gland
- Schwann Cell
- Bile Duct
- Olfactory Epi
- Acinus
- Epithelium
- Germinal Epith
- Bilateral, C Cell
- Hyperplasia
- Hyperplasia
- Nephropathy
- Clear Cell Focus
- Hyperplasia
- Infiltration Cellular
- Inflammation
- Accumulation, Hyaline Droplet
- Hyperplasia
- Extramedullary Hematopoiesis
- Hyperplasia
- Degeneration
- Atrophy
- Adenoma
- Minimal
- Minimal
- Chronicprogr, Minimal
- Minimal
- Histiocyte, Moderate
- Multifocal, Granulomatous, Minimal
- Minimal
- Mild
- Minimal
- Squamous, Moderate
- Minimal
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 19

TRT#: 1

SEX: Male

DAY ON TEST: 744

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101319

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Prostate
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Lung
- \* Preputial Gland
- \* Skin
- \* Trachea

OBSERVATIONS

- \* Heart
- \* Intestine Large, Colon
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
- \* Lymph Node, Mandibular
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Bile Duct
- Olfactory Epi
- Acinus
- Pars Distalis
- C Cell
- Cardiomyopathy
- Parasite Metazoan
- Hyperplasia
- Infarct
- Nephropathy
- Clear Cell Focus
- Hyperplasia
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Atrophy
- Hyperplasia
- Extramedullary Hematopoiesis
- Atrophy
- Adenoma
- Minimal
- Mild
- Minimal
- Chronicprogr, Mild
- Minimal
- Plasma Cell, Mild
- Minimal
- Mild
- Mild
- Moderate

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 20

TRT#: 1

SEX: Male

DAY ON TEST: 584

DOSE: 0/0 ppm

DISP: Natural Death

HISTO: 1101320

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Liver                     | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   |
| * Mammary Gland           | * Parathyroid Gland         | * Preputial Gland        | * Prostate                 |
| * Salivary Glands         | * Seminal Vesicle           | * Stomach, Forestomach   | * Stomach, Glandular       |
| * Testes                  | * Thyroid Gland             | * Trachea                | * Urinary Bladder          |

OBSERVATIONS

- |                   |                               |                               |                         |
|-------------------|-------------------------------|-------------------------------|-------------------------|
| * Heart           |                               | Cardiomyopathy                | Minimal                 |
| * Kidney          |                               | Nephropathy                   | Chronicprogr, Moderate  |
| * Lung            |                               | Infiltration Cellular         | Histiocyte, Minimal     |
|                   |                               | Inflammation                  | Chronic Active, Minimal |
| * Nose            | Olfactory Epi                 | Accumulation, Hyaline Droplet | Minimal                 |
| * Pancreas        | Acinus                        | Hyperplasia                   | Mild                    |
| * Pituitary Gland | Pars Distalis                 | Hyperplasia                   | Marked                  |
|                   | [ Hyperplasia TGLs = 2 - 16 ] |                               |                         |
| * Skin            | Epidermis                     | Hyperplasia                   | Mild                    |
|                   |                               | Inflammation                  | Moderate                |
|                   |                               | Ulcer                         | Moderate                |
|                   | [ Ulcer TGLs = 1 - 15 ]       |                               |                         |
| * Spleen          |                               | Extramedullary Hematopoiesis  | Mild                    |
|                   |                               | Pigment                       | Minimal                 |
| * Thymus          |                               | Atrophy                       | Mild                    |

PRIMARY CAUSE OF DEATH - Skin Ulcer

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 21

TRT#: 1

SEX: Male

DAY ON TEST: 746

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101321

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla         | Blood Vessel                | * Bone                   | * Bone Marrow              |
| * Brain                   | * Epididymis                | * Esophagus              | * Eye                      |
| * Harderian Gland         | * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   |
| * Mammary Gland           | * Parathyroid Gland         | * Preputial Gland        | * Prostate                 |
| * Salivary Glands         | * Seminal Vesicle           | * Stomach, Forestomach   | * Stomach, Glandular       |
| * Testes                  | * Thyroid Gland             | * Trachea                | * Urinary Bladder          |

OBSERVATIONS

- |                   |                                   |                               |                    |
|-------------------|-----------------------------------|-------------------------------|--------------------|
| * Adrenal Cortex  |                                   | Hypertrophy                   | Minimal            |
| * Kidney          |                                   | Nephropathy                   | Chronicprogr, Mild |
| * Liver           |                                   | Clear Cell Focus              |                    |
| * Nose            | Olfactory Epi                     | Accumulation, Hyaline Droplet | Moderate           |
| * Pancreas        | Acinus                            | Hyperplasia                   | Marked             |
| * Pituitary Gland | Pars Distalis                     | Hyperplasia                   | Minimal            |
| * Skin            |                                   | Keratoacanthoma               |                    |
|                   | [ Keratoacanthoma TGLs = 1 - 15 ] |                               |                    |
| * Spleen          |                                   | Extramedullary Hematopoiesis  | Mild               |
| * Thymus          |                                   | Atrophy                       | Mild               |

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 22

TRT#: 1

SEX: Male

DAY ON TEST: 746

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101322

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Blood Vessel             | * Bone                    | * Bone Marrow               | * Brain                  |
| * Epididymis               | * Esophagus               | * Eye                       | * Harderian Gland        |
| * Intestine Large, Cecum   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric   | * Mammary Gland           | * Pancreas                  | * Parathyroid Gland      |
| * Preputial Gland          | * Prostate                | * Salivary Glands           | * Seminal Vesicle        |
| * Skin                     | * Stomach, Forestomach    | * Stomach, Glandular        | * Thyroid Gland          |
| * Trachea                  | * Urinary Bladder         |                             |                          |

OBSERVATIONS

- |                          |                         |                               |                      |
|--------------------------|-------------------------|-------------------------------|----------------------|
| * Adrenal Cortex         |                         | Hypertrophy                   | Mild                 |
| * Adrenal Medulla        |                         | Pheochromocytoma Benign       |                      |
| * Heart                  |                         | Cardiomyopathy                | Mild                 |
| * Intestine Large, Colon |                         | Parasite Metazoan             |                      |
| * Kidney                 |                         | Nephropathy                   | Chronicprogr, Marked |
| * Liver                  |                         | Clear Cell Focus              |                      |
|                          | Bile Duct               | Hyperplasia                   | Minimal              |
| * Nose                   | Olfactory Epi           | Accumulation, Hyaline Droplet | Mild                 |
| * Pituitary Gland        | Pars Distalis           | Hyperplasia                   | Minimal              |
| * Spleen                 |                         | Extramedullary Hematopoiesis  | Minimal              |
| * Testes                 |                         | Edema                         | Moderate             |
|                          | [ Edema TGLs = 1 - 15 ] |                               |                      |
| * Thymus                 |                         | Atrophy                       | Mild                 |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 23

TRT#: 1

SEX: Male

DAY ON TEST: 744

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101323

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Pancreas
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Skin
- \* Thyroid Gland
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Prostate
- \* Stomach, Forestomach
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
- \* Kidney
- \* Liver
- \* Lung
- \* Nose
- \* Pituitary Gland
- \* Spleen
- \* Thymus
- Bile Duct
- [ Infiltration Cellular TGLs = 1 - 4+5 ]
- Olfactory Epi Pars Distalis
- [ Adenoma TGLs = 2 - 9 ]
- Hypertrophy
- Nephropathy
- Clear Cell Focus
- Hyperplasia
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Adenoma
- Extramedullary Hematopoiesis
- Atrophy
- Minimal
- Chronicprogr, Mild
- Minimal
- Histiocyte, Mild
- Mild
- Mild
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 24

TRT#: 1

SEX: Male

DAY ON TEST: 744

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101324

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex         | Blood Vessel               | * Bone                    | * Bone Marrow               |
| * Epididymis             | * Esophagus                | * Eye                     | * Harderian Gland           |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lung                      |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           | * Pancreas                  |
| * Parathyroid Gland      | * Preputial Gland          | * Prostate                | * Salivary Glands           |
| * Seminal Vesicle        | * Skin                     | * Stomach, Forestomach    | * Stomach, Glandular        |
| * Testes                 | * Thyroid Gland            | * Trachea                 | * Urinary Bladder           |

OBSERVATIONS

- |                   |                                      |                               |                        |
|-------------------|--------------------------------------|-------------------------------|------------------------|
| * Adrenal Medulla |                                      | Hyperplasia                   | Mild                   |
| * Brain           | Cerebrum                             | Granular Cell Tumor Benign    |                        |
| * Heart           |                                      | Cardiomyopathy                | Mild                   |
| * Kidney          |                                      | Nephropathy                   | Chronicprogr, Moderate |
| * Liver           |                                      | Cholangiocarcinoma            |                        |
|                   |                                      | Clear Cell Focus              |                        |
|                   | Bile Duct                            | Hyperplasia                   | Mild                   |
|                   |                                      | Inflammation                  | Focal, Minimal         |
|                   | [ Cholangiocarcinoma TGLs = 1 - 16 ] |                               |                        |
| * Nose            | Olfactory Epi                        | Accumulation, Hyaline Droplet | Moderate               |
|                   | Respirat Epith                       | Inflammation                  | Minimal                |
| * Pituitary Gland | Pars Distalis                        | Hyperplasia                   | Minimal                |
| * Spleen          |                                      | Extramedullary Hematopoiesis  | Minimal                |
| * Thymus          |                                      | Atrophy                       | Minimal                |

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 25

TRT#: 1

SEX: Male

DAY ON TEST: 743

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101325

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Bone                    | * Bone Marrow               | * Brain                  | * Epididymis               |
| * Esophagus               | * Eye                       | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            |
| * Preputial Gland         | * Prostate                  | * Salivary Glands        | * Seminal Vesicle          |
| * Skin                    | * Stomach, Forestomach      | * Stomach, Glandular     | * Testes                   |
| * Trachea                 | * Urinary Bladder           |                          |                            |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |   |                       |                               |                        |
|---|-----------------------|-------------------------------|------------------------|
| * Adrenal Cortex  |                       | Degeneration                  | Cystic, Minimal        |
|   |                       | Hypertrophy                   | Minimal                |
| * Adrenal Medulla   |                       | Hyperplasia                   | Moderate               |
| Blood Vessel  |                       | Inflammation                  | Mild                   |
| Note: Vascular inflammation involves testicular arteries. |                       |                               |                        |
| * Harderian Gland   |                       | Hyperplasia                   | Mild                   |
| * Heart   |                       | Cardiomyopathy                | Mild                   |
| * Kidney  | Cortex                | Cyst                          |                        |
|   |                       | Nephropathy                   | Chronicprogr, Moderate |
|   | [ Cyst TGLs = 1 - 6 ] |                               |                        |
| * Liver   |                       | Inflammation                  | Focal, Minimal         |
| * Lung  |                       | Infiltration Cellular         | Histiocyte, Minimal    |
| * Nose  | Olfactory Epi         | Accumulation, Hyaline Droplet | Mild                   |
| * Pancreas  | Acinus                | Atrophy                       | Minimal                |
|   | Acinus                | Hyperplasia                   | Mild                   |
| * Pituitary Gland   | Pars Distalis         | Hyperplasia                   | Moderate               |
| * Spleen  |                       | Extramedullary Hematopoiesis  | Mild                   |
|   |                       | Pigment                       | Minimal                |
| * Thymus  |                       | Atrophy                       | Mild                   |
| * Thyroid Gland   | Follicular Cel        | Hypertrophy                   | Minimal                |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 26

TRT#: 1

SEX: Male

DAY ON TEST: 743

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101326

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Seminal Vesicle
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Pituitary Gland
- \* Skin
- \* Urinary Bladder
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Salivary Glands
- \* Stomach, Glandular

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- \* Adrenal Cortex
    - Blood Vessel
    - Note: Vascular inflammation involves testicular arteries.
  - \* Heart
  - \* Kidney
    - Papilla, Urothelium
    - [ Nephropathy TGLs = 1 - 6+15 ]
  - \* Liver
    - Bile Duct
  - \* Lung
    - [ Infiltration Cellular TGLs = 3 - 4+5 ]
  - \* Lymph Node, Mandibular
    - [ Infiltration Cellular TGLs = 2 - 16 ]
  - \* Nose
  - \* Pancreas
  - \* Prostate
  - \* Spleen
- |  |                               |                         |
|--|-------------------------------|-------------------------|
|  | Hypertrophy                   | Mild                    |
|  | Inflammation                  | Chronic, Mild           |
|  | Cardiomyopathy                | Mild                    |
|  | Hyperplasia                   | Minimal                 |
|  | Nephropathy                   | Chronicprogr, Marked    |
|  | Clear Cell Focus              |                         |
|  | Hyperplasia                   | Minimal                 |
|  | Infiltration Cellular         | Histiocyte, Minimal     |
|  | Ectasia                       | Mild                    |
|  | Infiltration Cellular         | Plasma Cell, Mild       |
|  | Accumulation, Hyaline Droplet | Minimal                 |
|  | Hyperplasia                   | Marked                  |
|  | Adenoma                       |                         |
|  | Inflammation                  | Chronic Active, Minimal |
|  | Extramedullary Hematopoiesis  | Minimal                 |
|  | Pigment                       | Minimal                 |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 26

**TRT#:** 1

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 0/0 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101326

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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* Testes	Germinal Epith	Degeneration	Moderate
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Adenoma	
	C Cell	Hyperplasia	Moderate
	Follicular Cel	Hypertrophy	Minimal

---



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 27

TRT#: 1

SEX: Male

DAY ON TEST: 747

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101327

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla        | Blood Vessel               | * Bone                    | * Bone Marrow               |
| * Brain                  | * Epididymis               | * Esophagus               | * Eye                       |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lung                      |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           | * Pancreas                  |
| * Parathyroid Gland      | * Preputial Gland          | * Prostate                | * Salivary Glands           |
| * Seminal Vesicle        | * Skin                     | * Stomach, Glandular      | * Testes                    |
| * Thyroid Gland          | * Trachea                  | * Urinary Bladder         |                             |

OBSERVATIONS

- |                        |               |                               |                    |
|------------------------|---------------|-------------------------------|--------------------|
| * Adrenal Cortex       |               | Hypertrophy                   | Moderate           |
| * Harderian Gland      |               | Hyperplasia                   | Minimal            |
| * Heart                |               | Cardiomyopathy                | Minimal            |
| * Kidney               |               | Nephropathy                   | Chronicprogr, Mild |
| * Liver                |               | Clear Cell Focus              |                    |
| * Nose                 | Olfactory Epi | Accumulation, Hyaline Droplet | Marked             |
| * Pituitary Gland      | Pars Distalis | Hyperplasia                   | Marked             |
| * Spleen               |               | Extramedullary Hematopoiesis  | Minimal            |
| * Stomach, Forestomach | Epithelium    | Hyperplasia                   | Squamous, Minimal  |
| * Thymus               |               | Atrophy                       | Marked             |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 28

TRT#: 1

SEX: Male

DAY ON TEST: 747

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101328

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Blood Vessel
- \* Bone Marrow
- \* Brain
- \* Epididymis
- \* Eye
- \* Harderian Gland
- \* Heart
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Pituitary Gland
- \* Preputial Gland
- \* Prostate
- \* Salivary Glands
- \* Seminal Vesicle
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Testes
- \* Trachea
- \* Urinary Bladder

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- \* Intestine Large, Colon
- Parasite Metazoan
- \* Islets, Pancreatic
- Hyperplasia
- \* Kidney
- Nephropathy
- \* Liver
- Clear Cell Focus
- \* Lung
- Infiltration Cellular
- Inflammation
- [ Infiltration Cellular TGLs = 3 - 4+5 ]
- \* Nose
- Olfactory Epi
- \* Pancreas
- Acinus
- \* Skin
- Keratoacanthoma
- [ Keratoacanthoma TGLs = 1 - 15 ]
- \* Spleen
- Extramedullary Hematopoiesis
- Pigment
- \* Thymus
- Atrophy
- \* Thyroid Gland
- C Cell
- Adenoma
- [ Adenoma TGLs = 2 - 16 ]

Mild  
 Chronicprogr, Minimal  
 Histiocyte, Mild  
 Multifocal, Granulomatous, Minimal  
 Moderate  
 Minimal  
 Minimal  
 Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 29

TRT#: 1

SEX: Male

DAY ON TEST: 434

DOSE: 0/0 ppm

DISP: Natural Death

HISTO: 1101329

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Liver                     | * Lung                   |
| * Lymph Node, Mandibular   | * Lymph Node, Mesenteric  | * Mammary Gland             | * Nose                   |
| * Pancreas                 | * Parathyroid Gland       | * Pituitary Gland           | * Preputial Gland        |
| * Prostate                 | * Salivary Glands         | * Seminal Vesicle           | * Skin                   |
| * Stomach, Forestomach     | * Stomach, Glandular      | * Testes                    | * Thyroid Gland          |
| * Trachea                  | * Urinary Bladder         |                             |                          |

OBSERVATIONS

- |          |             |                    |
|----------|-------------|--------------------|
| * Kidney | Nephropathy | Chronicprogr, Mild |
| * Spleen | Pigment     | Mild               |
| * Thymus | Atrophy     | Moderate           |

PRIMARY CAUSE OF DEATH - UNCERTAIN

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 30

TRT#: 1

SEX: Male

DAY ON TEST: 744

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101330

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Skin
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Pancreas
- \* Salivary Glands
- \* Stomach, Glandular
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Adrenal Cortex
  - Blood Vessel
  - Note: Vascular inflammation involves the testicular arteries.
- \* Heart
- \* Kidney
  - Renal Tubule
  - Papilla, Urothelium
- [ Adenoma TGLs = 1 - 16 ]
- \* Liver
- \* Lung
- \* Nose
- \* Pituitary Gland
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Hypertrophy
- Inflammation
- Cardiomyopathy
- Adenoma
- Hyperplasia
- Nephropathy
- Clear Cell Focus
- Inflammation
- Accumulation, Hyaline Droplet
- Hyperplasia
- Extramedullary Hematopoiesis
- Atrophy
- Adenoma
- Minimal
- Mild
- Minimal
- Chronicprogr, Moderate
- Minimal
- Chronic Active, Minimal
- Mild
- Minimal
- Minimal
- Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 31

TRT#: 1

SEX: Male

DAY ON TEST: 744

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101331

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone Marrow
- \* Eye
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Trachea

OBSERVATIONS

- \* Adrenal Medulla
- \* Heart
- \* Intestine Large, Colon
- \* Kidney
- \* Liver
- \* Lung
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Pheochromocytoma Benign
- Cardiomyopathy
- Parasite Metazoan
- Nephropathy
- Clear Cell Focus
- Bile Duct
- Hyperplasia
- Inflammation
- Olfactory Epi
- Accumulation, Hyaline Droplet
- Acinus
- Atrophy
- Hyperplasia
- Acinus
- Hyperplasia
- Pars Distalis
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- C Cell
- Hyperplasia
- Minimal
- Chronicprogr, Minimal
- Minimal
- Multifocal, Granulomatous, Minimal
- Mild
- Minimal
- Moderate
- Mild
- Minimal
- Minimal
- Mild
- Mild

Note: Atrophy and hyperplasia in the same animal.

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 32

TRT#: 1

SEX: Male

DAY ON TEST: 697

DOSE: 0/0 ppm

DISP: Natural Death

HISTO: 1101332

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Thyroid Gland
- Blood Vessel
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Preputial Gland
- \* Skin
- \* Trachea
- \* Bone
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Nose
- \* Prostate
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Bone Marrow
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Pancreas
- \* Salivary Glands
- \* Testes

OBSERVATIONS

- \* Adrenal Medulla
- \* Brain
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
- \* Lung
- \* Pituitary Gland
- \* Spleen
- \* Stomach, Forestomach
- \* Thymus
- Bile Duct
- Pars Distalis
- Lymph Follic
- Epithelium
- [ Hyperplasia TGLs = 1 - 15 ]
- Hyperplasia
- Necrosis
- Adenoma
- Nephropathy
- Hyperplasia
- Infiltration Cellular
- Hyperplasia
- Atrophy
- Pigment
- Hyperplasia
- Inflammation
- Atrophy
- Minimal
- Mild
- Chronicprogr, Mild
- Minimal
- Histiocyte, Mild
- Minimal
- Moderate
- Minimal
- Squamous, Mild
- Minimal
- Marked

PRIMARY CAUSE OF DEATH

- Islets, Pancreatic Adenoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 33

TRT#: 1

SEX: Male

DAY ON TEST: 743

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101333

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla           | Blood Vessel             | * Bone                     | * Bone Marrow             |
| * Epididymis                | * Esophagus              | * Eye                      | * Harderian Gland         |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Liver                   |
| * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           |
| * Nose                      | * Parathyroid Gland      | * Preputial Gland          | * Prostate                |
| * Salivary Glands           | * Seminal Vesicle        | * Skin                     | * Stomach, Forestomach    |
| * Stomach, Glandular        | * Testes                 | * Trachea                  | * Urinary Bladder         |

OBSERVATIONS

- |                          |               |                              |                       |
|--------------------------|---------------|------------------------------|-----------------------|
| * Adrenal Cortex         |               | Hypertrophy                  | Minimal               |
| * Brain                  |               | Gliosis                      | Focal, Minimal        |
| * Islets, Pancreatic     |               | Adenoma                      |                       |
| * Kidney                 |               | Nephropathy                  | Chronicprogr, Minimal |
| * Pancreas               | Acinus        | Hyperplasia                  | Mild                  |
| * Pituitary Gland        | Pars Distalis | Adenoma                      |                       |
| [ Adenoma TGLs = 1 - 9 ] |               |                              |                       |
| * Spleen                 |               | Extramedullary Hematopoiesis | Mild                  |
|                          |               | Pigment                      | Minimal               |
| * Thymus                 |               | Atrophy                      | Mild                  |
| * Thyroid Gland          | C Cell        | Hyperplasia                  | Mild                  |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 34

TRT#: 1

SEX: Male

DAY ON TEST: 743

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101334

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric |
| * Mammary Gland            | * Pancreas                | * Parathyroid Gland         | * Preputial Gland        |
| * Prostate                 | * Salivary Glands         | * Seminal Vesicle           | * Stomach, Forestomach   |
| * Stomach, Glandular       | * Testes                  | * Trachea                   | * Urinary Bladder        |

OBSERVATIONS

- |                   |  |                               |                                    |
|-------------------|--|-------------------------------|------------------------------------|
| * Kidney          |  | Nephropathy                   | Chronicprogr, Mild                 |
| * Liver           |  | Clear Cell Focus              |                                    |
|                   | Bile Duct                                | Hyperplasia                   | Minimal                            |
|                   |  | Inflammation                  | Focal, Minimal                     |
| * Lung            |  | Infiltration Cellular         | Histiocyte, Minimal                |
|                   |  | Inflammation                  | Multifocal, Granulomatous, Minimal |
|                   | [ Infiltration Cellular TGLs = 2 - 4+5 ] |                               |                                    |
| * Nose            | Olfactory Epi                            | Accumulation, Hyaline Droplet | Mild                               |
| * Pituitary Gland | Pars Distalis                            | Hyperplasia                   | Moderate                           |
| * Skin            |  | Inflammation                  | Marked                             |
|                   | [ Inflammation TGLs = 1 - 17 ]           |                               |                                    |
| * Spleen          |  | Extramedullary Hematopoiesis  | Mild                               |
|                   |  | Pigment                       | Minimal                            |
| * Thymus          |  | Atrophy                       | Moderate                           |
| * Thyroid Gland   | Follicular Cel                           | Hypertrophy                   | Minimal                            |

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 35

TRT#: 1

SEX: Male

DAY ON TEST: 746

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101335

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Skin
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Lung
- \* Pancreas
- \* Salivary Glands
- \* Stomach, Glandular

MISSING

- \* Thymus

OBSERVATIONS

- \* Adrenal Medulla
- \* Heart
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
- \* Nose
- \* Prostate
- \* Spleen
- \* Thyroid Gland
- [ Adenoma TGLs = 1 - 16 ]
- Bile Duct
- Olfactory Epi
- Ventral
- C Cell
- Hyperplasia
- Cardiomyopathy
- Adenoma
- Nephropathy
- Clear Cell Focus
- Hyperplasia
- Inflammation
- Accumulation, Hyaline Droplet
- Inflammation
- Extramedullary Hematopoiesis
- Pigment
- Adenoma
- Mild
- Mild
- Chronicprogr, Moderate
- Minimal
- Focal, Minimal
- Mild
- Chronic Active, Minimal
- Minimal
- Minimal

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 36

TRT#: 1

SEX: Male

DAY ON TEST: 746

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101336

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla           | Blood Vessel             | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           |
| * Parathyroid Gland         | * Preputial Gland        | * Prostate                 | * Salivary Glands         |
| * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      |
| * Trachea                   | * Urinary Bladder        |                            |                           |

OBSERVATIONS

- |                   |                           |                               |                    |
|-------------------|---------------------------|-------------------------------|--------------------|
| * Adrenal Cortex  |                           | Degeneration                  | Cystic, Minimal    |
| * Heart           |                           | Cardiomyopathy                | Minimal            |
| * Kidney          |                           | Nephropathy                   | Chronicprogr, Mild |
| * Liver           |                           | Clear Cell Focus              |                    |
|                   |                           | Inflammation                  | Focal, Minimal     |
| * Nose            | Olfactory Epi             | Accumulation, Hyaline Droplet | Mild               |
| * Pancreas        | Acinus                    | Hyperplasia                   | Minimal            |
| * Pituitary Gland | Pars Distalis             | Hyperplasia                   | Moderate           |
| * Spleen          |                           | Extramedullary Hematopoiesis  | Minimal            |
|                   |                           | Pigment                       | Minimal            |
| * Testes          | Bilateral, Germinal Epith | Degeneration                  | Moderate           |
| * Thymus          |                           | Atrophy                       | Moderate           |
| * Thyroid Gland   | C Cell                    | Adenoma                       |                    |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 37

TRT#: 1

SEX: Male

DAY ON TEST: 655

DOSE: 0/0 ppm

DISP: Moribund Sacrifice

HISTO: 1101337

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Pancreas
- \* Preputial Gland
- \* Prostate
- \* Salivary Glands
- \* Seminal Vesicle
- \* Skin
- \* Stomach, Forestomach
- \* Thyroid Gland
- \* Trachea
- \* Urinary Bladder

OBSERVATIONS

- Blood Vessel
  - Inflammation
  - Chronic, Mild
  - Mineral
  - Mild
- Note: Mineralized vessels include aorta and salivary gland vessels.
- \* Bone
  - Hyperostosis
  - Mild
- \* Heart
  - Cardiomyopathy
  - Moderate
- \* Kidney
  - Mineral
  - Mild
  - Nephropathy
  - Chronicprogr, Marked
- [ Nephropathy TGLs = 1 - 6 ]
- \* Liver
  - Eosinophilic Focus
  - Bile Duct
    - Hyperplasia
    - Minimal
    - Inflammation
    - Focal, Minimal
  - \* Lung
    - Alveolar Epith
    - Hypertrophy
    - Minimal
  - \* Nose
    - Respirat Epith
    - Inflammation
    - Mild
  - \* Parathyroid Gland
    - Hyperplasia
    - Moderate
  - \* Pituitary Gland
    - Pars Distalis
    - Adenoma
  - [ Adenoma TGLs = 3 - 9 ]
  - \* Spleen
    - Pigment
    - Mild
  - \* Stomach, Glandular
    - Mineral
    - Mild
  - \* Testes
    - Bilateral, Germinal Epith
    - Degeneration
    - Moderate
  - [ Degeneration TGLs = 2 - 12 ]
  - \* Thymus
    - Atrophy
    - Marked

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 38

TRT#: 1

SEX: Male

DAY ON TEST: 744

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101338

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Blood Vessel
- \* Bone Marrow
- \* Brain
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Harderian Gland
- \* Heart
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Pancreas
- \* Parathyroid Gland
- \* Pituitary Gland
- \* Preputial Gland
- \* Prostate
- \* Salivary Glands
- \* Seminal Vesicle
- \* Skin
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Testes
- \* Thyroid Gland
- \* Trachea
- \* Urinary Bladder

OBSERVATIONS

- \* Islets, Pancreatic
  - \* Kidney
  - \* Liver
  - \* Lung
  - \* Nose
  - \* Spleen
  - \* Thymus
- Adenoma
- Nephropathy
- Clear Cell Focus
- Hyperplasia
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Chronicprogr, Mild
- Minimal
- Histiocyte, Mild
- Mild
- Mild
- Minimal
- Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 39

TRT#: 1

SEX: Male

DAY ON TEST: 746

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101339

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Glandular
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Mammary Gland
- \* Seminal Vesicle
- \* Thyroid Gland
- \* Bone Marrow
- \* Eye
- \* Intestine Small, Duodenum
- \* Lung
- \* Pituitary Gland
- \* Skin
- \* Trachea

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- \* Adrenal Cortex
- \* Heart
- \* Intestine Large, Colon
- \* Kidney
- \* Liver
- [ Hepatodiaphragmatic Nodule
- \* Nose
- \* Pancreas
- \* Salivary Glands
- \* Spleen
- \* Testes
- \* Thymus
- Zona Fascult
- Bile Duct
- TGLs = 1 - 16 ]
- Olfactory Epi
- Acinus
- Bilateral, Germinal Epith
- Interstit Cell
- Hyperplasia
- Cardiomyopathy
- Parasite Metazoan
- Nephropathy
- Clear Cell Focus
- Hepatodiaphragmatic Nodule
- Hyperplasia
- Inflammation
- Accumulation, Hyaline Droplet
- Atrophy
- Atrophy
- Extramedullary Hematopoiesis
- Pigment
- Degeneration
- Hyperplasia
- Atrophy
- Minimal
- Mild
- Chronicprogr, Moderate
- Mild
- Focal, Minimal
- Mild
- Minimal
- Mild
- Mild
- Minimal
- Minimal
- Marked
- Mild
- Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 40

TRT#: 1

SEX: Male

DAY ON TEST: 746

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101340

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Skin
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Pancreas
- \* Salivary Glands
- \* Stomach, Glandular

OBSERVATIONS

- \* Adrenal Medulla
- \* Heart
- \* Kidney
- \* Liver
- \* Lung
- [ Infiltration Cellular TGLs = 1 - 4+5 ]
- \* Nose
- \* Pituitary Gland
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Hyperplasia
- Cardiomyopathy
- Nephropathy
- Clear Cell Focus
- Infiltration Cellular
- Inflammation
- Accumulation, Hyaline Droplet
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Hypertrophy
- Minimal
- Minimal
- Chronicprogr, Marked
- Histiocyte, Minimal
- Chronic Active, Minimal
- Minimal
- Mild
- Mild
- Minimal
- Minimal
- Minimal

Note: Basal accumulation of eosinophilic material that is not yet hyaline.

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 41

TRT#: 1

SEX: Male

DAY ON TEST: 745

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101341

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Epididymis	* Esophagus	* Eye	* Harderian Gland
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lung
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Parathyroid Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Stomach, Forestomach
* Stomach, Glandular	* Thyroid Gland	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Brain	Cerebellum	Granular Cell Tumor Benign	
	[ Granular Cell Tumor Benign TGLs = 3 - 10 ]		
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Chronicprogr, Mild
* Liver		Clear Cell Focus	
* Mammary Gland		Fibroadenoma	
	[ Fibroadenoma TGLs = 1 - 17 ]		
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Minimal
* Pancreas	Acinus	Atrophy	Minimal
	Acinus	Hyperplasia	Moderate
* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
* Skin		Keratoacanthoma	
	[ Keratoacanthoma TGLs = 2 - 18 ]		
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Testes	Germinal Epith	Degeneration	Minimal
* Thymus		Atrophy	Mild

\* PROTOCOL REQUIRED TISSUE





Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 43

TRT#: 1

SEX: Male

DAY ON TEST: 746

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101343

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Stomach, Forestomach
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Mammary Gland
- \* Prostate
- \* Trachea
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lung
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Urinary Bladder

OBSERVATIONS

- \* Adrenal Cortex
  - Zona Fascult
- Blood Vessel
  - Note: Vascular inflammation involves an artery in the aorta section.
- \* Heart
- \* Kidney
- \* Liver
- \* Nose
  - Olfactory Epi
- \* Pancreas
  - Acinus
  - [ Hyperplasia TGLs = 3 - 15 ]
- \* Salivary Glands
- \* Skin
  - [ Cyst Epithelial Inclusion TGLs = 1 - 16 ]
- \* Spleen
- \* Testes
  - Germinal Epith
  - [ Edema TGLs = 2 - 12 ]
- \* Thymus
- \* Thyroid Gland
  - C Cell

- Degeneration
- Hyperplasia
- Inflammation
- Cardiomyopathy
- Nephropathy
- Clear Cell Focus
- Degeneration
- Accumulation, Hyaline Droplet
- Hyperplasia
- Atrophy
- Cyst Epithelial Inclusion
- Extramedullary Hematopoiesis
- Pigment
- Degeneration
- Edema
- Atrophy
- Hyperplasia

- Cystic, Minimal
- Minimal
- Minimal
- Moderate
- Chronicprogr, Marked
- Cystic, Minimal
- Minimal
- Marked
- Minimal
- Mild
- Minimal
- Minimal
- Moderate
- Mild
- Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 44

TRT#: 1

SEX: Male

DAY ON TEST: 137

DOSE: 0/0 ppm

DISP: Moribund Sacrifice

HISTO: 1101344

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Liver                     | * Lung                   | * Lymph Node, Mandibular   |
| * Lymph Node, Mesenteric  | * Mammary Gland             | * Nose                   | * Pancreas                 |
| * Parathyroid Gland       | * Pituitary Gland           | * Preputial Gland        | * Prostate                 |
| * Salivary Glands         | * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     |
| * Stomach, Glandular      | * Testes                    | * Thymus                 | * Trachea                  |
| * Urinary Bladder         |                             |                          |                            |

OBSERVATIONS

- |                 |                                 |                |          |
|-----------------|---------------------------------|----------------|----------|
| * Heart         |                                 | Cardiomyopathy | Minimal  |
| * Kidney        |                                 | Nephroblastoma |          |
|                 | [ Nephroblastoma TGLs = 1 - 6 ] |                |          |
| * Spleen        |                                 | Pigment        | Minimal  |
| * Thyroid Gland | Follicular Cel                  | Hypertrophy    | Moderate |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 45

TRT#: 1

SEX: Male

DAY ON TEST: 747

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101345

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Blood Vessel           | * Bone                     | * Bone Marrow             | * Brain                     |
| * Epididymis             | * Esophagus                | * Eye                     | * Harderian Gland           |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lung                      |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           | * Nose                      |
| * Parathyroid Gland      | * Preputial Gland          | * Prostate                | * Salivary Glands           |
| * Seminal Vesicle        | * Skin                     | * Stomach, Forestomach    | * Stomach, Glandular        |
| * Trachea                | * Urinary Bladder          |                           |                             |

OBSERVATIONS

- |                   |                          |                              |                        |
|-------------------|--------------------------|------------------------------|------------------------|
| * Adrenal Cortex  |                          | Degeneration                 | Cystic, Minimal        |
|                   |                          | Hypertrophy                  | Minimal                |
| * Adrenal Medulla |                          | Hyperplasia                  | Minimal                |
| * Heart           |                          | Cardiomyopathy               | Mild                   |
| * Kidney          |                          | Nephropathy                  | Chronicprogr, Moderate |
| * Liver           |                          | Clear Cell Focus             |                        |
|                   | Bile Duct                | Hyperplasia                  | Minimal                |
|                   |                          | Inflammation                 | Focal, Minimal         |
| * Pancreas        | Acinus                   | Atrophy                      | Minimal                |
| * Pituitary Gland | Pars Distalis            | Adenoma                      |                        |
|                   | [ Adenoma TGLs = 1 - 9 ] |                              |                        |
| * Spleen          |                          | Extramedullary Hematopoiesis | Minimal                |
|                   |                          | Pigment                      | Minimal                |
| * Testes          | Germinal Epith           | Degeneration                 | Mild                   |
| * Thymus          |                          | Atrophy                      | Moderate               |
| * Thyroid Gland   | C Cell                   | Adenoma                      |                        |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 46

TRT#: 1

SEX: Male

DAY ON TEST: 194

DOSE: 0/0 ppm

DISP: Moribund Sacrifice

HISTO: 1101346

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Blood Vessel
- \* Bone
- \* Bone Marrow
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Liver
- \* Lung
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Nose
- \* Pancreas
- \* Parathyroid Gland
- \* Pituitary Gland
- \* Preputial Gland
- \* Prostate
- \* Salivary Glands
- \* Seminal Vesicle
- \* Skin
- \* Stomach, Glandular
- \* Testes
- \* Thyroid Gland
- \* Trachea
- \* Urinary Bladder

OBSERVATIONS

- \* Brain
  - Compression
  - Minimal
  - Meninges
    - [ Compression TGLs = 2 - 10 ]
    - [ Schwannoma Malignant TGLs = 1 - 15 ]
- \* Harderian Gland
  - Schwannoma Malignant
  - Metastatic (Brain)
- \* Heart
  - Cardiomyopathy
  - Minimal
- \* Kidney
  - Nephropathy
  - Chronicprogr, Moderate
- \* Spleen
  - Pigment
  - Minimal
- \* Stomach, Forestomach
  - Epithelium
  - Hyperplasia
  - Squamous, Mild
  - Inflammation
  - Moderate
  - Ulcer
  - Marked
- \* Thymus
  - [ Inflammation TGLs = 3 - 16 ]
  - Atrophy
  - Mild

PRIMARY CAUSE OF DEATH - Brain Meninges Schwannoma Malignant

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 47

TRT#: 1

SEX: Male

DAY ON TEST: 745

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101347

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla           | Blood Vessel             | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            | * Parathyroid Gland       |
| * Pituitary Gland           | * Preputial Gland        | * Prostate                 | * Salivary Glands         |
| * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      |
| * Testes                    | * Trachea                | * Urinary Bladder          |                           |

OBSERVATIONS

- |                  |                |                               |                        |
|------------------|----------------|-------------------------------|------------------------|
| * Adrenal Cortex |                | Hypertrophy                   | Minimal                |
| * Heart          |                | Cardiomyopathy                | Minimal                |
| * Kidney         |                | Nephropathy                   | Chronicprogr, Moderate |
| * Liver          |                | Clear Cell Focus              |                        |
|                  |                | Inflammation                  | Focal, Minimal         |
| * Lung           | Alveolar Epith | Hyperplasia                   | Marked                 |
|                  |                | Infiltration Cellular         | Histiocyte, Minimal    |
| * Nose           | Olfactory Epi  | Accumulation, Hyaline Droplet | Mild                   |
| * Pancreas       | Acinus         | Atrophy                       | Minimal                |
| * Spleen         |                | Extramedullary Hematopoiesis  | Minimal                |
| * Thymus         |                | Atrophy                       | Moderate               |
| * Thyroid Gland  | C Cell         | Adenoma                       |                        |
|                  | C Cell         | Hyperplasia                   | Marked                 |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 48

TRT#: 1

SEX: Male

DAY ON TEST: 745

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101348

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Preputial Gland
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Nose
- \* Salivary Glands
- \* Thyroid Gland
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lung
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Trachea

OBSERVATIONS

- \* Adrenal Medulla                      Bilateral                      Pheochromocytoma Benign
- Blood Vessel                              Inflammation                      Mild
- Note: Inflammation involves testicular arteries.
- \* Heart                                      Cardiomyopathy                      Mild
- \* Kidney                                      Nephropathy                      Chronicprogr, Marked
- \* Liver                                      Clear Cell Focus
- Bile Duct                      Hyperplasia                      Minimal
- Inflammation                      Focal, Minimal
- \* Lymph Node, Mandibular                      Ectasia                      Mild
- [ Ectasia    TGLs = 2 - 10 ]
- \* Pancreas                                      Acinus                      Adenoma                      Multiple
- Acinus                      Hyperplasia                      Mild
- [ Adenoma    TGLs = 3 - 17 ]
- \* Prostate                                      Epithelium, Ventral                      Hyperplasia                      Minimal
- \* Skin                                      Keratoacanthoma
- [ Keratoacanthoma    TGLs = 1 - 16 ]
- \* Spleen                                      Extramedullary Hematopoiesis                      Mild
- Pigment                      Mild
- \* Testes                                      Bilateral, Germinal Epith                      Degeneration                      Minimal
- \* Thymus                                      Atrophy                      Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 49

TRT#: 1

SEX: Male

DAY ON TEST: 744

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101349

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| Blood Vessel             | * Bone                     | * Bone Marrow             | * Brain                     |
| * Epididymis             | * Esophagus                | * Eye                     | * Harderian Gland           |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Lymph Node, Mandibular  | * Lymph Node, Mesenteric    |
| * Mammary Gland          | * Parathyroid Gland        | * Preputial Gland         | * Salivary Glands           |
| * Seminal Vesicle        | * Skin                     | * Stomach, Forestomach    | * Stomach, Glandular        |
| * Testes                 | * Thyroid Gland            | * Trachea                 | * Urinary Bladder           |

OBSERVATIONS

- |                      |  |                               |                     |
|----------------------|--|-------------------------------|---------------------|
| * Adrenal Cortex     |  | Hypertrophy                   | Mild                |
| * Adrenal Medulla    |  | Hyperplasia                   | Moderate            |
| * Heart              |  | Cardiomyopathy                | Minimal             |
| * Islets, Pancreatic |  | Hyperplasia                   | Minimal             |
| * Kidney             |  | Nephropathy                   | Chronicprogr, Mild  |
| * Liver              |  | Clear Cell Focus              |                     |
| * Lung               |  | Infiltration Cellular         | Histiocyte, Minimal |
|                      | [ Infiltration Cellular TGLs = 1 - 4+5 ] |                               |                     |
| * Nose               | Olfactory Epi                            | Accumulation, Hyaline Droplet | Minimal             |
| * Pancreas           | Acinus                                   | Hyperplasia                   | Minimal             |
| * Pituitary Gland    | Pars Distalis                            | Adenoma                       |                     |
| * Prostate           | Epithelium, Ventral                      | Hyperplasia                   | Minimal             |
| * Spleen             |  | Extramedullary Hematopoiesis  | Mild                |
|                      |  | Pigment                       | Minimal             |
| * Thymus             |  | Atrophy                       | Moderate            |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 50

TRT#: 1

SEX: Male

DAY ON TEST: 744

DOSE: 0/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101350

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Thyroid Gland	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Medulla		Pheochromocytoma Benign	
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Chronicprogr, Mild
* Liver		Clear Cell Focus	
		Eosinophilic Focus	
	Bile Duct	Hyperplasia	Minimal
		Inflammation	Focal, Minimal
* Lung		Infiltration Cellular	Histiocyte, Minimal
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Atrophy	Mild
	Acinus	Hyperplasia	Moderate
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Testes	Germinal Epith	Degeneration	Minimal
* Thymus		Atrophy	Moderate

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 61

TRT#: 2

SEX: Male

DAY ON TEST: 743

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101361

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Bone                   | * Bone Marrow              | * Brain                   | * Epididymis                |
| * Esophagus              | * Eye                      | * Harderian Gland         | * Heart                     |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lung                      |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           | * Pancreas                  |
| * Parathyroid Gland      | * Prostate                 | * Salivary Glands         | * Seminal Vesicle           |
| * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      | * Thyroid Gland             |
| * Trachea                | * Urinary Bladder          |                           |                             |

OBSERVATIONS

- |   |                |                               |                        |
|---|----------------|-------------------------------|------------------------|
| * Adrenal Cortex  | Zona Fascult   | Hyperplasia                   | Mild                   |
|   |                | Hypertrophy                   | Minimal                |
| * Adrenal Medulla   |                | Hyperplasia                   | Minimal                |
| Blood Vessel  |                | Inflammation                  | Mild                   |
| Note: Vascular inflammation involves epididymal, pulmonary, and thyroid arteries. |                |                               |                        |
| * Kidney  |                | Nephropathy                   | Chronicprogr, Moderate |
| * Liver   |                | Clear Cell Focus              |                        |
|   | Bile Duct      | Hyperplasia                   | Minimal                |
|   |                | Inflammation                  | Focal, Minimal         |
| * Nose  | Olfactory Epi  | Accumulation, Hyaline Droplet | Moderate               |
| * Pituitary Gland   | Pars Distalis  | Hyperplasia                   | Marked                 |
| * Preputial Gland   | Duct           | Papilloma                     |                        |
| * Spleen  |                | Extramedullary Hematopoiesis  | Mild                   |
|   |                | Pigment                       | Minimal                |
| * Testes  | Interstit Cell | Hyperplasia                   | Mild                   |
| * Thymus  |                | Atrophy                       | Marked                 |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 62

TRT#: 2

SEX: Male

DAY ON TEST: 743

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101362

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Skin
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Mammary Gland
- \* Prostate
- \* Stomach, Glandular
- \* Bone Marrow
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lung
- \* Parathyroid Gland
- \* Salivary Glands
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
- \* Eye
- \* Heart
- \* Kidney
- \* Liver
- \* Nose
- \* Pancreas
- \* Spleen
- \* Stomach, Forestomach
- \* Testes
- \* Thymus
- \* Thyroid Gland
- Retina
- Bile Duct
- Olfactory Epi
- Acinus
- Epithelium
- Germinal Epith
- C Cell
- Hypertrophy
- Degeneration
- Cardiomyopathy
- Nephropathy
- Clear Cell Focus
- Hyperplasia
- Inflammation
- Accumulation, Hyaline Droplet
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Hyperplasia
- Degeneration
- Atrophy
- Hyperplasia
- Mild
- Mild
- Minimal
- Chronicprogr, Moderate
- Minimal
- Focal, Minimal
- Mild
- Minimal
- Mild
- Minimal
- Squamous, Mild
- Minimal
- Moderate
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 63

TRT#: 2

SEX: Male

DAY ON TEST: 745

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101363

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric   | * Mammary Gland           | * Parathyroid Gland         | * Pituitary Gland        |
| * Preputial Gland          | * Prostate                | * Salivary Glands           | * Seminal Vesicle        |
| * Skin                     | * Stomach, Forestomach    | * Stomach, Glandular        | * Trachea                |
| * Urinary Bladder          |                           |                             |                          |

OBSERVATIONS

- |                 |                |                               |                    |
|-----------------|----------------|-------------------------------|--------------------|
| * Kidney        |                | Nephropathy                   | Chronicprogr, Mild |
| * Liver         |                | Clear Cell Focus              |                    |
|                 | Bile Duct      | Hyperplasia                   | Minimal            |
| * Nose          | Olfactory Epi  | Accumulation, Hyaline Droplet | Minimal            |
| * Pancreas      | Acinus         | Atrophy                       | Minimal            |
| * Spleen        |                | Extramedullary Hematopoiesis  | Mild               |
|                 |                | Pigment                       | Minimal            |
| * Testes        | Germinal Epith | Degeneration                  | Minimal            |
| * Thymus        |                | Atrophy                       | Moderate           |
| * Thyroid Gland | C Cell         | Hyperplasia                   | Minimal            |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 64

TRT#: 2

SEX: Male

DAY ON TEST: 745

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101364

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Chronicprogr, Moderate
* Liver		Clear Cell Focus	
	Bile Duct	Hyperplasia	Minimal
* Lung		Infiltration Cellular	Histiocyte, Minimal
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Marked
	Respirat Epith	Inflammation	Minimal
* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal
* Thymus		Atrophy	Mild
* Thyroid Gland	C Cell	Adenoma	

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 65

TRT#: 2

SEX: Male

DAY ON TEST: 747

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101365

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder
- Blood Vessel
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone
- \* Eye
- \* Intestine Small, Duodenum
- \* Lung
- \* Preputial Gland
- \* Skin
- \* Thymus
- \* Bone Marrow
- \* Harderian Gland
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
- \* Brain
- [ Oligodendroglioma Benign TGLs = 1 - 10 ]
- \* Heart
- \* Intestine Large, Colon
- \* Kidney
- \* Liver
- \* Lymph Node, Mandibular
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Spleen
- \* Thyroid Gland
- Degeneration
- Hypertrophy
- Oligodendroglioma Benign
- Cardiomyopathy
- Parasite Metazoan
- Nephropathy
- Clear Cell Focus
- Inflammation
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Hyperplasia
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Hypertrophy
- Cystic, Minimal
- Minimal
- Minimal
- Chronicprogr, Mild
- Focal, Minimal
- Plasma Cell, Mild
- Marked
- Minimal
- Mild
- Mild
- Minimal
- Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 66

TRT#: 2

SEX: Male

DAY ON TEST: 747

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101366

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Heart                  | * Intestine Large, Cecum   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            |
| * Pancreas                | * Parathyroid Gland         | * Preputial Gland        | * Prostate                 |
| * Salivary Glands         | * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     |
| * Stomach, Glandular      | * Trachea                   | * Urinary Bladder        |                            |

OBSERVATIONS

- |                          |  |                               |                       |
|--------------------------|--|-------------------------------|-----------------------|
| * Intestine Large, Colon |  | Parasite Metazoan             |                       |
| * Kidney                 |  | Nephropathy                   | Chronicprogr, Minimal |
| * Liver                  |  | Clear Cell Focus              |                       |
| * Lung                   |  | Infiltration Cellular         | Histiocyte, Mild      |
|                          | [ Infiltration Cellular TGLs = 1 - 4+5 ]                   |                               |                       |
| * Nose                   | Olfactory Epi  | Accumulation, Hyaline Droplet | Moderate              |
|                          | Respirat Epith   | Inflammation                  | Minimal               |
|                          | Note: Inflammation is primarily within the nasal passages. |                               |                       |
| * Pituitary Gland        | Pars Distalis  | Hyperplasia                   | Mild                  |
| * Spleen                 |  | Extramedullary Hematopoiesis  | Minimal               |
| * Testes                 | Bilateral, Germinal Epith                                  | Degeneration                  | Minimal               |
|                          | Interstit Cell   | Hyperplasia                   | Mild                  |
| * Thymus                 |  | Atrophy                       | Moderate              |
| * Thyroid Gland          | Follicular Cel   | Hypertrophy                   | Minimal               |

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 68

TRT#: 2

SEX: Male

DAY ON TEST: 742

DOSE: 300/0 ppm

DISP: Moribund Sacrifice

HISTO: 1101368

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Thyroid Gland
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Trachea
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder

OBSERVATIONS

- \* Adrenal Cortex
  - Leukemia Mononuclear
  - Necrosis
- \* Adrenal Medulla
  - Hyperplasia
  - Pheochromocytoma Benign
- Blood Vessel
  - Inflammation

Note: Vascular inflammation involves the testicular arterioles.
- \* Heart
  - Cardiomyopathy
- \* Kidney
  - Nephropathy
- \* Liver
  - Leukemia Mononuclear
- \* Lung
  - Leukemia Mononuclear
- \* Nose
  - Olfactory Epi
- \* Pancreas
  - Acinus
- \* Pituitary Gland
  - Rathkes Cleft
- \* Spleen
  - Leukemia Mononuclear

[ Leukemia Mononuclear TGLs = 1 - 6 ]
- \* Testes
  - Interstitial Cell
- \* Thymus
  - Adenoma
  - Atrophy

PRIMARY CAUSE OF DEATH - Spleen Leukemia Mononuclear

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 69

TRT#: 2

SEX: Male

DAY ON TEST: 745

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101369

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla         | Blood Vessel                | * Bone                   | * Bone Marrow              |
| * Brain                   | * Epididymis                | * Esophagus              | * Eye                      |
| * Harderian Gland         | * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   |
| * Mammary Gland           | * Pancreas                  | * Parathyroid Gland      | * Preputial Gland          |
| * Prostate                | * Salivary Glands           | * Seminal Vesicle        | * Skin                     |
| * Stomach, Forestomach    | * Stomach, Glandular        | * Testes                 | * Thyroid Gland            |
| * Trachea                 | * Urinary Bladder           |                          |                            |

OBSERVATIONS

- |                   |               |                               |                        |
|-------------------|---------------|-------------------------------|------------------------|
| * Adrenal Cortex  | Zona Fascult  | Degeneration                  | Cystic, Minimal        |
|                   |               | Hyperplasia                   | Minimal                |
|                   |               | Hypertrophy                   | Minimal                |
| * Kidney          |               | Nephropathy                   | Chronicprogr, Moderate |
| * Liver           |               | Clear Cell Focus              |                        |
|                   | Bile Duct     | Hyperplasia                   | Minimal                |
| * Nose            | Olfactory Epi | Accumulation, Hyaline Droplet | Marked                 |
| * Pituitary Gland | Pars Distalis | Hyperplasia                   | Minimal                |
| * Spleen          |               | Extramedullary Hematopoiesis  | Mild                   |
| * Thymus          |               | Atrophy                       | Moderate               |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 70

TRT#: 2

SEX: Male

DAY ON TEST: 745

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101370

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Parathyroid Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Cortex		Degeneration	Cystic, Minimal
* Heart		Cardiomyopathy	Mild
* Kidney		Nephropathy	Chronicprogr, Mild
* Liver		Clear Cell Focus	
	Bile Duct	Hyperplasia	Minimal
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Hyperplasia	Marked
	[ Adenoma TGLs = 1 - 15 ]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Hyperplasia	Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 71

TRT#: 2

SEX: Male

DAY ON TEST: 746

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101371

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Harderian Gland
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Mammary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

MISSING

\* Parathyroid Gland

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Eye	Retina	Degeneration	Mild
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Chronicprogr, Moderate
* Liver		Clear Cell Focus	
* Lung		Infiltration Cellular	Histiocyte, Minimal
	[ Infiltration Cellular TGLs = 1 - 4+5 ]		
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Marked
* Pancreas	Acinus	Atrophy	Mild
	Acinus	Hyperplasia	Minimal
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Thymus		Atrophy	Marked
* Thyroid Gland	C Cell	Adenoma	
	C Cell	Hyperplasia	Marked

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 72

TRT#: 2

SEX: Male

DAY ON TEST: 746

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101372

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Parathyroid Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Medulla		Hyperplasia	Moderate
* Kidney	Cortex	Cyst	
		Nephropathy	Chronicprogr, Moderate
[ Cyst TGLs = 1 - 6 ]			
* Liver		Clear Cell Focus	
		Eosinophilic Focus	
	Bile Duct	Hyperplasia	Minimal
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Minimal
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Hyperplasia	Mild
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Hyperplasia	Minimal

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 74

TRT#: 2

SEX: Male

DAY ON TEST: 583

DOSE: 300/0 ppm

DISP: Natural Death

HISTO: 1101374

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Nose	* Pancreas	* Parathyroid Gland	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Glandular	* Testes	* Thyroid Gland
* Trachea	* Urinary Bladder		

OBSERVATIONS

* Adrenal Cortex	Zona Fascult	Hyperplasia	Minimal
* Heart		Cardiomyopathy	Mild
* Kidney		Nephropathy	Chronicprogr, Moderate
* Liver		Extramedullary Hematopoiesis	Minimal
* Spleen	Lymph Follic	Atrophy	Moderate
		Extramedullary Hematopoiesis	Moderate
* Stomach, Forestomach	Epithelium	Erosion	Minimal
	Epithelium	Hyperplasia	Squamous, Mild
		Inflammation	Mild
* Thymus		Atrophy	Marked

PRIMARY CAUSE OF DEATH - Heart Cardiomyopathy

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 75

TRT#: 2

SEX: Male

DAY ON TEST: 746

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101375

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Heart
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Skin
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Prostate
- \* Stomach, Forestomach
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Pancreas
- \* Salivary Glands
- \* Stomach, Glandular
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
  - Degeneration
  - Hypertrophy
  - Inflammation
 Cystic, Minimal  
Minimal  
Chronic, Mild
- Blood Vessel
  - Note: Vascular inflammation involves the testicular arterioles.
- \* Intestine Large, Colon
  - Parasite Metazoan
- \* Kidney
  - [ Nephropathy TGLs = 1 - 6 ]
  - Nephropathy
 Chronicprogr, Marked
- \* Liver
  - Clear Cell Focus
- \* Lung
  - Foreign Body
  - Infiltration Cellular
  - Inflammation
 Histiocyte, Moderate  
Multifocal, Granulomatous, Mild
- [ Infiltration Cellular TGLs = 2 - 4+5 ]
- \* Nose
  - Olfactory Epi
 Accumulation, Hyaline Droplet  
Mild
- \* Pituitary Gland
  - Pars Distalis
 Hyperplasia  
Minimal
- \* Spleen
  - Extramedullary Hematopoiesis
  - Pigment
 Mild  
Minimal
- \* Testes
  - Bilateral, Germinal Epith
 Degeneration  
Moderate
- \* Thymus
  - Atrophy
 Marked
- \* Thyroid Gland
  - C Cell
 Hyperplasia  
Marked

\* PROTOCOL REQUIRED TISSUE





Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 77

TRT#: 2

SEX: Male

DAY ON TEST: 747

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101377

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Trachea
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Pancreas
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone Marrow
- \* Eye
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Skin
- \* Thyroid Gland

OBSERVATIONS

- \* Adrenal Cortex
- \* Heart
- \* Intestine Large, Colon
- \* Kidney
- \* Liver
- \* Lung
- [ Infiltration Cellular TGLs = 1 - 4+5 ]
- \* Lymph Node, Mandibular
- \* Nose
- \* Prostate
- \* Spleen
- \* Thymus
- Hypertrophy
- Cardiomyopathy
- Parasite Metazoan
- Nephropathy
- Clear Cell Focus
- Infiltration Cellular
- Atrophy
- Accumulation, Hyaline Droplet
- Inflammation
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Minimal
- Mild
- Chronicprogr, Mild
- Histiocyte, Minimal
- Minimal
- Minimal
- Chronic Active, Minimal
- Minimal
- Minimal
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 78

TRT#: 2

SEX: Male

DAY ON TEST: 747

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101378

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Skin
- \* Testes
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Spleen
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
    - [ Cyst TGLs = 2 - 16 ]
    - Blood Vessel
      - Note: Vascular inflammation involves a pancreatic artery.
  - \* Heart
    - Endocardium
  - \* Islets, Pancreatic
    - [ Adenoma TGLs = 1 - 15 ]
  - \* Kidney
  - \* Liver
    - Bile Duct
  - \* Lung
    - [ Infiltration Cellular TGLs = 3 - 4+5 ]
  - \* Nose
    - Olfactory Epi
  - \* Pancreas
    - Acinus
    - Acinus
    - Acinus
  - \* Prostate
    - Ventral
  - \* Thymus
- |  |                               |                     |
|--|-------------------------------|---------------------|
|  | Cyst                          |                     |
|  | Hypertrophy                   | Minimal             |
|  | Inflammation                  | Chronic, Minimal    |
|  | Cardiomyopathy                | Minimal             |
|  | Schwannoma Malignant          |                     |
|  | Adenoma                       | Multiple            |
|  | Nephropathy                   | Chronicprogr, Mild  |
|  | Clear Cell Focus              |                     |
|  | Hyperplasia                   | Minimal             |
|  | Inflammation                  | Focal, Minimal      |
|  | Infiltration Cellular         | Histiocyte, Minimal |
|  | Accumulation, Hyaline Droplet | Mild                |
|  | Adenoma                       |                     |
|  | Atrophy                       | Mild                |
|  | Hyperplasia                   | Marked              |
|  | Adenoma                       |                     |
|  | Atrophy                       | Moderate            |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20614 - 02

**Test Type:** CHRONIC

**Route:** DOSED FEED

**Species/Strain:** RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

**CAS Number:** 335-67-1

**Date Report Requested:** 07/24/2018

**Time Report Requested:** 12:59:13

**First Dose M/F:** 07/27/09 / NA

**Lab:** BAT

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**ANIMAL ID:** 78

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 747

**DOSE:** 300/0 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101378

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thyroid Gland

Follicular Cel

Hypertrophy

Moderate

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 79

TRT#: 2

SEX: Male

DAY ON TEST: 660

DOSE: 300/0 ppm

DISP: Natural Death

HISTO: 1101379

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Esophagus
- \* Intestine Large, Rectum
- \* Lung
- \* Nose
- \* Prostate
- \* Stomach, Forestomach
- \* Trachea
- \* Bone
- \* Eye
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Pancreas
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Testes
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Preputial Gland
- \* Skin
- \* Thyroid Gland

OBSERVATIONS

- \* Adrenal Cortex
  - Degeneration
  - Hypertrophy
  - Inflammation
- Blood Vessel
  - Cystic, Minimal
  - Minimal
  - Minimal
- Note: Vascular inflammation involves pancreatic and thymic vessels.
- \* Bone Marrow
  - Hyperplasia
- \* Heart
  - Cardiomyopathy
  - Endocardium
  - Hyperplasia
- \* Intestine Large, Colon
  - Parasite Metazoan
- \* Islets, Pancreatic
  - Hyperplasia
- \* Kidney
  - Liposarcoma
  - Nephropathy
- [ Liposarcoma TGLs = 1 - 15 ]
  - Chronicprogr, Marked
- \* Liver
  - Bile Duct
  - Hyperplasia
- \* Parathyroid Gland
  - Hyperplasia
- \* Spleen
  - Lymph Follic
  - Atrophy
  - Extramedullary Hematopoiesis
- \* Thymus
  - Atrophy
  - Epithel Cell
  - Hyperplasia

PRIMARY CAUSE OF DEATH - Kidney Liposarcoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 80

TRT#: 2

SEX: Male

DAY ON TEST: 366

DOSE: 300/0 ppm

DISP: Natural Death

HISTO: 1101380

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Kidney                    | * Lung                   | * Lymph Node, Mandibular   |
| * Lymph Node, Mesenteric  | * Mammary Gland             | * Pancreas               | * Pituitary Gland          |
| * Preputial Gland         | * Prostate                  | * Salivary Glands        | * Seminal Vesicle          |
| * Skin                    | * Stomach, Forestomach      | * Stomach, Glandular     | * Testes                   |
| * Thyroid Gland           | * Trachea                   | * Urinary Bladder        |                            |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |          |               |                               |                |
|----------|---------------|-------------------------------|----------------|
| * Heart  |               | Cardiomyopathy                | Minimal        |
| * Liver  |               | Inflammation                  | Focal, Minimal |
| * Nose   | Olfactory Epi | Accumulation, Hyaline Droplet | Mild           |
| * Spleen | Lymph Follic  | Atrophy                       | Minimal        |
|          |               | Pigment                       | Mild           |
| * Thymus |               | Atrophy                       | Moderate       |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 81

TRT#: 2

SEX: Male

DAY ON TEST: 739

DOSE: 300/0 ppm

DISP: Natural Death

HISTO: 1101381

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Bone Marrow
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lung
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Brain
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Salivary Glands
- \* Stomach, Glandular
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Seminal Vesicle
- \* Trachea
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Skin
- \* Urinary Bladder

OBSERVATIONS

- \* Adrenal Cortex
  - Degeneration
  - Hypertrophy
  - Cystic, Minimal
- \* Adrenal Medulla
  - Pheochromocytoma Benign
  - Minimal
- Blood Vessel
  - Inflammation
  - Chronic, Moderate

Note: Vascular inflammation involves the cardiac, renal, and testicular arterioles.
- \* Bone
  - Periosteum
  - Sarcoma
  - [ Sarcoma TGLs = 1 - 15 ]
- \* Epididymis
  - Mesothelioma Malignant
  - [ Mesothelioma Malignant TGLs = 4 - 12 ]
- \* Heart
  - Cardiomyopathy
  - Moderate
- \* Kidney
  - Cortex
  - Cyst
  - Nephropathy
  - Chronicprogr, Marked
  - [ Cyst TGLs = 7 - 19 ]
  - [ Nephropathy TGLs = 6 - 6+18 ]
- \* Liver
  - Bile Duct
  - Hyperplasia
  - Mild
- \* Lymph Node, Mandibular
  - Hyperplasia
  - Lymphoid, Moderate
  - [ Hyperplasia TGLs = 2 - 16 ]
- \* Nose
  - Olfactory Epi
  - Accumulation, Hyaline Droplet
  - Minimal
- \* Pancreas
  - Acinus
  - Hyperplasia
  - Mild
- \* Pituitary Gland
  - Pars Distalis
  - Hyperplasia
  - Mild
- \* Prostate
  - Epithelium, Ventral
  - Hyperplasia
  - Minimal
- \* Spleen
  - Lymph Follic
  - Extramedullary Hematopoiesis
  - Hyperplasia
  - Minimal
  - Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

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**ANIMAL ID:** 81

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 739

**DOSE:** 300/0 ppm

**DISP:** Natural Death

**HISTO:** 1101381

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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* Testes	Bilateral, Germinal Epith	Degeneration Mesothelioma Malignant	Moderate
	[ Mesothelioma Malignant TGLs = 3 - 12+17 ]		
* Thymus		Atrophy	Marked
* Thyroid Gland	C Cell	Carcinoma	
	[ Carcinoma TGLs = 8 - 9 ]		

---

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 82

TRT#: 2

SEX: Male

DAY ON TEST: 478

DOSE: 300/0 ppm

DISP: Natural Death

HISTO: 1101382

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric |
| * Mammary Gland            | * Nose                    | * Pancreas                  | * Parathyroid Gland      |
| * Pituitary Gland          | * Preputial Gland         | * Prostate                  | * Salivary Glands        |
| * Seminal Vesicle          | * Skin                    | * Stomach, Forestomach      | * Stomach, Glandular     |
| * Testes                   | * Thyroid Gland           | * Trachea                   | * Urinary Bladder        |

OBSERVATIONS

- |                            |           |                              |                            |
|----------------------------|-----------|------------------------------|----------------------------|
| * Kidney                   | Pelvis    | Dilation<br>Nephropathy      | Mild<br>Chronicprogr, Mild |
| [ Dilation TGLs = 1 - 15 ] |           |                              |                            |
| * Liver                    | Bile Duct | Hyperplasia                  | Minimal                    |
| * Lung                     |           | Infiltration Cellular        | Histiocyte, Moderate       |
| * Spleen                   |           | Extramedullary Hematopoiesis | Mild                       |
|                            |           | Pigment                      | Minimal                    |
| * Thymus                   |           | Atrophy                      | Moderate                   |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 83

TRT#: 2

SEX: Male

DAY ON TEST: 568

DOSE: 300/0 ppm

DISP: Moribund Sacrifice

HISTO: 1101383

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Brain
* Epididymis	* Esophagus	* Eye	* Harderian Gland
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Parathyroid Gland	* Pituitary Gland
* Preputial Gland	* Salivary Glands	* Skin	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Schwannoma Malignant	Metastatic (Stomach, Forestomach)
* Bone Marrow		Hyperplasia	Marked
* Heart	Atrium	Fibrosis	Mild
* Kidney		Nephropathy	Chronicprogr, Mild
* Liver		Extramedullary Hematopoiesis	Minimal
	Bile Duct	Hyperplasia	Mild
	Endothel Cell	Hypertrophy	Diffuse, Moderate
	Hepatocyte	Hypertrophy	Marked
	[ Hypertrophy TGLs = 1 - 3 ]		
* Lung		Schwannoma Malignant	Metastatic (Stomach, Forestomach)
Lymph Node	Mediastinal	Hemorrhage	Mild
	[ Hemorrhage TGLs = 7 - 20 ]		
* Lymph Node, Mandibular		Infiltration Cellular	Plasma Cell, Mild
* Pancreas	Acinus	Atrophy	Mild
		Schwannoma Malignant	Metastatic (Stomach, Forestomach)
* Prostate	Ventral	Inflammation	Chronic Active, Mild
* Seminal Vesicle		Inflammation	Minimal
* Spleen		Extramedullary Hematopoiesis	Marked
		Schwannoma Malignant	Metastatic (Stomach, Forestomach)
	[ Extramedullary Hematopoiesis TGLs = 2 - 15 ]		
* Stomach, Forestomach		Schwannoma Malignant	
	[ Schwannoma Malignant TGLs = 3,4,5,6 - 16+17+18+19 ]		

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

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ANIMAL ID: 83

TRT#: 2

SEX: Male

DAY ON TEST: 568

DOSE: 300/0 ppm

DISP: Moribund Sacrifice

HISTO: 1101383

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* Thymus

Atrophy

Moderate

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PRIMARY CAUSE OF DEATH

- Stomach, Forestomach Schwannoma Malignant

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 84

TRT#: 2

SEX: Male

DAY ON TEST: 746

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101384

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Cortex	Zona Fascult	Hyperplasia	Minimal
* Islets, Pancreatic		Hyperplasia	Minimal
* Kidney		Nephropathy	Chronicprogr, Moderate
* Liver		Clear Cell Focus	
		Eosinophilic Focus	
	Bile Duct	Hyperplasia	Minimal
		Inflammation	Focal, Minimal
* Lung		Infiltration Cellular	Histiocyte, Mild
		Inflammation	Chronic Active, Mild
	[ Infiltration Cellular TGLs = 3 - 4+5 ]		
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Minimal
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Atrophy	Mild
	Acinus	Hyperplasia	Marked
	[ Adenoma TGLs = 1,2 - 15+16 ]		
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Thymus		Atrophy	Mild
* Thyroid Gland	Bilateral, C Cell	Adenoma	
	Follicular Cel	Hypertrophy	Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 85

TRT#: 2

SEX: Male

DAY ON TEST: 739

DOSE: 300/0 ppm

DISP: Moribund Sacrifice

HISTO: 1101385

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Esophagus
- \* Intestine Small, Duodenum
- \* Parathyroid Gland
- \* Trachea
- Blood Vessel
- \* Eye
- \* Intestine Small, Ileum
- \* Preputial Gland
- \* Urinary Bladder
- \* Bone
- \* Harderian Gland
- \* Islets, Pancreatic
- \* Prostate
- \* Brain
- \* Intestine Large, Rectum
- \* Mammary Gland
- \* Thyroid Gland

OBSERVATIONS

- \* Adrenal Cortex
  - Degeneration
  - Hypertrophy
  - Lymphoma Malignant
- \* Bone Marrow
  - Hyperplasia
  - Mesothelioma Malignant
- \* Epididymis
  - Lymphoma Malignant
- \* Heart
  - Lymphoma Malignant
- \* Intestine Large, Cecum
  - Lymphoma Malignant
- \* Intestine Large, Colon
  - Lymphoma Malignant
- \* Intestine Small, Jejunum
  - Lymphoma Malignant
- \* Kidney
  - Lymphoma Malignant
  - Nephropathy
- \* Liver
  - Lymphoma Malignant
- \* Lung
  - Infiltration Cellular TGLs = 7 - 4+5
  - Lymph Node Lumbar, Mediastinal, Pancreatic
  - [ Lymphoma Malignant TGLs = 3,4,6 - 17+18+20 ]
  - \* Lymph Node, Mandibular
    - Lymphoma Malignant
  - \* Lymph Node, Mesenteric
    - Lymphoma Malignant
  - [ Lymphoma Malignant TGLs = 5 - 19 ]
  - \* Nose
    - Olfactory Epi
  - \* Pancreas
    - Lymphoma Malignant
  - \* Pituitary Gland
    - Pars Distalis
    - Hyperplasia
    - Lymphoma Malignant

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 85

TRT#: 2

SEX: Male

DAY ON TEST: 739

DOSE: 300/0 ppm

DISP: Moribund Sacrifice

HISTO: 1101385

ORGAN AND ACCOUNTABLE SITE STATUS

* Salivary Glands	Lymphoma Malignant
* Seminal Vesicle	Lymphoma Malignant
Skeletal Muscle	Lymphoma Malignant
Note: Within B15 (TGL-1).	
* Skin	Lymphoma Malignant
[ Lymphoma Malignant TGLs = 1 - 15 ]	
* Spleen	Lymphoma Malignant
[ Lymphoma Malignant TGLs = 2 - 16 ]	
* Stomach, Forestomach	Lymphoma Malignant
* Stomach, Glandular	Lymphoma Malignant
* Testes	Mesothelioma Malignant
* Thymus	Lymphoma Malignant

PRIMARY CAUSE OF DEATH - Spleen Lymphoma Malignant

Experiment Number: 20614 - 02  
 Test Type: CHRONIC  
 Route: DOSED FEED  
 Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA  
 Perfluorooctanoic Acid  
 CAS Number: 335-67-1

Date Report Requested: 07/24/2018  
 Time Report Requested: 12:59:13  
 First Dose M/F: 07/27/09 / NA  
 Lab: BAT

ANIMAL ID: 86

TRT#: 2

SEX: Male

DAY ON TEST: 673

DOSE: 300/0 ppm

DISP: Moribund Sacrifice

HISTO: 1101386

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Brain	* Epididymis
* Esophagus	* Eye	* Harderian Gland	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Lung	* Lymph Node, Mesenteric	* Mammary Gland
* Pancreas	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Glandular
* Thyroid Gland	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Cortex		Degeneration	Cystic, Minimal
Blood Vessel		Inflammation	Minimal
		Mineral	Moderate
Note: Vascular mineral involves aorta and pulmonary, pancreatic, and testicular arteries.			
* Bone Marrow		Hyperplasia	Moderate
* Heart		Cardiomyopathy	Moderate
* Intestine Large, Cecum		Erosion	Minimal
		Inflammation	Minimal
* Kidney	Papilla, Urothelium	Hyperplasia	Minimal
		Nephropathy	Chronicprogr, Marked
	[ Nephropathy TGLs = 1 - 6 ]		
* Liver	Bile Duct	Hyperplasia	Minimal
* Lymph Node, Mandibular		Atrophy	Minimal
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Minimal
* Parathyroid Gland		Hyperplasia	Moderate
* Spleen	Lymph Follic	Atrophy	Mild
		Pigment	Minimal
* Stomach, Forestomach	Epithelium	Erosion	Minimal
		Inflammation	Minimal
* Testes	Bilateral, Germinal Epith	Degeneration	Marked
* Thymus		Atrophy	Marked

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 87

TRT#: 2

SEX: Male

DAY ON TEST: 746

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101387

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric   | * Mammary Gland           | * Pancreas                  | * Parathyroid Gland      |
| * Pituitary Gland          | * Preputial Gland         | * Prostate                  | * Salivary Glands        |
| * Seminal Vesicle          | * Skin                    | * Stomach, Forestomach      | * Stomach, Glandular     |
| * Testes                   | * Trachea                 | * Urinary Bladder           |                          |

OBSERVATIONS

- |                 |                |                               |                    |
|-----------------|----------------|-------------------------------|--------------------|
| * Kidney        |                | Nephropathy                   | Chronicprogr, Mild |
| * Liver         |                | Clear Cell Focus              |                    |
| * Nose          | Olfactory Epi  | Accumulation, Hyaline Droplet | Mild               |
|                 | Respirat Epith | Metaplasia                    | Minimal            |
| * Spleen        |                | Extramedullary Hematopoiesis  | Mild               |
|                 |                | Pigment                       | Minimal            |
| * Thymus        |                | Atrophy                       | Moderate           |
| * Thyroid Gland | C Cell         | Adenoma                       |                    |

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 88

TRT#: 2

SEX: Male

DAY ON TEST: 484

DOSE: 300/0 ppm

DISP: Moribund Sacrifice

HISTO: 1101388

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | Blood Vessel               | * Bone                    |
| * Bone Marrow               | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           |
| * Pancreas                  | * Pituitary Gland        | * Preputial Gland          | * Prostate                |
| * Salivary Glands           | * Seminal Vesicle        | * Skin                     | * Stomach, Glandular      |
| * Trachea                   | * Urinary Bladder        |                            |                           |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                        |                            |                               |                    |
|------------------------|----------------------------|-------------------------------|--------------------|
| * Brain                |                            | Necrosis                      | Moderate           |
|                        | [ Necrosis TGLs = 1 - 10 ] |                               |                    |
| * Heart                |                            | Cardiomyopathy                | Minimal            |
| * Kidney               |                            | Nephropathy                   | Chronicprogr, Mild |
| * Liver                |                            | Clear Cell Focus              |                    |
|                        |                            | Inflammation                  | Focal, Minimal     |
| * Nose                 | Olfactory Epi              | Accumulation, Hyaline Droplet | Moderate           |
| * Spleen               |                            | Pigment                       | Minimal            |
| * Stomach, Forestomach | Epithelium                 | Hyperplasia                   | Squamous, Moderate |
|                        |                            | Inflammation                  | Moderate           |
| * Testes               | Germinal Epith             | Degeneration                  | Moderate           |
| * Thymus               |                            | Atrophy                       | Mild               |
| * Thyroid Gland        | Follicular Cel             | Hypertrophy                   | Mild               |

PRIMARY CAUSE OF DEATH - Brain Necrosis

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 89

TRT#: 2

SEX: Male

DAY ON TEST: 747

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101389

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Pancreas
- \* Prostate
- \* Stomach, Forestomach
- \* Trachea
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone Marrow
- \* Eye
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Preputial Gland
- \* Skin
- \* Thyroid Gland

MISSING

- \* Thymus

OBSERVATIONS

- \* Adrenal Cortex
- \* Harderian Gland
- \* Heart
- \* Intestine Large, Colon
- \* Kidney
- \* Liver
- \* Lung
- \* Lymph Node, Mandibular
- \* Nose
- \* Spleen
- Hypertrophy
- Hyperplasia
- Cardiomyopathy
- Parasite Metazoan
- Nephropathy
- Clear Cell Focus
- Bile Duct
- Hyperplasia
- Inflammation
- Infiltration Cellular
- Hyperplasia
- Olfactory Epi
- Glands, Olfactory Epi
- Respirat Epith
- Accumulation, Hyaline Droplet
- Inflammation
- Metaplasia
- Extramedullary Hematopoiesis
- Pigment
- Minimal
- Minimal
- Mild
- Chronicprogr, Mild
- Mild
- Focal, Minimal
- Histiocyte, Minimal
- Lymphoid, Minimal
- Mild
- Minimal
- Minimal
- Minimal
- Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 90

TRT#: 2

SEX: Male

DAY ON TEST: 747

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101390

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | Blood Vessel               | * Bone                    |
| * Bone Marrow               | * Brain                  | * Epididymis               | * Esophagus               |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           |
| * Parathyroid Gland         | * Pituitary Gland        | * Preputial Gland          | * Salivary Glands         |
| * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      |
| * Thyroid Gland             | * Trachea                | * Urinary Bladder          |                           |

OBSERVATIONS

- |            |                           |                               |                         |
|------------|---------------------------|-------------------------------|-------------------------|
| * Eye      | Retina                    | Degeneration                  | Minimal                 |
| * Heart    |                           | Cardiomyopathy                | Mild                    |
| * Kidney   |                           | Infarct                       | Minimal                 |
|            |                           | Nephropathy                   | Chronicprogr, Moderate  |
| * Liver    |                           | Clear Cell Focus              |                         |
|            | Bile Duct                 | Cyst                          |                         |
| * Nose     | Olfactory Epi             | Accumulation, Hyaline Droplet | Minimal                 |
| * Pancreas | Acinus                    | Atrophy                       | Minimal                 |
| * Prostate | Ventral                   | Inflammation                  | Chronic Active, Minimal |
| * Spleen   |                           | Extramedullary Hematopoiesis  | Mild                    |
|            |                           | Pigment                       | Minimal                 |
| * Testes   | Bilateral, Germinal Epith | Degeneration                  | Moderate                |
| * Thymus   |                           | Atrophy                       | Mild                    |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 91

TRT#: 2

SEX: Male

DAY ON TEST: 247

DOSE: 300/0 ppm

DISP: Natural Death

HISTO: 1101391

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | Blood Vessel               | * Bone                    |
| * Bone Marrow               | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           |
| * Nose                      | * Pancreas               | * Parathyroid Gland        | * Pituitary Gland         |
| * Preputial Gland           | * Prostate               | * Salivary Glands          | * Seminal Vesicle         |
| * Skin                      | * Stomach, Forestomach   | * Stomach, Glandular       | * Testes                  |
| * Thymus                    | * Thyroid Gland          | * Trachea                  | * Urinary Bladder         |

OBSERVATIONS

- |          |              |                              |          |
|----------|--------------|------------------------------|----------|
| * Brain  |              | Necrosis                     | Moderate |
| * Heart  | Myocardium   | Hemorrhage                   | Mild     |
|          |              | Mineral                      | Minimal  |
| * Kidney | Renal Tubule | Necrosis                     | Minimal  |
| * Liver  | Hepatocyte   | Single Cell Death            | Marked   |
| * Spleen | Lymph Follic | Atrophy                      | Moderate |
|          |              | Extramedullary Hematopoiesis | Minimal  |

PRIMARY CAUSE OF DEATH - Liver Hepatocyte Single Cell Death

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 92

TRT#: 2

SEX: Male

DAY ON TEST: 744

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101392

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Testes
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Lung
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Urinary Bladder
- \* Bone Marrow
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Stomach, Glandular

OBSERVATIONS

- \* Adrenal Cortex
- \* Eye
- \* Heart
- \* Islets, Pancreatic  
[ Adenoma TGLs = 1 - 15 ]
- \* Kidney
- \* Liver
- \* Nose
- \* Pancreas
- \* Prostate
- \* Skin  
[ Hyperplasia TGLs = 2 - 17 ]
- \* Spleen
- \* Stomach, Forestomach
- \* Thymus
- \* Thyroid Gland
- Retina
- Bile Duct
- Olfactory Epi
- Acinus
- Epithelium, Ventral
- Hair Follicle
- Epithelium
- C Cell
- Hypertrophy
- Degeneration
- Cardiomyopathy
- Schwannoma Malignant
- Adenoma
- Nephropathy
- Clear Cell Focus
- Hyperplasia
- Inflammation
- Accumulation, Hyaline Droplet
- Hyperplasia
- Hyperplasia
- Hyperplasia
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Hyperplasia
- Atrophy
- Hyperplasia
- Minimal
- Mild
- Minimal
- Minimal
- Chronicprogr, Moderate
- Minimal
- Focal, Minimal
- Mild
- Mild
- Minimal
- Moderate
- Minimal
- Minimal
- Squamous, Mild
- Moderate
- Minimal

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 94

TRT#: 2

SEX: Male

DAY ON TEST: 745

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101394

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Testes
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Skin
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Stomach, Forestomach
- \* Urinary Bladder

OBSERVATIONS

- \* Heart
- \* Intestine Large, Colon
- \* Kidney
- \* Liver
- \* Lung
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Prostate
- \* Seminal Vesicle
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Cardiomyopathy
- Parasite Metazoan
- Infarct
- Pelvis
- Inflammation
- Nephropathy
- Clear Cell Focus
- Bile Duct
- Hyperplasia
- Lymphoma Malignant
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Inflammation
- Pars Distalis
- Ventral
- Inflammation
- Inflammation
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Hypertrophy
- Minimal
- Mild
- Mild
- Chronicprogr, Moderate
- Minimal
- Minimal
- Mild
- Marked
- Chronic Active, Mild
- Minimal
- Chronic Active, Mild
- Mild
- Minimal
- Minimal
- Moderate
- Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 95

TRT#: 2

SEX: Male

DAY ON TEST: 744

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101395

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Mammary Gland
- \* Parathyroid Gland
- \* Prostate
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Thyroid Gland
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Skin
- \* Trachea

OBSERVATIONS

- \* Kidney [ Nephropathy TGLs = 3 - 6 ] Nephropathy Chronicprogr, Marked
- \* Liver Clear Cell Focus
- \* Lung [ Infiltration Cellular TGLs = 5 - 4+5 ] Infiltration Cellular Histiocyte, Minimal
- \* Nose Olfactory Epi Accumulation, Hyaline Droplet Mild
- \* Pancreas Acinus Hemorrhage Marked
- Note: Mass in pancreas was a hematoma with abundant blood-derived pigment and a well-developed fibrous capsule. Hyperplasia Marked
- [ Hemorrhage TGLs = 4 - 16 ]
- \* Spleen Extramedullary Hematopoiesis Mild
- Pigment Minimal
- \* Testes Interstit Cell Adenoma
- Bilateral, Germinal Epith Degeneration Moderate
- [ Adenoma TGLs = 2 - 12 ]
- \* Thymus Atrophy Marked
- Epithel Cell Hyperplasia Tubular, Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 96

TRT#: 2

SEX: Male

DAY ON TEST: 744

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101396

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	Blood Vessel	* Bone
* Bone Marrow	* Brain	* Epididymis	* Esophagus
* Eye	* Harderian Gland	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Parathyroid Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

OBSERVATIONS

* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Chronicprogr, Mild
* Liver		Clear Cell Focus	
* Lung	Serosa	Fibrosis	Multifocal, Minimal
	[ Fibrosis TGLs = 2 - 4+5 ]		
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Moderate
* Pancreas	Acinus	Hyperplasia	Minimal
* Pituitary Gland	Pars Distalis	Adenoma	
* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal
* Thymus		Atrophy	Moderate

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 97

TRT#: 2

SEX: Male

DAY ON TEST: 743

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101397

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | Blood Vessel               | * Bone                    |
| * Bone Marrow               | * Brain                  | * Epididymis               | * Esophagus               |
| * Eye                       | * Harderian Gland        | * Intestine Large, Cecum   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            | * Parathyroid Gland       |
| * Pituitary Gland           | * Preputial Gland        | * Prostate                 | * Salivary Glands         |
| * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      |
| * Thyroid Gland             | * Trachea                | * Urinary Bladder          |                           |

OBSERVATIONS

- |                          |                |                               |                                    |
|--------------------------|----------------|-------------------------------|------------------------------------|
| * Heart                  |                | Cardiomyopathy                | Minimal                            |
| * Intestine Large, Colon |                | Parasite Metazoan             |                                    |
| * Kidney                 |                | Nephropathy                   | Chronicprogr, Mild                 |
| * Liver                  |                | Clear Cell Focus              |                                    |
| * Lung                   |                | Inflammation                  | Multifocal, Granulomatous, Minimal |
| * Nose                   | Olfactory Epi  | Accumulation, Hyaline Droplet | Minimal                            |
| * Pancreas               | Acinus         | Hyperplasia                   | Marked                             |
| * Spleen                 |                | Extramedullary Hematopoiesis  | Mild                               |
|                          |                | Pigment                       | Minimal                            |
| * Testes                 | Germinal Epith | Degeneration                  | Mild                               |
| * Thymus                 |                | Atrophy                       | Moderate                           |

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 98

TRT#: 2

SEX: Male

DAY ON TEST: 743

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101398

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla           | Blood Vessel             | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lymph Node, Mesenteric    | * Mammary Gland          | * Pancreas                 | * Parathyroid Gland       |
| * Preputial Gland           | * Prostate               | * Salivary Glands          | * Seminal Vesicle         |
| * Skin                      | * Stomach, Forestomach   | * Stomach, Glandular       | * Testes                  |
| * Trachea                   | * Urinary Bladder        |                            |                           |

OBSERVATIONS

- |                          |                |                               |                        |
|--------------------------|----------------|-------------------------------|------------------------|
| * Adrenal Cortex         |                | Degeneration                  | Cystic, Minimal        |
|                          |                | Hypertrophy                   | Minimal                |
| * Heart                  |                | Cardiomyopathy                | Mild                   |
| * Kidney                 |                | Nephropathy                   | Chronicprogr, Moderate |
| * Liver                  |                | Clear Cell Focus              |                        |
| * Lung                   | Alveolar Epith | Hyperplasia                   | Mild                   |
| * Lymph Node, Mandibular |                | Atrophy                       | Minimal                |
| * Nose                   | Olfactory Epi  | Accumulation, Hyaline Droplet | Mild                   |
| * Pituitary Gland        | Pars Distalis  | Hyperplasia                   | Marked                 |
| * Spleen                 |                | Extramedullary Hematopoiesis  | Minimal                |
| * Thymus                 |                | Atrophy                       | Mild                   |
| * Thyroid Gland          | C Cell         | Hyperplasia                   | Marked                 |
|                          | Follicular Cel | Hypertrophy                   | Mild                   |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 99

TRT#: 2

SEX: Male

DAY ON TEST: 739

DOSE: 300/0 ppm

DISP: Moribund Sacrifice

HISTO: 1101399

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Skin
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone Marrow
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Stomach, Glandular
- \* Brain
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Salivary Glands
- \* Thyroid Gland

OBSERVATIONS

- \* Adrenal Cortex
  - Zona Fasciata
  - Degeneration
  - Cystic, Minimal
  - Blood Vessel
    - Hyperplasia
    - Minimal
    - Inflammation
    - Chronic, Mild
  - Note: Inflammation involves a testicular and thymic arterioles.
- \* Eye
  - Cornea
  - Inflammation
  - Moderate
- \* Heart
  - Cardiomyopathy
  - Mild
- \* Kidney
  - Cortex
  - Cyst
  - Nephropathy
  - Chronicprogr, Marked
  - [ Cyst TGLs = 1 - 15 ]
  - [ Nephropathy TGLs = 2 - 15+16 ]
- \* Liver
  - Bile Duct
  - Clear Cell Focus
  - Hyperplasia
  - Minimal
- \* Lung
  - Infiltration Cellular
  - Inflammation
  - Histiocyte, Minimal
  - Multifocal, Granulomatous, Mild
  - [ Inflammation TGLs = 3 - 4+5 ]
- \* Nose
  - Olfactory Epi
  - Accumulation, Hyaline Droplet
  - Mild
  - Glands, Respirat Epith
  - Hyperplasia
  - Minimal
- \* Pancreas
  - Acinus
  - Hyperplasia
  - Mild
- \* Pituitary Gland
  - Pars Distalis
  - Hyperplasia
  - Minimal
- \* Prostate
  - Ventral
  - Inflammation
  - Chronic Active, Minimal
- \* Seminal Vesicle
  - Inflammation
  - Minimal
- \* Spleen
  - Pigment
  - Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

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**ANIMAL ID:** 99

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 739

**DOSE:** 300/0 ppm

**DISP:** Moribund Sacrifice

**HISTO:** 1101399

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* Testes

Bilateral, Germinal Epith

Degeneration

Minimal

\* Thymus

Atrophy

Mild

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PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 101

TRT#: 2

SEX: Male

DAY ON TEST: 617

DOSE: 300/0 ppm

DISP: Moribund Sacrifice

HISTO: 1101401

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Bone
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Trachea
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Salivary Glands
- \* Testes
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Thyroid Gland

OBSERVATIONS

- \* Adrenal Cortex
  - Zona Fascult
    - Degeneration
    - Hyperplasia
  - Cystic, Minimal
- \* Adrenal Medulla
  - Hyperplasia
  - Pheochromocytoma Benign
  - Inflammation
  - Moderate
- Blood Vessel
  - Note: Inflammation involved the gastric, hepatic, pancreatic, and testicular arteries.
  - Inflammation
  - Chronic, Minimal
- \* Bone Marrow
  - Hyperplasia
  - Moderate
- \* Heart
  - Cardiomyopathy
  - Mild
- \* Kidney
  - Papilla, Urothelium
  - Hyperplasia
  - Nephropathy
  - Chronicprogr, Marked
- [ Nephropathy TGLs = 2 - 6+16 ]
- \* Liver
  - Inflammation
  - Focal, Minimal
- \* Lung
  - Inflammation
  - Chronic Active, Minimal
- \* Lymph Node, Mandibular
  - Infiltration Cellular
  - Plasma Cell, Minimal
- \* Nose
  - Olfactory Epi
  - Accumulation, Hyaline Droplet
  - Minimal
- \* Pancreas
  - Acinus
  - Hyperplasia
  - Marked
- \* Pituitary Gland
  - Pars Distalis
  - Adenoma
- \* Skin
  - Trichoepithelioma
- [ Trichoepithelioma TGLs = 1 - 15 ]
- \* Spleen
  - Extramedullary Hematopoiesis
  - Pigment
  - Minimal
- \* Thymus
  - Atrophy
  - Moderate

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20614 - 02

**Test Type:** CHRONIC

**Route:** DOSED FEED

**Species/Strain:** RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

**CAS Number:** 335-67-1

**Date Report Requested:** 07/24/2018

**Time Report Requested:** 12:59:13

**First Dose M/F:** 07/27/09 / NA

**Lab:** BAT

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**ANIMAL ID:** 101

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 617

**DOSE:** 300/0 ppm

**DISP:** Moribund Sacrifice

**HISTO:** 1101401

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 102

TRT#: 2

SEX: Male

DAY ON TEST: 351

DOSE: 300/0 ppm

DISP: Moribund Sacrifice

HISTO: 1101402

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex         | * Adrenal Medulla          | Blood Vessel              | * Brain                     |
| * Epididymis             | * Esophagus                | * Eye                     | * Harderian Gland           |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Liver                     |
| * Lymph Node, Mesenteric | * Mammary Gland            | * Pancreas                | * Pituitary Gland           |
| * Preputial Gland        | * Prostate                 | * Salivary Glands         | * Seminal Vesicle           |
| * Skin                   | * Spleen                   | * Stomach, Forestomach    | * Stomach, Glandular        |
| * Testes                 | * Thyroid Gland            | * Trachea                 | * Urinary Bladder           |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                          |   |                               |                       |
|--------------------------|---|-------------------------------|-----------------------|
| * Bone                   |   | Sarcoma                       |                       |
|                          | [ Sarcoma TGLs = 9 - 22 ]                       |                               |                       |
| * Bone Marrow            |   | Sarcoma                       | Metastatic (Bone)     |
| * Heart                  |   | Cardiomyopathy                | Minimal               |
| * Kidney                 |   | Nephropathy                   | Chronicprogr, Minimal |
| * Lung                   |   | Sarcoma                       | Metastatic (Bone)     |
|                          | [ Sarcoma TGLs = 4,5,6,7,8 - 4+17+18+19+20+21 ] |                               |                       |
| Lymph Node               |   | Sarcoma                       | Metastatic (Bone)     |
|                          | [ Sarcoma TGLs = 3 - 16 ]                       |                               |                       |
| * Lymph Node, Mandibular |   | Hemorrhage                    | Mild                  |
|                          | [ Hemorrhage TGLs = 2 - 15 ]                    |                               |                       |
| * Nose                   | Olfactory Epi                                   | Accumulation, Hyaline Droplet | Marked                |
| * Thymus                 |   | Atrophy                       | Mild                  |
|                          |   | Sarcoma                       | Metastatic (Bone)     |

PRIMARY CAUSE OF DEATH - Bone Sarcoma

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 103

TRT#: 2

SEX: Male

DAY ON TEST: 744

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101403

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Trachea
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Adrenal Cortex
- \* Heart
- \* Kidney
- \* Liver
- \* Lung
- [ Infiltration Cellular TGLs = 1 - 4+5 ]
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Hypertrophy
- Cardiomyopathy
- Nephropathy
- Clear Cell Focus
- Bile Duct
- Hyperplasia
- Infiltration Cellular
- Inflammation
- Accumulation, Hyaline Droplet
- Inflammation
- Atrophy
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Hypertrophy
- Minimal
- Minimal
- Chronicprogr, Moderate
- Minimal
- Histiocyte, Moderate
- Multifocal, Granulomatous, Minimal
- Minimal
- Minimal
- Minimal
- Minimal
- Minimal
- Minimal
- Moderate
- Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 104

TRT#: 2

SEX: Male

DAY ON TEST: 744

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101404

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla           | Blood Vessel             | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            | * Parathyroid Gland       |
| * Pituitary Gland           | * Preputial Gland        | * Prostate                 | * Salivary Glands         |
| * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      |
| * Testes                    | * Thyroid Gland          | * Trachea                  | * Urinary Bladder         |

OBSERVATIONS

- |                  |               |                               |                                     |
|------------------|---------------|-------------------------------|-------------------------------------|
| * Adrenal Cortex |               | Degeneration                  | Cystic, Minimal                     |
| * Heart          |               | Cardiomyopathy                | Minimal                             |
| * Kidney         |               | Nephropathy                   | Chronicprogr, Mild                  |
| * Liver          |               | Clear Cell Focus              |                                     |
|                  | Bile Duct     | Hyperplasia                   | Minimal                             |
| * Lung           |               | Foreign Body                  |                                     |
|                  |               | Inflammation                  | Multifocal, Granulomatous, Moderate |
| * Nose           | Olfactory Epi | Accumulation, Hyaline Droplet | Mild                                |
| * Pancreas       | Acinus        | Atrophy                       | Minimal                             |
| * Spleen         |               | Extramedullary Hematopoiesis  | Minimal                             |
|                  |               | Pigment                       | Minimal                             |
| * Thymus         |               | Atrophy                       | Minimal                             |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 105

TRT#: 2

SEX: Male

DAY ON TEST: 747

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101405

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Blood Vessel           | * Bone                     | * Bone Marrow             | * Brain                     |
| * Epididymis             | * Esophagus                | * Eye                     | * Harderian Gland           |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lung                      |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           | * Pancreas                  |
| * Parathyroid Gland      | * Preputial Gland          | * Salivary Glands         | * Seminal Vesicle           |
| * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      | * Trachea                   |
| * Urinary Bladder        |                            |                           |                             |

OBSERVATIONS

- |                   |                           |                               |                         |
|-------------------|---------------------------|-------------------------------|-------------------------|
| * Adrenal Cortex  |                           | Hypertrophy                   | Minimal                 |
| * Adrenal Medulla |                           | Pheochromocytoma Benign       |                         |
| * Heart           |                           | Cardiomyopathy                | Minimal                 |
| * Kidney          |                           | Nephropathy                   | Chronicprogr, Moderate  |
| * Liver           |                           | Clear Cell Focus              |                         |
|                   | Bile Duct                 | Hyperplasia                   | Minimal                 |
| * Nose            | Olfactory Epi             | Accumulation, Hyaline Droplet | Marked                  |
| * Pituitary Gland | Pars Distalis             | Adenoma                       |                         |
| * Prostate        | Ventral                   | Inflammation                  | Chronic Active, Minimal |
| * Spleen          |                           | Extramedullary Hematopoiesis  | Mild                    |
|                   |                           | Pigment                       | Minimal                 |
| * Testes          | Bilateral, Germinal Epith | Degeneration                  | Minimal                 |
| * Thymus          |                           | Atrophy                       | Mild                    |
| * Thyroid Gland   | C Cell                    | Hyperplasia                   | Moderate                |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 106

TRT#: 2

SEX: Male

DAY ON TEST: 747

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101406

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Mammary Gland
- \* Preputial Gland
- \* Skin
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lung
- \* Pancreas
- \* Prostate
- \* Stomach, Glandular
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Salivary Glands
- \* Testes
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Trachea

OBSERVATIONS

- \* Adrenal Medulla [ Pheochromocytoma Benign TGLs = 1 - 15 ]
- \* Kidney
- \* Liver
- \* Nose
- \* Spleen
- \* Stomach, Forestomach
- \* Thymus
- \* Thyroid Gland
- Pheochromocytoma Benign
- Nephropathy
- Clear Cell Focus
- Accumulation, Hyaline Droplet
- Extramedullary Hematopoiesis
- Pigment
- Hyperplasia
- Atrophy
- Hypertrophy
- Chronicprogr, Moderate
- Mild
- Minimal
- Minimal
- Squamous, Minimal
- Mild
- Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 107

TRT#: 2

SEX: Male

DAY ON TEST: 743

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101407

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Trachea
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Adrenal Cortex
- \* Heart
- \* Kidney
- \* Liver
- \* Lung
  - [ Infiltration Cellular TGLs = 1 - 4+5 ]
- \* Nose
- \* Pancreas
- \* Pituitary Gland
  - [ Adenoma TGLs = 2 - 9 ]
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Bile Duct
- Olfactory Epi
- Acinus
- Pars Distalis
- C Cell
- Hypertrophy
- Cardiomyopathy
- Nephropathy
- Clear Cell Focus
- Hyperplasia
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Hyperplasia
- Adenoma
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Carcinoma
- Minimal
- Minimal
- Chronicprogr, Moderate
- Minimal
- Histiocyte, Mild
- Marked
- Minimal
- Mild
- Minimal
- Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 108

TRT#: 2

SEX: Male

DAY ON TEST: 617

DOSE: 300/0 ppm

DISP: Moribund Sacrifice

HISTO: 1101408

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone
- \* Brain
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Pancreas
- \* Pituitary Gland
- \* Preputial Gland
- \* Prostate
- \* Salivary Glands
- \* Seminal Vesicle
- \* Skin
- \* Spleen
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Trachea
- \* Urinary Bladder

OBSERVATIONS

- Blood Vessel  
Inflammation  
Chronic, Minimal  
Note: Inflammation involved cardiac, pancreatic, testicular, and thymic arteries.
- \* Bone Marrow  
Hyperplasia  
Mild
- \* Heart  
Cardiomyopathy  
Mild
- \* Kidney  
Papilla, Urothelium  
Hyperplasia  
Minimal  
Nephropathy  
Chronicprogr, Marked  
[ Nephropathy TGLs = 1 - 15 ]
- \* Liver  
Inflammation  
Focal, Minimal
- \* Lung  
Inflammation  
Chronic Active, Mild
- \* Nose  
Accumulation, Hyaline Droplet  
Mild
- \* Parathyroid Gland  
Hyperplasia  
Mild
- \* Testes  
Bilateral, Germinal Epith  
Degeneration  
Mild
- \* Thymus  
Atrophy  
Moderate
- \* Thyroid Gland  
Follicular Cel  
Hypertrophy  
Mild

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 109

**TRT#:** 2

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 300/0 ppm

**DISP:** Natural Death

**HISTO:** 1101409

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thyroid Gland

Bilateral, C Cell

Adenoma

---

PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

---



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 110

TRT#: 2

SEX: Male

DAY ON TEST: 746

DOSE: 300/0 ppm

DISP: Terminal Sacrifice

HISTO: 1101410

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Parathyroid Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Kidney		Nephropathy	Chronicprogr, Mild
* Liver		Clear Cell Focus	
	Bile Duct	Hyperplasia	Minimal
		Inflammation	Focal, Minimal
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Moderate
* Pancreas	Acinus	Hyperplasia	Moderate
* Pituitary Gland	Pars Distalis	Hyperplasia	Moderate
* Seminal Vesicle		Hyperplasia	Minimal
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Thymus		Atrophy	Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 121

TRT#: 3

SEX: Male

DAY ON TEST: 743

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101421

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Skin
- \* Thyroid Gland
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Prostate
- \* Stomach, Forestomach
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Adrenal Cortex
- \* Heart
- \* Islets, Pancreatic
- \* Kidney
- [ Nephropathy TGLs = 4 - 6 ]
- \* Liver
- Hepatocyte
- Hepatocyte
- \* Lung
- \* Nose
- \* Pancreas
- [ Adenoma TGLs = 2 - 16 ]
- [ Carcinoma TGLs = 1 - 15 ]
- \* Spleen
- \* Thymus
- Hypertrophy
- Cardiomyopathy
- Adenoma
- Infarct
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Hypertrophy
- Inflammation
- Pigment
- Inflammation
- Accumulation, Hyaline Droplet
- Adenoma
- Carcinoma
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Mild
- Minimal
- Minimal
- Chronicprogr, Minimal
- Mild
- Minimal
- Focal, Minimal
- Minimal
- Multifocal, Granulomatous, Minimal
- Mild
- Marked
- Minimal
- Minimal
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 122

TRT#: 3

SEX: Male

DAY ON TEST: 743

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101422

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric |
| * Mammary Gland            | * Parathyroid Gland       | * Pituitary Gland           | * Preputial Gland        |
| * Salivary Glands          | * Seminal Vesicle         | * Skin                      | * Stomach, Forestomach   |
| * Testes                   | * Thyroid Gland           | * Trachea                   | * Urinary Bladder        |

MISSING

- \* Thymus

OBSERVATIONS

- |                      |  |                               |                         |
|----------------------|--|-------------------------------|-------------------------|
| * Kidney             |  | Nephropathy                   | Chronicprogr, Mild      |
| * Liver              |  | Clear Cell Focus              |                         |
|                      | Hepatocyte                               | Cytoplasmic Alteration        | Minimal                 |
|                      | Bile Duct                                | Hyperplasia                   | Minimal                 |
|                      | Hepatocyte                               | Hypertrophy                   | Minimal                 |
|                      |  | Inflammation                  | Focal, Minimal          |
| * Lung               |  | Infiltration Cellular         | Histiocyte, Mild        |
|                      | [ Infiltration Cellular TGLs = 3 - 4+5 ] |                               |                         |
| * Nose               | Olfactory Epi                            | Accumulation, Hyaline Droplet | Moderate                |
| * Pancreas           | Acinus                                   | Adenoma                       |                         |
|                      | Acinus                                   | Hyperplasia                   | Marked                  |
|                      | [ Adenoma TGLs = 1 - 15 ]                |                               |                         |
|                      | [ Hyperplasia TGLs = 2 - 16 ]            |                               |                         |
| * Prostate           | Ventral                                  | Inflammation                  | Chronic Active, Minimal |
| * Spleen             |  | Extramedullary Hematopoiesis  | Mild                    |
|                      |  | Pigment                       | Minimal                 |
| * Stomach, Glandular |  | Metaplasia                    | Atypical, Minimal       |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 123

TRT#: 3

SEX: Male

DAY ON TEST: 744

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101423

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   |
| * Mammary Gland           | * Pancreas                  | * Parathyroid Gland      | * Preputial Gland          |
| * Salivary Glands         | * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     |
| * Stomach, Glandular      | * Testes                    | * Thyroid Gland          | * Trachea                  |
| * Urinary Bladder         |                             |                          |                            |

OBSERVATIONS

- |                            |               |                               |                       |
|----------------------------|---------------|-------------------------------|-----------------------|
| * Heart                    |               | Cardiomyopathy                | Minimal               |
| * Kidney                   |               | Nephropathy                   | Chronicprogr, Minimal |
| * Liver                    |               | Inflammation                  | Focal, Minimal        |
| * Nose                     | Olfactory Epi | Accumulation, Hyaline Droplet | Marked                |
| * Pituitary Gland          | Pars Distalis | Hyperplasia                   | Minimal               |
| * Prostate                 | Dorsal        | Inflammation                  | Chronic Active, Mild  |
| Note: Laterl lobe involved |               |                               |                       |
| * Spleen                   |               | Pigment                       | Minimal               |
| * Thymus                   |               | Atrophy                       | Moderate              |

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 124

TRT#: 3

SEX: Male

DAY ON TEST: 711

DOSE: 0/20 ppm

DISP: Moribund Sacrifice

HISTO: 1101424

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla        | Blood Vessel               | * Bone                    | * Brain                     |
| * Epididymis             | * Esophagus                | * Eye                     | * Harderian Gland           |
| * Heart                  | * Intestine Large, Cecum   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    |
| * Lymph Node, Mesenteric | * Mammary Gland            | * Pancreas                | * Parathyroid Gland         |
| * Pituitary Gland        | * Preputial Gland          | * Prostate                | * Salivary Glands           |
| * Seminal Vesicle        | * Skin                     | * Stomach, Forestomach    | * Stomach, Glandular        |
| * Testes                 | * Trachea                  | * Urinary Bladder         |                             |

OBSERVATIONS

- |                          |               |                               |                            |
|--------------------------|---------------|-------------------------------|----------------------------|
| * Adrenal Cortex         |               | Hypertrophy                   | Mild                       |
| * Bone Marrow            |               | Hyperplasia                   | Moderate                   |
| * Intestine Large, Colon |               | Parasite Metazoan             |                            |
| * Kidney                 |               | Nephropathy                   | Chronicprogr, Minimal      |
| * Liver                  |               | Clear Cell Focus              |                            |
| * Lung                   |               | Carcinoma                     | Metastatic (Thyroid Gland) |
| * Nose                   | Olfactory Epi | Accumulation, Hyaline Droplet | Marked                     |
| * Spleen                 |               | Extramedullary Hematopoiesis  | Mild                       |
| * Thymus                 |               | Atrophy                       | Mild                       |
| * Thyroid Gland          | C Cell        | Carcinoma                     |                            |

[ Carcinoma TGLs = 1 - 15 ]

PRIMARY CAUSE OF DEATH - Thyroid Gland C Cell Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 125

TRT#: 3

SEX: Male

DAY ON TEST: 746

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101425

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone
- \* Bone Marrow
- \* Brain
- \* Epididymis
- \* Esophagus
- \* Harderian Gland
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Parathyroid Gland
- \* Pituitary Gland
- \* Preputial Gland
- \* Prostate
- \* Salivary Glands
- \* Seminal Vesicle
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Thyroid Gland
- \* Trachea
- \* Urinary Bladder

OBSERVATIONS

- Blood Vessel Inflammation Chronic, Mild
  - Note: Inflammation involves the testicular arterioles.
- \* Eye Retina Degeneration Minimal
- \* Heart Cardiomyopathy Minimal
- \* Kidney Nephropathy Chronicprogr, Marked
  - [ Nephropathy TGLs = 3 - 6 ]
- \* Liver Clear Cell Focus
- \* Lung Infiltration Cellular Histiocyte, Moderate
  - [ Infiltration Cellular TGLs = 4 - 4+5 ]
- \* Nose Olfactory Epi Accumulation, Hyaline Droplet Mild
- \* Pancreas Acinus Adenoma Multiple
  - Acinus Hyperplasia Marked
  - [ Adenoma TGLs = 1,2 - 7+15+16 ]
- \* Skin Subcut Tiss Fibroma
- \* Spleen [ Fibroma TGLs = 5 - 17 ] Extramedullary Hematopoiesis Mild
  - Pigment Minimal
- \* Testes Bilateral, Germinal Epith Degeneration Minimal
- \* Thymus Atrophy Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 126

TRT#: 3

SEX: Male

DAY ON TEST: 746

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101426

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Trachea
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Prostate
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Salivary Glands
- \* Testes
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Thymus

OBSERVATIONS

- \* Adrenal Medulla
- \* Heart
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
- \* Lung
  - [ Infiltration Cellular TGLs = 3 - 4+5 ]
- \* Nose
- \* Pancreas
  - [ Hyperplasia TGLs = 2 - 16 ]
- \* Skin
  - [ Fibroma TGLs = 1 - 15 ]
- \* Spleen
- \* Thyroid Gland
- Hyperplasia
- Cardiomyopathy
- Adenoma
- Nephropathy
- Clear Cell Focus
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Fibroma
- Extramedullary Hematopoiesis
- Pigment
- Hypertrophy
- Mild
- Minimal
- Chronicprogr, Mild
- Histiocyte, Moderate
- Minimal
- Marked
- Minimal
- Minimal
- Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 127

TRT#: 3

SEX: Male

DAY ON TEST: 666

DOSE: 0/20 ppm

DISP: Moribund Sacrifice

HISTO: 1101427

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Lung                    | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            |
| * Pancreas                | * Parathyroid Gland         | * Preputial Gland        | * Prostate                 |
| * Salivary Glands         | * Seminal Vesicle           | * Skin                   | * Stomach, Glandular       |
| * Testes                  | * Trachea                   | * Urinary Bladder        |                            |

MISSING

- \* Thymus

OBSERVATIONS

- |                        |                                |                               |                       |
|------------------------|--------------------------------|-------------------------------|-----------------------|
| * Heart                |                                | Cardiomyopathy                | Mild                  |
| * Islets, Pancreatic   |                                | Carcinoma                     |                       |
|                        | [ Carcinoma TGLs = 2 - 16 ]    |                               |                       |
| * Kidney               |                                | Nephropathy                   | Chronicprogr, Minimal |
| * Liver                |                                | Degeneration                  | Cystic, Minimal       |
|                        |                                | Fatty Change                  | Mild                  |
|                        |                                | Pigment                       | Minimal               |
|                        | [ Fatty Change TGLs = 1 - 15 ] |                               |                       |
| * Nose                 | Olfactory Epi                  | Accumulation, Hyaline Droplet | Mild                  |
| * Pituitary Gland      | Pars Distalis                  | Hyperplasia                   | Minimal               |
| * Spleen               |                                | Pigment                       | Minimal               |
| * Stomach, Forestomach |                                | Inflammation                  | Minimal               |
| * Thyroid Gland        | C Cell                         | Hyperplasia                   | Minimal               |

PRIMARY CAUSE OF DEATH - Islets, Pancreatic Carcinoma

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 128

TRT#: 3

SEX: Male

DAY ON TEST: 745

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101428

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Epididymis	* Esophagus	* Eye	* Harderian Gland
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Mammary Gland	* Parathyroid Gland	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Trachea	* Urinary Bladder		

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Brain		Glioma Malignant	
* Islets, Pancreatic		Hyperplasia	Minimal
* Kidney		Accumulation, Hyaline Droplet	Minimal
		Nephropathy	Chronicprogr, Mild
* Liver		Clear Cell Focus	
	Hepatocyte	Cytoplasmic Alteration	Mild
		Degeneration	Cystic, Minimal
		Eosinophilic Focus	
	Hepatocyte	Hypertrophy	Minimal
		Necrosis	Mild
	Hepatocyte	Single Cell Death	Minimal
* Lung		Inflammation	Multifocal, Granulomatous, Minimal
Lymph Node	Pancreatic	Ectasia	Moderate
		[ Ectasia TGLs = 1 - 17 ]	
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Adenoma	
	Acinus	Hyperplasia	Moderate
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Thymus		Atrophy	Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 128

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 745

**DOSE:** 0/20 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101428

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thyroid Gland

C Cell

Adenoma

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 129

TRT#: 3

SEX: Male

DAY ON TEST: 694

DOSE: 0/20 ppm

DISP: Moribund Sacrifice

HISTO: 1101429

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Nose	* Pancreas	* Parathyroid Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Testes	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Chronicprogr, Mild
* Liver	Hepatocyte	Cytoplasmic Alteration	Minimal
	Hepatocyte	Hypertrophy	Minimal
* Pituitary Gland	Pars Distalis	Adenoma	
	[ Adenoma TGLs = 1 - 15 ]		
* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal
* Stomach, Forestomach	Epithelium	Hyperplasia	Squamous, Moderate
		Inflammation	Moderate
		Ulcer	Minimal
	[ Hyperplasia TGLs = 2 - 16 ]		
* Stomach, Glandular	Glands	Necrosis	Minimal
* Thymus		Atrophy	Marked
* Thyroid Gland	C Cell	Adenoma	
	C Cell	Hyperplasia	Minimal
	Follicular Cel	Hypertrophy	Minimal

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 130

TRT#: 3

SEX: Male

DAY ON TEST: 744

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101430

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| Blood Vessel                | * Bone                   | * Bone Marrow              | * Brain                   |
| * Epididymis                | * Esophagus              | * Eye                      | * Harderian Gland         |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Lymph Node, Mandibular  |
| * Lymph Node, Mesenteric    | * Mammary Gland          | * Parathyroid Gland        | * Preputial Gland         |
| * Prostate                  | * Salivary Glands        | * Seminal Vesicle          | * Skin                    |
| * Stomach, Forestomach      | * Stomach, Glandular     | * Testes                   | * Trachea                 |
| * Urinary Bladder           |                          |                            |                           |

OBSERVATIONS

- |                      |                |                               |                       |
|----------------------|----------------|-------------------------------|-----------------------|
| * Adrenal Cortex     |                | Hypertrophy                   | Minimal               |
| * Adrenal Medulla    |                | Pheochromocytoma Benign       |                       |
| * Islets, Pancreatic |                | Hyperplasia                   | Minimal               |
| * Kidney             |                | Nephropathy                   | Chronicprogr, Minimal |
| * Liver              |                | Clear Cell Focus              |                       |
|                      |                | Inflammation                  | Focal, Minimal        |
|                      |                | Necrosis                      | Minimal               |
| * Lung               |                | Infiltration Cellular         | Histiocyte, Mild      |
| * Nose               | Olfactory Epi  | Accumulation, Hyaline Droplet | Marked                |
| * Pancreas           | Acinus         | Hyperplasia                   | Mild                  |
| * Pituitary Gland    | Pars Distalis  | Hyperplasia                   | Moderate              |
| * Spleen             |                | Extramedullary Hematopoiesis  | Mild                  |
|                      |                | Pigment                       | Minimal               |
| * Thymus             |                | Atrophy                       | Moderate              |
| * Thyroid Gland      | Follicular Cel | Hypertrophy                   | Minimal               |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 131

TRT#: 3

SEX: Male

DAY ON TEST: 744

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101431

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | Blood Vessel             | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            | * Pancreas                |
| * Parathyroid Gland         | * Pituitary Gland        | * Preputial Gland          | * Prostate                |
| * Salivary Glands           | * Seminal Vesicle        | * Skin                     | * Stomach, Forestomach    |
| * Stomach, Glandular        | * Testes                 | * Trachea                  | * Urinary Bladder         |

OBSERVATIONS

- |                   |  |                               |                      |
|-------------------|--|-------------------------------|----------------------|
| * Adrenal Medulla |  | Pheochromocytoma Malignant    |                      |
|                   | [ Pheochromocytoma Malignant TGLs = 1 - 16 ] |                               |                      |
| * Heart           |  | Cardiomyopathy                | Minimal              |
| * Kidney          |  | Nephropathy                   | Chronicprogr, Mild   |
| * Liver           |  | Clear Cell Focus              |                      |
|                   | Hepatocyte                                   | Cytoplasmic Alteration        | Mild                 |
|                   | Hepatocyte                                   | Hypertrophy                   | Minimal              |
|                   |  | Inflammation                  | Focal, Minimal       |
|                   |  | Necrosis                      | Minimal              |
|                   |  | Pigment                       | Mild                 |
| * Lung            |  | Infiltration Cellular         | Histiocyte, Moderate |
|                   | [ Infiltration Cellular TGLs = 2 - 4+5 ]     |                               |                      |
| * Nose            | Olfactory Epi                                | Accumulation, Hyaline Droplet | Mild                 |
| * Spleen          |  | Extramedullary Hematopoiesis  | Mild                 |
|                   |  | Pigment                       | Minimal              |
| * Thymus          |  | Atrophy                       | Moderate             |
| * Thyroid Gland   | Follicular Cel                               | Hypertrophy                   | Minimal              |

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 133

TRT#: 3

SEX: Male

DAY ON TEST: 745

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101433

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Prostate
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Preputial Gland
- \* Skin
- \* Trachea

OBSERVATIONS

- \* Heart
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
- \* Lung
- \* Lymph Node, Mandibular
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Renal Tubule
- Bile Duct
- [ Infiltration Cellular TGLs = 1 - 4+5 ]
- Olfactory Epi
- Acinus
- Pars Distalis
- C Cell
- Cardiomyopathy
- Hyperplasia
- Adenoma
- Nephropathy
- Clear Cell Focus
- Eosinophilic Focus
- Hyperplasia
- Infiltration Cellular
- Hyperplasia
- Accumulation, Hyaline Droplet
- Atrophy
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Adenoma
- Minimal
- Minimal
- Chronicprogr, Mild
- Minimal
- Histiocyte, Moderate
- Lymphoid, Mild
- Mild
- Minimal
- Minimal
- Mild
- Minimal
- Moderate

\* PROTOCOL REQUIRED TISSUE





Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 134

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 745

**DOSE:** 0/20 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101434

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thyroid Gland

C Cell

Adenoma

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 135

TRT#: 3

SEX: Male

DAY ON TEST: 743

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101435

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex	Zona Fascult	Hyperplasia	Minimal
* Kidney		Nephropathy	Chronicprogr, Minimal
* Liver		Clear Cell Focus	
		Inflammation	Focal, Minimal
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Hyperplasia	Mild
* Skin	Subcut Tiss	Fibroma	
	[ Fibroma TGLs = 1 - 15 ]		
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Adenoma	

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 136

TRT#: 3

SEX: Male

DAY ON TEST: 743

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101436

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Prostate
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Trachea

OBSERVATIONS

- \* Heart
- \* Intestine Large, Colon
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
- \* Lung
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Cardiomyopathy
- Parasite Metazoan
- Hyperplasia
- Infarct
- Nephropathy
- Clear Cell Focus
- Inflammation
- Infiltration Cellular
- Inflammation
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Adenoma
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Hyperplasia
- Minimal
- Mild
- Minimal
- Chronicprogr, Moderate
- Focal, Minimal
- Histiocyte, Minimal
- Multifocal, Granulomatous, Minimal
- Mild
- Multiple
- Marked
- [ Adenoma TGLs = 1,3 - 15+18 ]
- [ Adenoma TGLs = 2 - 17 ]
- Pars Distalis
- Minimal
- Minimal
- Moderate
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 137

TRT#: 3

SEX: Male

DAY ON TEST: 743

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101437

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Lung
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Parathyroid Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thyroid Gland	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Heart		Cardiomyopathy	Minimal
* Islets, Pancreatic		Hyperplasia	Mild
* Kidney		Nephropathy	Chronicprogr, Moderate
* Liver		Clear Cell Focus	
		Eosinophilic Focus	
		Necrosis	Mild
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Carcinoma	
	Acinus	Hyperplasia	Marked
		Inflammation	Chronic Active, Moderate
	[ Carcinoma TGLs = 1 - 15 ]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Thymus		Atrophy	Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 138

TRT#: 3

SEX: Male

DAY ON TEST: 743

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101438

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Heart
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Thyroid Gland
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Bone Marrow
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Liver
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Adrenal Medulla
- \* Eye
- \* Intestine Large, Colon
- \* Kidney
- \* Lung
- [ Infiltration Cellular TGLs = 1 - 4+5 ]
- \* Nose
- \* Pancreas
- [ Adenoma TGLs = 2 - 15 ]
- \* Pituitary Gland
- \* Spleen
- \* Thymus
- Retina
- Pheochromocytoma Benign
- Degeneration
- Parasite Metazoan
- Nephropathy
- Infiltration Cellular
- Inflammation
- Accumulation, Hyaline Droplet
- Adenoma
- Atrophy
- Hyperplasia
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Minimal
- Chronicprogr, Moderate
- Histiocyte, Mild
- Chronic Active, Minimal
- Mild
- Multiple
- Minimal
- Mild
- Minimal
- Mild
- Minimal
- Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 139

TRT#: 3

SEX: Male

DAY ON TEST: 745

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101439

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            |
| * Parathyroid Gland       | * Preputial Gland           | * Prostate               | * Salivary Glands          |
| * Seminal Vesicle         | * Skin                      | * Stomach, Forestomach   | * Stomach, Glandular       |
| * Testes                  | * Thyroid Gland             | * Trachea                | * Urinary Bladder          |

OBSERVATIONS

- |                   |               |                               |                         |
|-------------------|---------------|-------------------------------|-------------------------|
| * Heart           |               | Cardiomyopathy                | Minimal                 |
| * Kidney          |               | Nephropathy                   | Chronicprogr, Minimal   |
| * Liver           |               | Clear Cell Focus              |                         |
|                   |               | Degeneration                  | Cystic, Minimal         |
|                   |               | Necrosis                      | Mild                    |
| * Lung            |               | Infiltration Cellular         | Lymphocyte, Mild        |
| * Nose            | Olfactory Epi | Accumulation, Hyaline Droplet | Moderate                |
| * Pancreas        | Acinus        | Atrophy                       | Minimal                 |
|                   |               | Inflammation                  | Chronic Active, Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia                   | Marked                  |
| * Spleen          |               | Extramedullary Hematopoiesis  | Minimal                 |
|                   |               | Pigment                       | Minimal                 |
| * Thymus          |               | Atrophy                       | Moderate                |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 20614 - 02

**Test Type:** CHRONIC

**Route:** DOSED FEED

**Species/Strain:** RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

**CAS Number:** 335-67-1

**Date Report Requested:** 07/24/2018

**Time Report Requested:** 12:59:13

**First Dose M/F:** 07/27/09 / NA

**Lab:** BAT

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**ANIMAL ID:** 140

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 655

**DOSE:** 0/20 ppm

**DISP:** Moribund Sacrifice

**HISTO:** 1101440

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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PRIMARY CAUSE OF DEATH

- Lung Inflammation

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 142

TRT#: 3

SEX: Male

DAY ON TEST: 747

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101442

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex         | Blood Vessel               | * Bone                    | * Bone Marrow               |
| * Brain                  | * Epididymis               | * Esophagus               | * Harderian Gland           |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Lymph Node, Mandibular  | * Lymph Node, Mesenteric    |
| * Mammary Gland          | * Preputial Gland          | * Prostate                | * Salivary Glands           |
| * Seminal Vesicle        | * Skin                     | * Stomach, Forestomach    | * Stomach, Glandular        |
| * Testes                 | * Thyroid Gland            | * Trachea                 | * Urinary Bladder           |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |   |               |                               |                     |
|---|---------------|-------------------------------|---------------------|
| * Adrenal Medulla   |               | Hyperplasia                   | Mild                |
| * Eye   |               | Phthisis Bulbi                |                     |
| Note: Phthisis bulbi - lens absent, retinal degeneration, minimal if any residual inflammation.<br>[ Phthisis Bulbi TGLs = 5 - 11 ] |               |                               |                     |
| * Heart   |               | Cardiomyopathy                | Minimal             |
| * Islets, Pancreatic  |               | Adenoma                       |                     |
| * Kidney  |               | Nephropathy                   | Chronicprogr, Mild  |
| * Liver   |               | Clear Cell Focus              |                     |
|   | Hepatocyte    | Cytoplasmic Alteration        | Mild                |
|   |               | Degeneration                  | Cystic, Mild        |
|   | Hepatocyte    | Hypertrophy                   | Minimal             |
|   |               | Inflammation                  | Focal, Minimal      |
|   |               | Mixed Cell Focus              |                     |
|   |               | Necrosis                      | Minimal             |
| [ Mixed Cell Focus TGLs = 6,7 - 19+20 ]   |               |                               |                     |
| * Lung  |               | Infiltration Cellular         | Histiocyte, Minimal |
| [ Infiltration Cellular TGLs = 8 - 5 ]  |               |                               |                     |
| * Nose  | Olfactory Epi | Accumulation, Hyaline Droplet | Mild                |
| * Pancreas  | Acinus        | Adenoma                       | Multiple            |
|   | Acinus        | Atrophy                       | Mild                |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 142

TRT#: 3

SEX: Male

DAY ON TEST: 747

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101442

ORGAN AND ACCOUNTABLE SITE STATUS

	Acinus	Carcinoma	
	Acinus	Hyperplasia	Marked
[ Adenoma	TGLs = 2,3,4 - 16+17+18 ]		
[ Carcinoma	TGLs = 1-15 ]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal
* Thymus		Atrophy	Moderate

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 143

TRT#: 3

SEX: Male

DAY ON TEST: 745

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101443

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Mammary Gland
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Skin
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
- \* Liver
- \* Lung
  - [ Infiltration Cellular TGLs = 2 - 4+5 ]
- \* Nose
- \* Pancreas
  - [ Hyperplasia TGLs = 1 - 15 ]
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Hypertrophy
- Clear Cell Focus
- Necrosis
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Follicular Cel
- Minimal
- Minimal
- Histiocyte, Moderate
- Moderate
- Marked
- Mild
- Minimal
- Moderate
- Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 144

TRT#: 3

SEX: Male

DAY ON TEST: 745

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101444

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lung
- \* Pancreas
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Testes
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Mammary Gland
- \* Preputial Gland
- \* Skin
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
    - Blood Vessel
    - Note: Inflammation involves the testicular arterioles.
  - \* Kidney
    - [ Nephropathy TGLs = 1 - 6 ]
  - \* Liver
  - \* Nose
    - Olfactory Epi
    - Glands, Respirat Epith
  - \* Spleen
  - \* Thymus
  - \* Thyroid Gland
    - C Cell
    - Follicular Cel
- |  |                               |                        |
|--|-------------------------------|------------------------|
|  | Hypertrophy                   | Minimal                |
|  | Inflammation                  | Chronic, Mild          |
|  | Nephropathy                   | Chronicprogr, Moderate |
|  | Clear Cell Focus              |                        |
|  | Inflammation                  | Focal, Minimal         |
|  | Accumulation, Hyaline Droplet | Minimal                |
|  | Inflammation                  | Minimal                |
|  | Extramedullary Hematopoiesis  | Minimal                |
|  | Pigment                       | Minimal                |
|  | Atrophy                       | Moderate               |
|  | Carcinoma                     |                        |
|  | Hypertrophy                   | Minimal                |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 145

TRT#: 3

SEX: Male

DAY ON TEST: 746

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101445

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Heart		Cardiomyopathy	Mild
* Kidney		Nephropathy	Chronicprogr, Mild
* Liver		Clear Cell Focus	
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Marked
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Hyperplasia	Marked
	[ Adenoma TGLs = 2 - 16 ]		
* Skin		Keratoacanthoma	
	[ Keratoacanthoma TGLs = 1 - 15 ]		
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Thymus		Atrophy	Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 146

TRT#: 3

SEX: Male

DAY ON TEST: 746

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101446

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla        | * Bone                     | * Bone Marrow             | * Brain                     |
| * Epididymis             | * Esophagus                | * Eye                     | * Harderian Gland           |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Liver                     |
| * Lung                   | * Lymph Node, Mandibular   | * Lymph Node, Mesenteric  | * Mammary Gland             |
| * Preputial Gland        | * Prostate                 | * Salivary Glands         | * Seminal Vesicle           |
| * Stomach, Forestomach   | * Stomach, Glandular       | * Trachea                 | * Urinary Bladder           |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |   |                           |                               |                        |
|---|---------------------------|-------------------------------|------------------------|
| * Adrenal Cortex  |                           | Hypertrophy                   | Minimal                |
| Blood Vessel  |                           | Inflammation                  | Minimal                |
|   |                           | Mineral                       | Minimal                |
| Note: Inflammation and mineral involve the coronary artery. |                           |                               |                        |
| * Heart   |                           | Cardiomyopathy                | Mild                   |
| * Kidney  | Cortex                    | Cyst                          |                        |
|   | Papilla, Urothelium       | Hyperplasia                   | Minimal                |
|   |                           | Nephropathy                   | Chronicprogr, Moderate |
|   | [ Cyst TGLs = 2 - 6 ]     |                               |                        |
| * Nose  | Olfactory Epi             | Accumulation, Hyaline Droplet | Minimal                |
| * Pancreas  | Acinus                    | Adenoma                       | Multiple               |
|   | Acinus                    | Hyperplasia                   | Marked                 |
|   | [ Adenoma TGLs = 1 - 15 ] |                               |                        |
| * Pituitary Gland   | Pars Distalis             | Adenoma                       |                        |
|   | [ Adenoma TGLs = 3 - 16 ] |                               |                        |
| * Skin  | Subcut Tiss               | Fibroma                       |                        |
| * Spleen  |                           | Extramedullary Hematopoiesis  | Mild                   |
|   |                           | Pigment                       | Minimal                |
| * Testes  | Interstit Cell            | Hyperplasia                   | Minimal                |
| * Thymus  |                           | Atrophy                       | Moderate               |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 146

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 746

**DOSE:** 0/20 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101446

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thyroid Gland

Follicular Cel

Hypertrophy

Mild

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 147

TRT#: 3

SEX: Male

DAY ON TEST: 680

DOSE: 0/20 ppm

DISP: Natural Death

HISTO: 1101447

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Trachea
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Skin
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Mammary Gland
- \* Preputial Gland
- \* Stomach, Glandular
- \* Bone Marrow
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Liver
- \* Pancreas
- \* Salivary Glands
- \* Testes

MISSING

- \* Thymus

OBSERVATIONS

- \* Adrenal Cortex
- \* Eye
- \* Heart
- \* Kidney
- \* Lung
- \* Nose
- \* Prostate
- \* Spleen
- \* Stomach, Forestomach
- \* Thyroid Gland
- Cornea
- Olfactory Epi  
Glands, Respirat Epith
- Ventral
- Lymph Follic
- Epithelium
- C Cell
- Degeneration
- Inflammation
- Cardiomyopathy
- Nephropathy
- Inflammation
- Accumulation, Hyaline Droplet
- Inflammation
- Atrophy
- Pigment
- Hyperplasia
- Inflammation
- Hyperplasia
- Cystic, Minimal
- Moderate
- Moderate
- Chronicprogr, Mild
- Acute, Mild
- Mild
- Minimal
- Chronic Active, Minimal
- Moderate
- Minimal
- Squamous, Mild
- Minimal
- Marked

PRIMARY CAUSE OF DEATH - Heart Cardiomyopathy

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 148

TRT#: 3

SEX: Male

DAY ON TEST: 745

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101448

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Trachea
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Adrenal Cortex
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
- [ Mixed Cell Focus TGLs = 2 - 16 ]
- \* Lung
- \* Nose
- \* Pancreas
- [ Adenoma TGLs = 1 - 15 ]
- \* Pituitary Gland
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Hypertrophy
- Adenoma
- Nephropathy
- Clear Cell Focus
- Extramedullary Hematopoiesis
- Mixed Cell Focus
- Necrosis
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Hyperplasia
- Minimal
- Chronicprogr, Mild
- Minimal
- Minimal
- Histiocyte, Mild
- Mild
- Moderate
- Minimal
- Mild
- Minimal
- Moderate
- Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 149

TRT#: 3

SEX: Male

DAY ON TEST: 747

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101449

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Mammary Gland	* Parathyroid Gland	* Preputial Gland
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex	Zona Fascult	Hyperplasia	Minimal
* Heart		Cardiomyopathy	Minimal
* Islets, Pancreatic		Adenoma	
* Kidney		Nephropathy	Chronicprogr, Marked
* Liver		Clear Cell Focus	
* Lung		Infiltration Cellular	Histiocyte, Minimal
	[ Infiltration Cellular TGLs = 3 - 4+5 ]		
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Minimal
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Atrophy	Minimal
	Acinus	Hyperplasia	Marked
	[ Adenoma TGLs = 1,2 - 15+16 ]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Prostate	Epithelium, Ventral	Hyperplasia	Minimal
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Adenoma	
	C Cell	Hyperplasia	Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 150

TRT#: 3

SEX: Male

DAY ON TEST: 747

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101450

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | * Bone                      | * Brain                  |
| * Epididymis               | * Esophagus               | * Eye                       | * Harderian Gland        |
| * Intestine Large, Cecum   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric |
| * Mammary Gland            | * Preputial Gland         | * Prostate                  | * Salivary Glands        |
| * Seminal Vesicle          | * Skin                    | * Stomach, Forestomach      | * Stomach, Glandular     |
| * Testes                   | * Thyroid Gland           | * Trachea                   | * Urinary Bladder        |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |  |               |                               |                      |
|--|---------------|-------------------------------|----------------------|
| Blood Vessel                                       |               | Inflammation                  | Mild                 |
| Note: Inflammation involves the mesenteric artery. |               |                               |                      |
| [ Inflammation TGLs = 3 - 16 ]                     |               |                               |                      |
| * Bone Marrow                                      |               | Hyperplasia                   | Mild                 |
| * Heart  |               | Cardiomyopathy                | Minimal              |
| * Intestine Large, Colon                           |               | Parasite Metazoan             |                      |
| * Kidney   |               | Nephropathy                   | Chronicprogr, Mild   |
| * Liver  |               | Clear Cell Focus              |                      |
|  |               | Inflammation                  | Focal, Minimal       |
|  |               | Necrosis                      | Minimal              |
| * Lung   |               | Infiltration Cellular         | Histiocyte, Moderate |
| [ Infiltration Cellular TGLs = 2 - 4+5 ]           |               |                               |                      |
| * Nose   | Olfactory Epi | Accumulation, Hyaline Droplet | Mild                 |
| * Pancreas   | Acinus        | Adenoma                       | Multiple             |
|  | Acinus        | Hyperplasia                   | Marked               |
| [ Adenoma TGLs = 1 - 15 ]                          |               |                               |                      |
| * Pituitary Gland                                  | Pars Distalis | Hyperplasia                   | Mild                 |
| * Spleen   |               | Extramedullary Hematopoiesis  | Minimal              |
|  |               | Pigment                       | Minimal              |
| * Thymus   |               | Atrophy                       | Moderate             |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 151

TRT#: 3

SEX: Male

DAY ON TEST: 744

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101451

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| Blood Vessel             | * Bone                     | * Bone Marrow             | * Brain                     |
| * Epididymis             | * Esophagus                | * Eye                     | * Harderian Gland           |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lung                      |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           | * Pituitary Gland           |
| * Preputial Gland        | * Prostate                 | * Salivary Glands         | * Seminal Vesicle           |
| * Stomach, Forestomach   | * Stomach, Glandular       | * Testes                  | * Trachea                   |
| * Urinary Bladder        |                            |                           |                             |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                   |   |                               |                        |
|-------------------|---|-------------------------------|------------------------|
| * Adrenal Cortex  |   | Hypertrophy                   | Minimal                |
| * Adrenal Medulla |   | Hyperplasia                   | Moderate               |
| * Heart           |   | Cardiomyopathy                | Mild                   |
| * Kidney          |   | Nephropathy                   | Chronicprogr, Moderate |
| * Liver           |   | Clear Cell Focus              |                        |
|                   |   | Inflammation                  | Focal, Minimal         |
|                   |   | Necrosis                      | Minimal                |
| * Nose            | Olfactory Epi                             | Accumulation, Hyaline Droplet | Mild                   |
| * Pancreas        | Acinus                                    | Hyperplasia                   | Marked                 |
| * Skin            |   | Pilomatrixoma                 |                        |
|                   |   | Squamous Cell Papilloma       |                        |
|                   | [ Pilomatrixoma TGLs = 1 - 16 ]           |                               |                        |
|                   | [ Squamous Cell Papilloma TGLs = 2 - 17 ] |                               |                        |
| * Spleen          |   | Extramedullary Hematopoiesis  | Mild                   |
|                   |   | Pigment                       | Minimal                |
| * Thymus          |   | Atrophy                       | Moderate               |
| * Thyroid Gland   | Bilateral, C Cell                         | Adenoma                       |                        |

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 153

TRT#: 3

SEX: Male

DAY ON TEST: 746

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101453

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Blood Vessel
- \* Bone
- \* Bone Marrow
- \* Brain
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Harderian Gland
- \* Heart
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Lung
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Parathyroid Gland
- \* Pituitary Gland
- \* Preputial Gland
- \* Prostate
- \* Salivary Glands
- \* Seminal Vesicle
- \* Skin
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Testes
- \* Thyroid Gland
- \* Trachea
- \* Urinary Bladder

OBSERVATIONS

- \* Islets, Pancreatic
  - \* Kidney
  - \* Liver
  - \* Nose
  - \* Pancreas
  - \* Spleen
  - \* Thymus
- [ Adenoma TGLs = 1 - 15 ]
- Adenoma
  - Nephropathy
  - Chronicprogr, Mild
  - Clear Cell Focus
  - Inflammation
  - Focal, Minimal
  - Pigment
  - Minimal
  - Accumulation, Hyaline Droplet
  - Marked
  - Adenoma
  - Multiple
  - Atrophy
  - Moderate
  - Hyperplasia
  - Marked
  - Extramedullary Hematopoiesis
  - Minimal
  - Pigment
  - Minimal
  - Atrophy
  - Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 154

TRT#: 3

SEX: Male

DAY ON TEST: 746

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101454

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Parathyroid Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Trachea	* Urinary Bladder		

OBSERVATIONS

* Adrenal Cortex	Zona Fascult	Hyperplasia	Minimal
* Kidney		Nephropathy	Chronicprogr, Mild
* Liver		Clear Cell Focus	
	Hepatocyte	Cytoplasmic Alteration	Minimal
	Hepatocyte	Hypertrophy	Minimal
* Lung		Infiltration Cellular	Histiocyte, Minimal
	[ Infiltration Cellular TGLs = 4 - 4+5 ]		
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Atrophy	Minimal
	Acinus	Hyperplasia	Marked
	[ Adenoma TGLs = 3 - 17 ]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Skin	Epidermis	Hyperplasia	Marked
		Lipoma	
	[ Hyperplasia TGLs = 1 - 15 ]		
	[ Lipoma TGLs = 2 - 16 ]		
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Hyperplasia	Mild

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 155

TRT#: 3

SEX: Male

DAY ON TEST: 747

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101455

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
- Blood Vessel
- \* Kidney
- \* Liver
- [ Mixed Cell Focus TGLs = 4 - 17 ]
- \* Lung
- [ Infiltration Cellular TGLs = 5 - 4 ]
- \* Mammary Gland
- [ Fibroadenoma TGLs = 1 - 15 ]
- \* Nose
- \* Pancreas
- [ Adenoma TGLs = 3 - 16 ]
- \* Spleen
- \* Testes
- [ Edema TGLs = 2 - 12 ]
- \* Thymus
- Pulmn Vein
- Olfactory Epi
- Acinus
- Acinus
- Bilateral, Germinal Epith
- Hypertrophy
- Mineral
- Infarct
- Nephropathy
- Clear Cell Focus
- Mixed Cell Focus
- Infiltration Cellular
- Fibroadenoma
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Degeneration
- Edema
- Atrophy
- Minimal
- Minimal
- Minimal
- Chronicprogr, Moderate
- Histiocyte, Moderate
- Mild
- Multiple
- Marked
- Minimal
- Minimal
- Moderate
- Marked
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 155

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 747

**DOSE:** 0/20 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101455

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* Thyroid Gland

Follicular Cel

Hypertrophy

Mild

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 156

TRT#: 3

SEX: Male

DAY ON TEST: 747

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101456

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Glandular
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Testes
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Thyroid Gland
- \* Bone Marrow
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Trachea

OBSERVATIONS

- \* Adrenal Medulla
- \* Eye
- \* Heart
- \* Kidney
- \* Liver
- \* Lung
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Skin
- \* Spleen
- \* Thymus
- Cornea
- Olfactory Epi  
Glands, Respirat Epith
- Acinus
- Acinus
- Pars Distalis
- [ Keratoacanthoma TGLs = 1 - 15 ]
- Pheochromocytoma Benign
- Inflammation
- Cardiomyopathy
- Infarct
- Nephropathy
- Clear Cell Focus
- Inflammation
- Infiltration Cellular
- Inflammation
- Accumulation, Hyaline Droplet
- Inflammation
- Adenoma
- Atrophy
- Hyperplasia
- Keratoacanthoma
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Minimal
- Mild
- Minimal
- Chronicprogr, Moderate
- Focal, Minimal
- Histiocyte, Minimal
- Multifocal, Granulomatous, Minimal
- Mild
- Minimal
- Minimal
- Minimal
- Minimal
- Minimal
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 157

TRT#: 3

SEX: Male

DAY ON TEST: 747

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101457

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| Blood Vessel               | * Bone                    | * Brain                     | * Epididymis             |
| * Esophagus                | * Eye                     | * Harderian Gland           | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric |
| * Mammary Gland            | * Parathyroid Gland       | * Pituitary Gland           | * Preputial Gland        |
| * Prostate                 | * Salivary Glands         | * Seminal Vesicle           | * Skin                   |
| * Stomach, Forestomach     | * Stomach, Glandular      | * Testes                    | * Thyroid Gland          |
| * Trachea                  | * Urinary Bladder         |                             |                          |

OBSERVATIONS

- |                   |                           |                               |                    |
|-------------------|---------------------------|-------------------------------|--------------------|
| * Adrenal Cortex  |                           | Hypertrophy                   | Minimal            |
| * Adrenal Medulla |                           | Hyperplasia                   | Marked             |
| * Bone Marrow     |                           | Hyperplasia                   | Mild               |
| * Heart           |                           | Cardiomyopathy                | Minimal            |
| * Kidney          |                           | Nephropathy                   | Chronicprogr, Mild |
| * Liver           |                           | Clear Cell Focus              |                    |
|                   |                           | Inflammation                  | Focal, Minimal     |
|                   |                           | Necrosis                      | Minimal            |
| * Lung            | Alveolar Epith            | Hyperplasia                   | Mild               |
| * Nose            | Olfactory Epi             | Accumulation, Hyaline Droplet | Moderate           |
| * Pancreas        | Acinus                    | Adenoma                       | Multiple           |
|                   | Acinus                    | Hyperplasia                   | Marked             |
|                   | [ Adenoma TGLs = 2 - 15 ] |                               |                    |
| * Spleen          |                           | Extramedullary Hematopoiesis  | Minimal            |
|                   |                           | Pigment                       | Minimal            |
| * Thymus          |                           | Atrophy                       | Moderate           |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 158

TRT#: 3

SEX: Male

DAY ON TEST: 747

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101458

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Heart
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Preputial Gland
- \* Skin
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Nose
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Adrenal Cortex
- Blood Vessel
- \* Intestine Large, Colon
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
- Note: TGL 1 = No Correlating Lesion (NCL)
- \* Lung
- \* Pancreas
- [ Hyperplasia TGLs = 2 - 16 ]
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Aorta
- Acinus
- Acinus
- Acinus
- C Cell
- Hypertrophy
- Mineral
- Parasite Metazoan
- Adenoma
- Nephropathy
- Necrosis
- Infiltration Cellular
- Adenoma
- Atrophy
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Hyperplasia
- Minimal
- Minimal
- Chronicprogr, Mild
- Minimal
- Histiocyte, Minimal
- Multiple
- Minimal
- Marked
- Minimal
- Minimal
- Moderate
- Moderate

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 160

TRT#: 3

SEX: Male

DAY ON TEST: 746

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101460

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   |
| * Mammary Gland           | * Parathyroid Gland         | * Pituitary Gland        | * Preputial Gland          |
| * Salivary Glands         | * Seminal Vesicle           | * Stomach, Forestomach   | * Stomach, Glandular       |
| * Testes                  | * Trachea                   | * Urinary Bladder        |                            |

OBSERVATIONS

- |                 |                           |                               |                    |
|-----------------|---------------------------|-------------------------------|--------------------|
| * Heart         |                           | Cardiomyopathy                | Minimal            |
| * Kidney        |                           | Nephropathy                   | Chronicprogr, Mild |
| * Liver         |                           | Clear Cell Focus              |                    |
|                 |                           | Necrosis                      | Minimal            |
| * Nose          | Olfactory Epi             | Accumulation, Hyaline Droplet | Mild               |
| * Pancreas      | Acinus                    | Hyperplasia                   | Moderate           |
| * Prostate      | Epithelium, Ventral       | Hyperplasia                   | Minimal            |
| * Skin          | Subcut Tiss               | Fibroma                       |                    |
|                 | [ Fibroma TGLs = 1 - 15 ] |                               |                    |
| * Spleen        |                           | Extramedullary Hematopoiesis  | Mild               |
|                 |                           | Pigment                       | Minimal            |
| * Thymus        |                           | Atrophy                       | Moderate           |
| * Thyroid Gland | C Cell                    | Hyperplasia                   | Minimal            |

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 161

TRT#: 3

SEX: Male

DAY ON TEST: 679

DOSE: 0/20 ppm

DISP: Natural Death

HISTO: 1101461

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex         | * Adrenal Medulla          | * Bone                    | * Brain                     |
| * Epididymis             | * Esophagus                | * Eye                     | * Harderian Gland           |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    |
| * Lymph Node, Mesenteric | * Mammary Gland            | * Nose                    | * Parathyroid Gland         |
| * Pituitary Gland        | * Preputial Gland          | * Prostate                | * Salivary Glands           |
| * Seminal Vesicle        | * Skin                     | * Stomach, Forestomach    | * Stomach, Glandular        |
| * Trachea                | * Urinary Bladder          |                           |                             |

OBSERVATIONS

- |                 |   |                              |                         |
|-----------------|---|------------------------------|-------------------------|
| Blood Vessel    | Pulmn Artery                                  | Mineral                      | Minimal                 |
| * Bone Marrow   |   | Hyperplasia                  | Mild                    |
| * Heart         |   | Cardiomyopathy               | Minimal                 |
| * Kidney        |   | Nephropathy                  | Chronicprogr, Minimal   |
| * Liver         | Hepatocyte                                    | Cytoplasmic Alteration       | Minimal                 |
|                 |   | Eosinophilic Focus           |                         |
|                 | Bile Duct                                     | Hyperplasia                  | Minimal                 |
|                 | Hepatocyte                                    | Hypertrophy                  | Minimal                 |
|                 |   | Necrosis                     | Minimal                 |
|                 |   | Pigment                      | Mild                    |
|                 | [ Necrosis TGLs = 6 - 20 ]                    |                              |                         |
| * Lung          |   | Infiltration Cellular        | Histiocyte, Moderate    |
|                 |   | Inflammation                 | Chronic Active, Minimal |
|                 | [ Infiltration Cellular TGLs = 7 - 4+5 ]      |                              |                         |
| * Pancreas      | Acinus  | Adenoma                      | Multiple                |
|                 | [ Adenoma TGLs = 1,2,3,4,5 - 15+16+17+18+19 ] |                              |                         |
| * Spleen        | Lymph Follic                                  | Atrophy                      | Mild                    |
|                 |   | Extramedullary Hematopoiesis | Mild                    |
| * Testes        | Germinal Epith                                | Degeneration                 | Marked                  |
| * Thymus        |   | Atrophy                      | Marked                  |
| * Thyroid Gland | C Cell  | Adenoma                      |                         |

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 20614 - 02

**Test Type:** CHRONIC

**Route:** DOSED FEED

**Species/Strain:** RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

**CAS Number:** 335-67-1

**Date Report Requested:** 07/24/2018

**Time Report Requested:** 12:59:13

**First Dose M/F:** 07/27/09 / NA

**Lab:** BAT

---

**ANIMAL ID:** 161

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 679

**DOSE:** 0/20 ppm

**DISP:** Natural Death

**HISTO:** 1101461

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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PRIMARY CAUSE OF DEATH

- Pancreas Acinus Adenoma

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 162

TRT#: 3

SEX: Male

DAY ON TEST: 746

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101462

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Preputial Gland
- \* Seminal Vesicle
- \* Skin
- \* Testes
- \* Thyroid Gland
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Prostate
- \* Stomach, Forestomach
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder

OBSERVATIONS

- \* Heart
- \* Intestine Large, Colon
- \* Kidney
- \* Liver
- \* Lung
- \* Nose
- \* Pancreas
- \* Spleen
- \* Thymus
- Cardiomyopathy
- Parasite Metazoan
- Nephropathy
- Clear Cell Focus
- Hepatocyte
- Hepatocyte
- Cytoplasmic Alteration
- Hypertrophy
- Inflammation
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Minimal
- Chronicprogr, Mild
- Minimal
- Minimal
- Focal, Minimal
- Histiocyte, Mild
- Mild
- Multiple
- Marked
- Mild
- Minimal
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 163

TRT#: 3

SEX: Male

DAY ON TEST: 744

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101463

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Epididymis	* Esophagus	* Harderian Gland	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Stomach, Forestomach	* Stomach, Glandular	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
Blood Vessel		Inflammation	Chronic, Minimal
Note: Inflammation involves the mesenteric and testicular arterioles.			
* Eye	Cornea	Inflammation	Mild
* Islets, Pancreatic		Hyperplasia	Mild
* Kidney	Papilla, Urothelium	Hyperplasia	Minimal
	[ Nephropathy TGLs = 2 - 6 ]	Nephropathy	Chronicprogr, Marked
* Liver		Cholangiofibrosis	Moderate
		Clear Cell Focus	
* Lung	Alveolar Epith	Hyperplasia	Moderate
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Hyperplasia	Marked
	[ Adenoma TGLs = 1 - 16 ]		
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Testes	Germinal Epith	Degeneration	Mild
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Hyperplasia	Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 164

TRT#: 3

SEX: Male

DAY ON TEST: 744

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101464

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla         | Blood Vessel                | * Bone                   | * Bone Marrow              |
| * Brain                   | * Epididymis                | * Esophagus              | * Eye                      |
| * Harderian Gland         | * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Pancreas                 |
| * Parathyroid Gland       | * Preputial Gland           | * Salivary Glands        | * Seminal Vesicle          |
| * Skin                    | * Stomach, Forestomach      | * Stomach, Glandular     | * Testes                   |
| * Thyroid Gland           | * Trachea                   | * Urinary Bladder        |                            |

OBSERVATIONS

- |                   |  |                               |                      |
|-------------------|--|-------------------------------|----------------------|
| * Adrenal Cortex  |  | Hypertrophy                   | Minimal              |
| * Kidney          |  | Nephropathy                   | Chronicprogr, Mild   |
| * Liver           |  | Clear Cell Focus              |                      |
| * Lung            |  | Infiltration Cellular         | Histiocyte, Mild     |
|                   | [ Infiltration Cellular TGLs = 2 - 4+5 ] |                               |                      |
| * Mammary Gland   |  | Fibroadenoma                  |                      |
|                   | [ Fibroadenoma TGLs = 1 - 16 ]           |                               |                      |
| * Nose            | Olfactory Epi                            | Accumulation, Hyaline Droplet | Mild                 |
| * Pituitary Gland | Pars Distalis                            | Hyperplasia                   | Mild                 |
| * Prostate        | Ventral                                  | Inflammation                  | Chronic Active, Mild |
| * Spleen          |  | Extramedullary Hematopoiesis  | Minimal              |
| * Thymus          |  | Atrophy                       | Moderate             |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 165

TRT#: 3

SEX: Male

DAY ON TEST: 666

DOSE: 0/20 ppm

DISP: Moribund Sacrifice

HISTO: 1101465

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | Blood Vessel               | * Bone                    |
| * Brain                     | * Esophagus              | * Eye                      | * Harderian Gland         |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            | * Parathyroid Gland       |
| * Preputial Gland           | * Prostate               | * Salivary Glands          | * Skin                    |
| * Stomach, Glandular        | * Testes                 | * Trachea                  |                           |

OBSERVATIONS

- |                        |   |                               |                     |
|------------------------|---|-------------------------------|---------------------|
| * Bone Marrow          |   | Hyperplasia                   | Marked              |
| * Epididymis           |   | Histiocytic Sarcoma           |                     |
| * Kidney               |   | Accumulation, Hyaline Droplet | Marked              |
|                        |   | Nephropathy                   | Chronicprogr, Mild  |
| * Liver                |   | Histiocytic Sarcoma           |                     |
|                        | Hepatocyte                                | Hypertrophy                   | Moderate            |
|                        |   | Pigment                       | Mild                |
|                        | [ Histiocytic Sarcoma TGLs = 3,5 - 3+16 ] |                               |                     |
| * Lung                 |   | Histiocytic Sarcoma           |                     |
|                        |   | Infiltration Cellular         | Histiocyte, Minimal |
|                        | [ Histiocytic Sarcoma TGLs = 6 - 4+5 ]    |                               |                     |
| Lymph Node             | Mediastinal                               | Histiocytic Sarcoma           |                     |
|                        | [ Histiocytic Sarcoma TGLs = 4 - 15 ]     |                               |                     |
| Mesentery              |   | Histiocytic Sarcoma           |                     |
| * Nose                 | Olfactory Epi                             | Accumulation, Hyaline Droplet | Mild                |
| * Pancreas             |   | Histiocytic Sarcoma           |                     |
|                        | [ Histiocytic Sarcoma TGLs = 2 - 17 ]     |                               |                     |
| * Pituitary Gland      | Pars Distalis                             | Hyperplasia                   | Minimal             |
| * Seminal Vesicle      |   | Histiocytic Sarcoma           |                     |
| Skeletal Muscle        |   | Histiocytic Sarcoma           |                     |
| * Spleen               |   | Extramedullary Hematopoiesis  | Mild                |
| * Stomach, Forestomach |   | Histiocytic Sarcoma           |                     |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 165

**TRT#:** 3

**SEX:** Male

**DAY ON TEST:** 666

**DOSE:** 0/20 ppm

**DISP:** Moribund Sacrifice

**HISTO:** 1101465

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thymus

Atrophy

Marked

\* Thyroid Gland

Follicular Cel

Hypertrophy

Mild

\* Urinary Bladder

Histiocytic Sarcoma

---

PRIMARY CAUSE OF DEATH

- Pancreas Histiocytic Sarcoma

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 166

TRT#: 3

SEX: Male

DAY ON TEST: 745

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101466

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Pancreas
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Chronicprogr, Moderate
* Liver		Clear Cell Focus	
		Inflammation	Focal, Minimal
* Lung		Infiltration Cellular	Histiocyte, Moderate
	[ Infiltration Cellular TGLs = 1 - 4+5 ]		
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Adenoma	
	C Cell	Hyperplasia	Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 167

TRT#: 3

SEX: Male

DAY ON TEST: 745

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101467

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Mammary Gland
- \* Salivary Glands
- \* Thyroid Gland
- \* Brain
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Trachea
- \* Epididymis
- \* Intestine Large, Colon
- \* Islets, Pancreatic
- \* Preputial Gland
- \* Skin
- \* Urinary Bladder
- \* Esophagus
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Prostate
- \* Stomach, Glandular

MISSING

- \* Thymus

OBSERVATIONS

- \* Adrenal Cortex
  - Blood Vessel
    - Pulmn Artery
      - Note: Inflammation involves duodenal-pancreatic artery and testicular arterioles.
- \* Bone
  - Osteopetrosis
- \* Bone Marrow
  - Hyperplasia
- \* Eye
  - Retina
    - Degeneration
- \* Heart
  - Valve
    - Cardiomyopathy
    - Degeneration
- \* Intestine Small, Ileum
  - Inflammation
  - Lymphoma Malignant
  - Ulcer
- \* Kidney
  - [ Lymphoma Malignant TGLs = 2,3 - 17 ]
  - Lymphoma Malignant
  - Nephropathy
- \* Liver
  - [ Lymphoma Malignant TGLs = 1 - 15 ]
  - Eosinophilic Focus
  - Inflammation
- \* Lung
  - Infiltration Cellular
- \* Lymph Node, Mesenteric
  - [ Lymphoma Malignant TGLs = 4 - 18 ]
  - Lymphoma Malignant

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 167

TRT#: 3

SEX: Male

DAY ON TEST: 745

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101467

**ORGAN AND ACCOUNTABLE SITE STATUS**

* Nose	Olfactory Epi Respirat Epith	Accumulation, Hyaline Droplet Inflammation	Mild Minimal
* Pancreas	Acinus	Atrophy Inflammation	Minimal Chronic Active, Minimal
* Pituitary Gland [ Adenoma TGLs = 5 - 19 ]	Pars Distalis	Adenoma	
* Spleen		Extramedullary Hematopoiesis	Moderate
* Stomach, Forestomach	Epithelium	Hyperplasia Inflammation	Squamous, Mild Mild
* Testes	Germinal Epith	Degeneration	Minimal

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 168

TRT#: 3

SEX: Male

DAY ON TEST: 116

DOSE: 0/20 ppm

DISP: Moribund Sacrifice

HISTO: 1101468

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Brain                   | * Epididymis                | * Esophagus              | * Eye                      |
| * Harderian Gland         | * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   |
| * Mammary Gland           | * Nose                      | * Pancreas               | * Parathyroid Gland        |
| * Pituitary Gland         | * Preputial Gland           | * Prostate               | * Salivary Glands          |
| * Seminal Vesicle         | * Skin                      | * Stomach, Forestomach   | * Stomach, Glandular       |
| * Testes                  | * Trachea                   | * Urinary Bladder        |                            |

OBSERVATIONS

- |                 |                |                        |                       |
|-----------------|----------------|------------------------|-----------------------|
| * Bone Marrow   |                | Hyperplasia            | Moderate              |
| * Kidney        |                | Nephropathy            | Chronicprogr, Minimal |
| * Liver         | Hepatocyte     | Cytoplasmic Alteration | Mild                  |
|                 | Hepatocyte     | Hypertrophy            | Minimal               |
|                 |                | Pigment                | Minimal               |
| * Spleen        |                | Pigment                | Minimal               |
| * Thymus        |                | Atrophy                | Mild                  |
| * Thyroid Gland | Follicular Cel | Hypertrophy            | Moderate              |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 169

TRT#: 3

SEX: Male

DAY ON TEST: 743

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101469

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Skin
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Mammary Gland
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone Marrow
- \* Eye
- \* Intestine Small, Duodenum
- \* Lung
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- |  |  |   |  |
|--|--|---|--|
| <ul style="list-style-type: none"> <li>* Adrenal Cortex</li> <li>Blood Vessel</li> <li>* Heart</li> <li>* Intestine Large, Colon</li> <li>* Kidney</li> <li>* Liver</li> <li>* Nose</li> <li>* Pancreas</li> <li>[ Adenoma TGLs = 1 - 15 ]</li> <li>* Spleen</li> <li>* Thymus</li> <li>* Thyroid Gland</li> </ul> | <ul style="list-style-type: none"> <li>Aorta, Pulmn Artery</li> <li>Olfactory Epi</li> <li>Acinus</li> <li>Acinus</li> <li>C Cell</li> <li>C Cell</li> </ul> | <ul style="list-style-type: none"> <li>Hypertrophy</li> <li>Mineral</li> <li>Cardiomyopathy</li> <li>Parasite Metazoan</li> <li>Nephropathy</li> <li>Clear Cell Focus</li> <li>Necrosis</li> <li>Accumulation, Hyaline Droplet</li> <li>Adenoma</li> <li>Hyperplasia</li> <li>Extramedullary Hematopoiesis</li> <li>Pigment</li> <li>Atrophy</li> <li>Adenoma</li> <li>Hyperplasia</li> </ul> | <ul style="list-style-type: none"> <li>Minimal</li> <li>Minimal</li> <li>Mild</li> <li>Chronicprogr, Moderate</li> <li>Minimal</li> <li>Mild</li> <li>Multiple</li> <li>Marked</li> <li>Minimal</li> <li>Minimal</li> <li>Mild</li> <li>Minimal</li> </ul> |
|--|--|---|--|

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 170

TRT#: 3

SEX: Male

DAY ON TEST: 743

DOSE: 0/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101470

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Skin
- \* Trachea
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Pancreas
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Adrenal Cortex
- \* Heart
- \* Kidney
- \* Liver
- \* Lung
- [ Infiltration Cellular TGLs = 1 - 4+5 ]
- \* Nose
- \* Pituitary Gland
- \* Prostate
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- [ Carcinoma TGLs = 2 - 9 ]
- Hypertrophy
- Cardiomyopathy
- Nephropathy
- Clear Cell Focus
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Inflammation
- Hyperplasia
- Adenoma
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Carcinoma
- Hypertrophy
- Minimal
- Minimal
- Chronicprogr, Moderate
- Histiocyte, Moderate
- Mild
- Minimal
- Minimal
- Mild
- Minimal
- Moderate
- Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 181

TRT#: 4

SEX: Male

DAY ON TEST: 745

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101481

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Blood Vessel
- \* Bone Marrow
- \* Brain
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Lung
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Parathyroid Gland
- \* Preputial Gland
- \* Salivary Glands
- \* Seminal Vesicle
- \* Skin
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Testes
- \* Trachea
- \* Urinary Bladder

OBSERVATIONS

- \* Bone Joint Arthrosis Marked  
[ Arthrosis TGLs = 3, 5 - 17+19 ]
- \* Heart Cardiomyopathy Minimal
- \* Islets, Pancreatic Adenoma
- \* Kidney Nephropathy Chronicprogr, Mild
- \* Liver Clear Cell Focus
- Lymph Node Mediastinal Hemorrhage Mild  
[ Hemorrhage TGLs = 4 - 18 ]
- \* Nose Olfactory Epi Accumulation, Hyaline Droplet Moderate
- \* Pancreas Acinus Adenoma Multiple  
Acinus Hyperplasia Marked  
[ Adenoma TGLs = 1,2 - 15+16 ]
- \* Pituitary Gland Pars Distalis Adenoma  
[ Adenoma TGLs = 6 - 9 ]
- \* Prostate Ventral Adenoma
- \* Spleen Extramedullary Hematopoiesis Mild  
Pigment Minimal
- \* Thymus Atrophy Moderate
- \* Thyroid Gland Follicular Cel Hypertrophy Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 182

TRT#: 4

SEX: Male

DAY ON TEST: 485

DOSE: 300/20 ppm

DISP: Moribund Sacrifice

HISTO: 1101482

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Brain                   | * Epididymis                | * Esophagus              | * Eye                      |
| * Harderian Gland         | * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mesenteric | * Mammary Gland            |
| * Pancreas                | * Parathyroid Gland         | * Pituitary Gland        | * Preputial Gland          |
| * Prostate                | * Salivary Glands           | * Seminal Vesicle        | * Skin                     |
| * Testes                  | * Thyroid Gland             | * Trachea                | * Urinary Bladder          |

OBSERVATIONS

- |                          |  |                               |                    |
|--------------------------|--|-------------------------------|--------------------|
| * Bone Marrow            |  | Hyperplasia                   | Moderate           |
| * Kidney                 |  | Mineral                       | Mild               |
|                          |  | Nephropathy                   | Chronicprogr, Mild |
| * Liver                  |  | Lymphoma Malignant            |                    |
|                          |  | Necrosis                      | Minimal            |
|                          | [ Lymphoma Malignant TGLs = 3 - 3 ]        |                               |                    |
|                          | Lymph Node                                 | Pancreatic                    |                    |
|                          |  | Mediastinal                   |                    |
|                          | Note: Lymph node without site was hepatic. |                               |                    |
|                          | [ Lymphoma Malignant TGLs = 6 - 19 ]       |                               |                    |
|                          | [ Lymphoma Malignant TGLs = 5 - 18 ]       |                               |                    |
|                          | [ Lymphoma Malignant TGLs = 4 - 17 ]       |                               |                    |
| * Lymph Node, Mandibular |  | Lymphoma Malignant            |                    |
| * Nose                   | Olfactory Epi                              | Accumulation, Hyaline Droplet | Mild               |
| * Spleen                 |  | Hemorrhage                    | Marked             |
|                          |  | Lymphoma Malignant            |                    |
|                          | [ Hemorrhage TGLs = 1 - 15 ]               |                               |                    |
|                          | [ Lymphoma Malignant TGLs = 2 - 16 ]       |                               |                    |
| * Stomach, Forestomach   |  | Inflammation                  | Minimal            |
|                          |  | Ulcer                         | Mild               |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

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**ANIMAL ID:** 182

**TRT#:** 4

**SEX:** Male

**DAY ON TEST:** 485

**DOSE:** 300/20 ppm

**DISP:** Moribund Sacrifice

**HISTO:** 1101482

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* Stomach, Glandular

Mineral

Minimal

\* Thymus

Atrophy

Moderate

---

PRIMARY CAUSE OF DEATH

- Spleen Lymphoma Malignant

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 183

TRT#: 4

SEX: Male

DAY ON TEST: 743

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101483

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            |
| * Parathyroid Gland       | * Preputial Gland           | * Salivary Glands        | * Stomach, Forestomach     |
| * Stomach, Glandular      | * Testes                    | * Trachea                | * Urinary Bladder          |

OBSERVATIONS

- |                   |   |                               |                         |
|-------------------|---|-------------------------------|-------------------------|
| * Heart           |   | Cardiomyopathy                | Moderate                |
| * Kidney          | Papilla, Urothelium                         | Hyperplasia                   | Minimal                 |
|                   |   | Infarct                       | Minimal                 |
|                   |   | Nephropathy                   | Chronicprogr, Moderate  |
| * Liver           |   | Degeneration                  | Cystic, Minimal         |
|                   |   | Inflammation                  | Focal, Minimal          |
|                   |   | Pigment                       | Minimal                 |
| * Lung            |   | Inflammation                  | Chronic Active, Minimal |
| * Nose            | Olfactory Epi                               | Accumulation, Hyaline Droplet | Moderate                |
| * Pancreas        | Acinus                                      | Hyperplasia                   | Mild                    |
| * Pituitary Gland | Pars Distalis                               | Adenoma                       |                         |
|                   | [ Adenoma TGLs = 3 - 17 ]                   |                               |                         |
| * Prostate        | Lateral                                     | Inflammation                  | Chronic Active, Minimal |
| * Seminal Vesicle |   | Inflammation                  | Mild                    |
| * Skin            |   | Cyst Epithelial Inclusion     |                         |
|                   |   | Inflammation                  | Moderate                |
|                   | [ Cyst Epithelial Inclusion TGLs = 1 - 15 ] |                               |                         |
|                   | [ Inflammation TGLs = 2 - 16 ]              |                               |                         |
| * Spleen          |   | Pigment                       | Minimal                 |
| * Thymus          |   | Atrophy                       | Moderate                |
| * Thyroid Gland   | Follicular Cel                              | Hypertrophy                   | Mild                    |

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 184

TRT#: 4

SEX: Male

DAY ON TEST: 743

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101484

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla           | Blood Vessel             | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Lung                    |
| * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            | * Parathyroid Gland       |
| * Preputial Gland           | * Prostate               | * Salivary Glands          | * Seminal Vesicle         |
| * Skin                      | * Stomach, Forestomach   | * Stomach, Glandular       | * Testes                  |
| * Trachea                   | * Urinary Bladder        |                            |                           |

OBSERVATIONS

- |                      |                             |                               |                       |
|----------------------|-----------------------------|-------------------------------|-----------------------|
| * Adrenal Cortex     |                             | Hypertrophy                   | Minimal               |
| * Heart              |                             | Cardiomyopathy                | Minimal               |
| * Islets, Pancreatic |                             | Metaplasia                    | Hepatocyte, Minimal   |
| * Kidney             |                             | Infarct                       | Minimal               |
|                      |                             | Nephropathy                   | Chronicprogr, Minimal |
| * Liver              | Bile Duct                   | Hyperplasia                   | Minimal               |
|                      |                             | Inflammation                  | Focal, Minimal        |
| * Nose               | Olfactory Epi               | Accumulation, Hyaline Droplet | Mild                  |
|                      | Respirat Epith              | Inflammation                  | Minimal               |
| * Pancreas           | Acinus                      | Carcinoma                     |                       |
|                      | Acinus                      | Hyperplasia                   | Minimal               |
|                      | [ Carcinoma TGLs = 2 - 16 ] |                               |                       |
| * Pituitary Gland    | Pars Distalis               | Adenoma                       |                       |
|                      | [ Adenoma TGLs = 1 - 9 ]    |                               |                       |
| * Spleen             |                             | Extramedullary Hematopoiesis  | Minimal               |
|                      |                             | Pigment                       | Minimal               |
| * Thymus             |                             | Atrophy                       | Moderate              |
| * Thyroid Gland      | C Cell                      | Hyperplasia                   | Mild                  |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 185

TRT#: 4

SEX: Male

DAY ON TEST: 744

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101485

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla         | Blood Vessel                | * Bone                   | * Bone Marrow              |
| * Brain                   | * Epididymis                | * Esophagus              | * Eye                      |
| * Harderian Gland         | * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   |
| * Mammary Gland           | * Parathyroid Gland         | * Pituitary Gland        | * Preputial Gland          |
| * Prostate                | * Salivary Glands           | * Seminal Vesicle        | * Skin                     |
| * Stomach, Forestomach    | * Stomach, Glandular        | * Testes                 | * Trachea                  |
| * Urinary Bladder         |                             |                          |                            |

OBSERVATIONS

- |                  |                                |                               |                        |
|------------------|--------------------------------|-------------------------------|------------------------|
| * Adrenal Cortex |                                | Hypertrophy                   | Minimal                |
| * Kidney         |                                | Nephropathy                   | Chronicprogr, Moderate |
| * Liver          |                                | Clear Cell Focus              |                        |
|                  |                                | Necrosis                      | Minimal                |
| * Nose           | Olfactory Epi                  | Accumulation, Hyaline Droplet | Marked                 |
| * Pancreas       | Acinus                         | Adenoma                       | Multiple               |
|                  | Acinus                         | Atrophy                       | Minimal                |
|                  | Acinus                         | Hyperplasia                   | Moderate               |
|                  | [ Adenoma TGLs = 1,2 - 15+16 ] |                               |                        |
| * Spleen         |                                | Extramedullary Hematopoiesis  | Mild                   |
| * Thymus         |                                | Atrophy                       | Moderate               |
| * Thyroid Gland  | C Cell                         | Adenoma                       |                        |

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 186

TRT#: 4

SEX: Male

DAY ON TEST: 744

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101486

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla           | * Bone                   | * Bone Marrow              | * Brain                   |
| * Epididymis                | * Esophagus              | * Eye                      | * Harderian Gland         |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            | * Parathyroid Gland       |
| * Pituitary Gland           | * Preputial Gland        | * Salivary Glands          | * Seminal Vesicle         |
| * Skin                      | * Stomach, Forestomach   | * Stomach, Glandular       | * Testes                  |
| * Thyroid Gland             | * Trachea                | * Urinary Bladder          |                           |

OBSERVATIONS

- |   |  |                               |                    |
|---|--|-------------------------------|--------------------|
| * Adrenal Cortex                              |  | Hypertrophy                   | Minimal            |
| Blood Vessel                                  |  | Mineral                       | Minimal            |
| Note: Mineral involves the mesenteric artery. |  |                               |                    |
| * Kidney                                      |  | Nephropathy                   | Chronicprogr, Mild |
| * Liver                                       |  | Clear Cell Focus              |                    |
|   | Bile Duct                                | Hyperplasia                   | Minimal            |
|   |  | Necrosis                      | Minimal            |
| * Lung  |  | Infiltration Cellular         | Histiocyte, Marked |
|   | [ Infiltration Cellular TGLs = 2 - 4+5 ] |                               |                    |
| * Nose  | Olfactory Epi                            | Accumulation, Hyaline Droplet | Mild               |
| * Pancreas                                    | Acinus                                   | Adenoma                       | Multiple           |
|   | Acinus                                   | Hyperplasia                   | Marked             |
|   | [ Adenoma TGLs = 1,3 - 15+16 ]           |                               |                    |
| * Prostate                                    | Epithelium, Ventral                      | Hyperplasia                   | Minimal            |
| * Spleen                                      |  | Extramedullary Hematopoiesis  | Minimal            |
|   |  | Pigment                       | Minimal            |
| * Thymus                                      |  | Atrophy                       | Moderate           |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 187

TRT#: 4

SEX: Male

DAY ON TEST: 745

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101487

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Kidney
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular

OBSERVATIONS

- \* Adrenal Cortex
- \* Islets, Pancreatic
- \* Liver
- \* Lung
  - [ Infiltration Cellular TGLs = 5 - 4+5 ]
- \* Nose
- \* Pancreas
  - [ Adenoma TGLs = 1,2,3,4 - 15+16+17 ]
- \* Pituitary Gland
  - [ Adenoma TGLs = 6 - 9 ]
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Hypertrophy
- Hyperplasia
- Clear Cell Focus
- Inflammation
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Adenoma
- Adenoma
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Hyperplasia
- Hypertrophy
- Minimal
- Marked
- Focal, Minimal
- Histiocyte, Moderate
- Mild
- Multiple
- Minimal
- Minimal
- Moderate
- Lymphoid, Mild
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 188

TRT#: 4

SEX: Male

DAY ON TEST: 745

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101488

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | Blood Vessel             | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           |
| * Parathyroid Gland         | * Preputial Gland        | * Prostate                 | * Salivary Glands         |
| * Seminal Vesicle           | * Stomach, Forestomach   | * Stomach, Glandular       | * Testes                  |
| * Trachea                   | * Urinary Bladder        |                            |                           |

OBSERVATIONS

- |                   |                         |                               |                    |
|-------------------|-------------------------|-------------------------------|--------------------|
| * Adrenal Medulla |                         | Hyperplasia                   | Minimal            |
| * Heart           |                         | Cardiomyopathy                | Mild               |
| * Kidney          |                         | Nephropathy                   | Chronicprogr, Mild |
| * Liver           |                         | Clear Cell Focus              |                    |
| * Nose            | Olfactory Epi           | Accumulation, Hyaline Droplet | Moderate           |
| * Pancreas        | Acinus                  | Hyperplasia                   | Moderate           |
| * Pituitary Gland | Pars Distalis           | Hyperplasia                   | Mild               |
| * Skin            |                         | Inflammation                  | Marked             |
|                   |                         | Ulcer                         | Marked             |
|                   | [ Ulcer TGLs = 1 - 16 ] |                               |                    |
| * Spleen          |                         | Extramedullary Hematopoiesis  | Minimal            |
|                   |                         | Pigment                       | Minimal            |
| * Thymus          |                         | Atrophy                       | Mild               |
| * Thyroid Gland   | C Cell                  | Adenoma                       |                    |

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 189

TRT#: 4

SEX: Male

DAY ON TEST: 744

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101489

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | Blood Vessel                | * Bone                   | * Bone Marrow              |
| * Brain                   | * Epididymis                | * Esophagus              | * Eye                      |
| * Harderian Gland         | * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            |
| * Pancreas                | * Pituitary Gland           | * Preputial Gland        | * Prostate                 |
| * Salivary Glands         | * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     |
| * Stomach, Glandular      | * Testes                    | * Thyroid Gland          | * Trachea                  |
| * Urinary Bladder         |                             |                          |                            |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                   |               |                               |                        |
|-------------------|---------------|-------------------------------|------------------------|
| * Adrenal Medulla |               | Pheochromocytoma Benign       |                        |
| * Kidney          |               | Nephropathy                   | Chronicprogr, Moderate |
| * Liver           |               | Clear Cell Focus              |                        |
|                   | Bile Duct     | Hyperplasia                   | Minimal                |
|                   |               | Mixed Cell Focus              |                        |
| * Lung            |               | Infiltration Cellular         | Histiocyte, Minimal    |
| * Nose            | Olfactory Epi | Accumulation, Hyaline Droplet | Mild                   |
| * Spleen          |               | Extramedullary Hematopoiesis  | Mild                   |
| * Thymus          |               | Atrophy                       | Mild                   |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 190

TRT#: 4

SEX: Male

DAY ON TEST: 744

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101490

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Prostate
- \* Stomach, Glandular
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Salivary Glands
- \* Testes
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Seminal Vesicle
- \* Thyroid Gland
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Stomach, Forestomach
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
  - \* Heart
  - \* Kidney
  - \* Liver
  - \* Lung
    - [ Infiltration Cellular TGLs = 2 - 4 ]
  - \* Nose
  - \* Pancreas
  - \* Pituitary Gland
  - \* Preputial Gland
  - \* Skin
    - [ Keratoacanthoma TGLs = 1 - 15 ]
  - \* Spleen
  - \* Thymus
- Hypertrophy
  - Cardiomyopathy
  - Nephropathy
  - Clear Cell Focus
  - Necrosis
  - Infiltration Cellular
  - Inflammation
  - Accumulation, Hyaline Droplet
  - Hyperplasia
  - Hyperplasia
  - Hyperplasia
  - Keratoacanthoma
  - Extramedullary Hematopoiesis
  - Atrophy
- Minimal
  - Minimal
  - Chronicprogr, Mild
  - Minimal
  - Histiocyte, Minimal
  - Multifocal, Granulomatous, Minimal
  - Minimal
  - Mild
  - Mild
  - Mild
  - Minimal
  - Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 191

TRT#: 4

SEX: Male

DAY ON TEST: 747

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101491

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla           | Blood Vessel             | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           |
| * Pancreas                  | * Parathyroid Gland      | * Preputial Gland          | * Salivary Glands         |
| * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      |
| * Testes                    | * Trachea                | * Urinary Bladder          |                           |

OBSERVATIONS

- |                   |                          |                               |                      |
|-------------------|--------------------------|-------------------------------|----------------------|
| * Adrenal Cortex  |                          | Hypertrophy                   | Minimal              |
| * Heart           |                          | Cardiomyopathy                | Moderate             |
|                   |                          | Metaplasia                    | Osseous, Mild        |
| * Kidney          |                          | Nephropathy                   | Chronicprogr, Marked |
| * Liver           |                          | Clear Cell Focus              |                      |
| * Nose            | Olfactory Epi            | Accumulation, Hyaline Droplet | Minimal              |
| * Pituitary Gland | Pars Distalis            | Adenoma                       |                      |
|                   | [ Adenoma TGLs = 1 - 9 ] |                               |                      |
| * Prostate        | Epithelium, Ventral      | Hyperplasia                   | Minimal              |
| * Spleen          |                          | Extramedullary Hematopoiesis  | Mild                 |
|                   |                          | Pigment                       | Minimal              |
| * Thymus          |                          | Atrophy                       | Moderate             |
| * Thyroid Gland   | C Cell                   | Hyperplasia                   | Moderate             |



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 192

TRT#: 4

SEX: Male

DAY ON TEST: 747

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101492

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla           | Blood Vessel             | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            | * Pancreas                |
| * Parathyroid Gland         | * Preputial Gland        | * Prostate                 | * Salivary Glands         |
| * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      |
| * Testes                    | * Trachea                |                            |                           |

OBSERVATIONS

- |                   |                                 |                               |                                    |
|-------------------|---------------------------------|-------------------------------|------------------------------------|
| * Adrenal Cortex  |                                 | Degeneration                  | Cystic, Minimal                    |
|                   |                                 | Hypertrophy                   | Minimal                            |
| * Heart           |                                 | Cardiomyopathy                | Moderate                           |
| * Kidney          |                                 | Nephropathy                   | Chronicprogr, Moderate             |
| * Liver           |                                 | Clear Cell Focus              |                                    |
|                   | Bile Duct                       | Hyperplasia                   | Minimal                            |
|                   |                                 | Necrosis                      | Minimal                            |
| * Lung            |                                 | Inflammation                  | Multifocal, Granulomatous, Minimal |
|                   | [ Inflammation TGLs = 1 - 4+5 ] |                               |                                    |
| * Nose            | Olfactory Epi                   | Accumulation, Hyaline Droplet | Mild                               |
| * Pituitary Gland | Pars Distalis                   | Hyperplasia                   | Mild                               |
| * Spleen          |                                 | Extramedullary Hematopoiesis  | Minimal                            |
|                   |                                 | Pigment                       | Minimal                            |
| * Thymus          |                                 | Atrophy                       | Moderate                           |
| * Thyroid Gland   | C Cell                          | Hyperplasia                   | Moderate                           |
| * Urinary Bladder |                                 | Infiltration Cellular         | Mast Cell, Minimal                 |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 193

TRT#: 4

SEX: Male

DAY ON TEST: 745

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101493

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Trachea
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Small, Duodenum
- \* Lung
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Adrenal Cortex
- \* Heart
- \* Intestine Large, Colon
- \* Kidney
- \* Liver
- \* Nose
- \* Pancreas
- [ Adenoma TGLs = 1 - 15 ]
- \* Pituitary Gland
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Hypertrophy
- Cardiomyopathy
- Parasite Metazoan
- Nephropathy
- Clear Cell Focus
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Adenoma
- Minimal
- Minimal
- Chronicprogr, Moderate
- Mild
- Multiple
- Marked
- Mild
- Mild
- Minimal
- Moderate

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 194

TRT#: 4

SEX: Male

DAY ON TEST: 745

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101494

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Preputial Gland
- \* Skin
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Pancreas
- \* Prostate
- \* Stomach, Forestomach
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
- \* Heart
- \* Intestine Large, Colon
- \* Islets, Pancreatic
- [ Adenoma TGLs = 1 - 15 ]
- \* Kidney
- \* Liver
- Bile Duct
- \* Lung
- [ Infiltration Cellular TGLs = 2 - 4+5 ]
- \* Nose
- \* Spleen
- \* Testes
- \* Thymus
- \* Thyroid Gland
- Olfactory Epi
- Bilateral, Germinal Epith
- C Cell
- Hypertrophy
- Cardiomyopathy
- Parasite Metazoan
- Adenoma
- Nephropathy
- Clear Cell Focus
- Hyperplasia
- Pigment
- Infiltration Cellular
- Inflammation
- Accumulation, Hyaline Droplet
- Extramedullary Hematopoiesis
- Pigment
- Degeneration
- Atrophy
- Hyperplasia
- Minimal
- Minimal
- Chronicprogr, Moderate
- Minimal
- Mild
- Histiocyte, Mild
- Multifocal, Granulomatous, Minimal
- Mild
- Mild
- Minimal
- Moderate
- Moderate
- Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 195

TRT#: 4

SEX: Male

DAY ON TEST: 739

DOSE: 300/20 ppm

DISP: Moribund Sacrifice

HISTO: 1101495

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Mammary Gland
- \* Salivary Glands
- \* Testes
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Liver
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Thyroid Gland

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- \* Adrenal Cortex
    - Blood Vessel
      - Note: Inflammation involves the carotid and splenic arteries and cecal, pancreatic, testicular, and thymic arterioles.
  - \* Heart
    - [ Nephropathy TGLs = 1 - 15 ]
  - \* Kidney
    - [ Infiltration Cellular TGLs = 2 - 4+5 ]
  - \* Lung
    - [ Infiltration Cellular TGLs = 2 - 4+5 ]
  - \* Nose
    - Olfactory Epi
  - \* Pancreas
    - Acinus
  - \* Spleen
    - Glands
  - \* Stomach, Glandular
    - Glands
  - \* Thymus
    - Glands
- |  |                               |                                    |
|--|-------------------------------|------------------------------------|
|  | Degeneration                  | Cystic, Minimal                    |
|  | Inflammation                  | Chronic, Mild                      |
|  | Cardiomyopathy                | Mild                               |
|  | Nephropathy                   | Chronicprogr, Marked               |
|  | Infiltration Cellular         | Histiocyte, Marked                 |
|  | Inflammation                  | Multifocal, Granulomatous, Minimal |
|  | Accumulation, Hyaline Droplet | Mild                               |
|  | Hyperplasia                   | Mild                               |
|  | Pigment                       | Minimal                            |
|  | Hyperplasia                   | Atypical, Focal, Moderate          |
|  | Mineral                       | Mild                               |
|  | Atrophy                       | Moderate                           |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 196

TRT#: 4

SEX: Male

DAY ON TEST: 747

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101496

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   |
| * Mammary Gland           | * Pituitary Gland           | * Preputial Gland        | * Salivary Glands          |
| * Seminal Vesicle         | * Skin                      | * Stomach, Forestomach   | * Stomach, Glandular       |
| * Testes                  | * Trachea                   | * Urinary Bladder        |                            |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                 |   |                               |                         |
|-----------------|---|-------------------------------|-------------------------|
| * Heart         |   | Cardiomyopathy                | Mild                    |
| * Kidney        |   | Nephropathy                   | Chronicprogr, Minimal   |
| * Liver         |   | Clear Cell Focus              |                         |
|                 |   | Inflammation                  | Focal, Minimal          |
|                 |   | Mixed Cell Focus              |                         |
|                 | [ Mixed Cell Focus TGLs = 1,2 - 15+16 ] |                               |                         |
| * Nose          | Olfactory Epi                           | Accumulation, Hyaline Droplet | Marked                  |
| * Pancreas      | Acinus                                  | Hyperplasia                   | Mild                    |
| * Prostate      | Ventral                                 | Inflammation                  | Chronic Active, Minimal |
| * Spleen        |   | Extramedullary Hematopoiesis  | Minimal                 |
| * Thymus        |   | Atrophy                       | Marked                  |
| * Thyroid Gland | Follicular Cel                          | Hypertrophy                   | Minimal                 |



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 198

TRT#: 4

SEX: Male

DAY ON TEST: 745

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101498

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla        | Blood Vessel               | * Bone                    | * Bone Marrow               |
| * Brain                  | * Epididymis               | * Esophagus               | * Eye                       |
| * Harderian Gland        | * Intestine Large, Cecum   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Lymph Node, Mesenteric  | * Mammary Gland             |
| * Preputial Gland        | * Prostate                 | * Salivary Glands         | * Seminal Vesicle           |
| * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      | * Testes                    |
| * Thyroid Gland          | * Trachea                  | * Urinary Bladder         |                             |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                          |   |                               |                                    |
|--------------------------|---|-------------------------------|------------------------------------|
| * Adrenal Cortex         |   | Hypertrophy                   | Minimal                            |
| * Heart                  |   | Cardiomyopathy                | Minimal                            |
| * Intestine Large, Colon |   | Parasite Metazoan             |                                    |
| * Islets, Pancreatic     |   | Adenoma                       |                                    |
|                          | [ Adenoma TGLs = 1 - 15 ]               |                               |                                    |
| * Kidney                 |   | Nephropathy                   | Chronicprogr, Mild                 |
| * Liver                  |   | Clear Cell Focus              |                                    |
|                          |   | Eosinophilic Focus            |                                    |
| * Lung                   |   | Inflammation                  | Multifocal, Granulomatous, Minimal |
| * Lymph Node, Mandibular |   | Infiltration Cellular         | Plasma Cell, Moderate              |
|                          | [ Infiltration Cellular TGLs = 2 - 17 ] |                               |                                    |
| * Nose                   | Olfactory Epi                           | Accumulation, Hyaline Droplet | Moderate                           |
| * Pancreas               | Acinus                                  | Atrophy                       | Mild                               |
|                          | Acinus                                  | Hyperplasia                   | Moderate                           |
| * Pituitary Gland        | Pars Distalis                           | Hyperplasia                   | Minimal                            |
| * Spleen                 |   | Extramedullary Hematopoiesis  | Minimal                            |
| * Thymus                 |   | Atrophy                       | Mild                               |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 199

TRT#: 4

SEX: Male

DAY ON TEST: 693

DOSE: 300/20 ppm

DISP: Natural Death

HISTO: 1101499

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Blood Vessel
- \* Bone
- \* Brain
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Lung
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Pancreas
- \* Parathyroid Gland
- \* Pituitary Gland
- \* Preputial Gland
- \* Prostate
- \* Salivary Glands
- \* Seminal Vesicle
- \* Skin
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Testes
- \* Trachea
- \* Urinary Bladder

OBSERVATIONS

- \* Bone Marrow
- \* Heart
- \* Kidney
- \* Liver
- \* Nose
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Bile Duct
- Olfactory Epi
- Respirat Epith
- Lymph Follic
- C Cell
- C Cell
- Hyperplasia
- Cardiomyopathy
- Nephropathy
- Hyperplasia
- Accumulation, Hyaline Droplet
- Inflammation
- Atrophy
- Pigment
- Atrophy
- Adenoma
- Hyperplasia
- Mild
- Minimal
- Chronicprogr, Marked
- Minimal
- Mild
- Marked
- Mild
- Minimal
- Marked
- Mild

PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 200

TRT#: 4

SEX: Male

DAY ON TEST: 746

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101500

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- Blood Vessel
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Pancreas
- \* Seminal Vesicle
- \* Testes
- \* Bone Marrow
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Trachea

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- \* Adrenal Medulla [ Pheochromocytoma Benign TGLs = 1 - 9 ] Pheochromocytoma Benign
- \* Epididymis Mesothelioma Malignant
- \* Heart Cardiomyopathy Minimal
- \* Kidney Nephropathy Chronicprogr, Mild
- \* Liver Clear Cell Focus
- \* Lung Infiltration Cellular Histiocyte, Moderate
- Inflammation Multifocal, Granulomatous, Minimal
- \* Nose Olfactory Epi Accumulation, Hyaline Droplet Moderate
- \* Pituitary Gland Pars Distalis Hyperplasia Minimal
- \* Spleen Extramedullary Hematopoiesis Minimal
- Pigment Minimal
- \* Thymus Atrophy Moderate
- \* Thyroid Gland Follicular Cel Hypertrophy Marked

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 201

TRT#: 4

SEX: Male

DAY ON TEST: 743

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101501

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Brain
* Epididymis	* Esophagus	* Eye	* Harderian Gland
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Liver
* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Parathyroid Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Bone Marrow		Hyperplasia	Mild
* Heart		Cardiomyopathy	Mild
* Kidney		Nephropathy	Chronicprogr, Marked
	[ Nephropathy TGLs = 1 - 6 ]		
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Marked
* Pancreas	Acinus	Hyperplasia	Marked
* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
* Spleen		Pigment	Minimal
* Thymus		Atrophy	Minimal

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 202

TRT#: 4

SEX: Male

DAY ON TEST: 743

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101502

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Blood Vessel              | * Bone                   | * Bone Marrow              | * Brain                   |
| * Epididymis                | * Esophagus              | * Eye                      | * Harderian Gland         |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            | * Parathyroid Gland       |
| * Preputial Gland           | * Salivary Glands        | * Seminal Vesicle          | * Skin                    |
| * Stomach, Forestomach      | * Stomach, Glandular     | * Testes                   | * Thyroid Gland           |
| * Trachea                   | * Urinary Bladder        |                            |                           |

OBSERVATIONS

- |                   |  |                               |                         |
|-------------------|--|-------------------------------|-------------------------|
| * Adrenal Cortex  |  | Degeneration                  | Cystic, Minimal         |
|                   |  | Hypertrophy                   | Minimal                 |
| * Adrenal Medulla |  | Pheochromocytoma Benign       |                         |
| * Kidney          |  | Nephropathy                   | Chronicprogr, Mild      |
| * Liver           |  | Clear Cell Focus              |                         |
|                   |  | Necrosis                      | Minimal                 |
| * Lung            |  | Infiltration Cellular         | Histiocyte, Minimal     |
|                   | [ Infiltration Cellular TGLs = 1 - 5 ] |                               |                         |
| * Nose            | Olfactory Epi                          | Accumulation, Hyaline Droplet | Moderate                |
| * Pancreas        | Acinus                                 | Atrophy                       | Minimal                 |
|                   | Acinus                                 | Hyperplasia                   | Mild                    |
| * Pituitary Gland | Pars Distalis                          | Hyperplasia                   | Minimal                 |
| * Prostate        | Lateral                                | Inflammation                  | Chronic Active, Minimal |
| * Spleen          |  | Extramedullary Hematopoiesis  | Mild                    |
| * Thymus          |  | Atrophy                       | Marked                  |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 203

TRT#: 4

SEX: Male

DAY ON TEST: 238

DOSE: 300/20 ppm

DISP: Natural Death

HISTO: 1101503

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   |
| * Mammary Gland           | * Pancreas                  | * Parathyroid Gland      | * Pituitary Gland          |
| * Preputial Gland         | * Prostate                  | * Salivary Glands        | * Seminal Vesicle          |
| * Skin                    | * Stomach, Forestomach      | * Stomach, Glandular     | * Testes                   |
| * Thyroid Gland           | * Trachea                   | * Urinary Bladder        |                            |

OBSERVATIONS

- |          |               |                               |                       |
|----------|---------------|-------------------------------|-----------------------|
| * Heart  | Myocardium    | Hemorrhage                    | Minimal               |
|          |               | Mineral                       | Minimal               |
| * Kidney | Renal Tubule  | Necrosis                      | Moderate              |
|          |               | Nephropathy                   | Chronicprogr, Minimal |
| * Liver  | Hepatocyte    | Single Cell Death             | Marked                |
| * Nose   | Olfactory Epi | Accumulation, Hyaline Droplet | Mild                  |
| * Spleen | Lymph Follic  | Atrophy                       | Mild                  |
| * Thymus |               | Atrophy                       | Minimal               |

PRIMARY CAUSE OF DEATH

- Liver Hepatocyte Single Cell Death

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 204

TRT#: 4

SEX: Male

DAY ON TEST: 599

DOSE: 300/20 ppm

DISP: Moribund Sacrifice

HISTO: 1101504

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone
- \* Bone Marrow
- \* Brain
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Liver
- \* Lung
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Pancreas
- \* Parathyroid Gland
- \* Pituitary Gland
- \* Preputial Gland
- \* Prostate
- \* Salivary Glands
- \* Seminal Vesicle
- \* Skin
- \* Stomach, Glandular
- \* Testes
- \* Thyroid Gland
- \* Trachea
- \* Urinary Bladder

OBSERVATIONS

- Blood Vessel Inflammation Mild  
Note: A gastric artery is inflamed.
- \* Heart Cardiomyopathy Minimal
- \* Kidney Nephropathy Chronicprogr, Moderate
- \* Nose Olfactory Epi Accumulation, Hyaline Droplet Mild
- Peripheral Nerve Axon Degeneration Mild
- Spinal Cord Nerve Degeneration Mild
- \* Spleen Pigment Minimal
- \* Stomach, Forestomach Epithelium Hyperplasia Squamous, Moderate  
Inflammation Moderate  
Ulcer Moderate  
Atrophy Moderate
- \* Thymus

PRIMARY CAUSE OF DEATH - Stomach, Forestomach Ulcer

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 205

TRT#: 4

SEX: Male

DAY ON TEST: 683

DOSE: 300/20 ppm

DISP: Moribund Sacrifice

HISTO: 1101505

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Heart
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Thyroid Gland
- Blood Vessel
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Trachea
- \* Bone
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Pancreas
- \* Prostate
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Salivary Glands
- \* Testes

OBSERVATIONS

- \* Adrenal Cortex
- \* Bone Marrow
- \* Intestine Large, Colon
- \* Kidney
- \* Liver
- \* Lung
- \* Nose
- \* Skin
- [ Fibroma TGLs = 1 - 15 ]
- [ Keratoacanthoma TGLs = 2 - 16 ]
- \* Spleen
- \* Thymus
- Hepatocyte
- Olfactory Epi
- Subcut Tiss
- Hypertrophy
- Hyperplasia
- Parasite Metazoan
- Nephropathy
- Clear Cell Focus
- Hypertrophy
- Infiltration Cellular
- Inflammation
- Accumulation, Hyaline Droplet
- Fibroma
- Keratoacanthoma
- Extramedullary Hematopoiesis
- Atrophy
- Moderate
- Mild
- Chronicprogr, Minimal
- Minimal
- Histiocyte, Minimal
- Chronic Active, Minimal
- Mild
- Mild
- Moderate

PRIMARY CAUSE OF DEATH - Skin Subcut Tiss Fibroma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 206

TRT#: 4

SEX: Male

DAY ON TEST: 478

DOSE: 300/20 ppm

DISP: Moribund Sacrifice

HISTO: 1101506

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Blood Vessel
- \* Bone
- \* Brain
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Harderian Gland
- \* Heart
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Liver
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Pancreas
- \* Parathyroid Gland
- \* Pituitary Gland
- \* Preputial Gland
- \* Prostate
- \* Salivary Glands
- \* Seminal Vesicle
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Testes
- \* Trachea
- \* Urinary Bladder

OBSERVATIONS

- \* Bone Marrow
  - \* Kidney
  - \* Lung
  - \* Nose
  - \* Skin
  - [ Fibroma TGLs = 1 - 15 ]
  - \* Spleen
  - \* Thymus
  - \* Thyroid Gland
- |                |                               |                       |
|----------------|-------------------------------|-----------------------|
|                | Hyperplasia                   | Marked                |
|                | Nephropathy                   | Chronicprogr, Minimal |
|                | Infiltration Cellular         | Histiocyte, Minimal   |
| Olfactory Epi  | Accumulation, Hyaline Droplet | Mild                  |
| Subcut Tiss    | Fibroma                       |                       |
|                | Extramedullary Hematopoiesis  | Mild                  |
|                | Atrophy                       | Moderate              |
| Follicular Cel | Hypertrophy                   | Moderate              |

PRIMARY CAUSE OF DEATH - Skin Subcut Tiss Fibroma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 207

TRT#: 4

SEX: Male

DAY ON TEST: 743

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101507

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Parathyroid Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Medulla		Hyperplasia	Marked
* Kidney		Nephropathy	Chronicprogr, Minimal
* Liver		Clear Cell Focus	
* Lung	[ Infiltration Cellular TGLs = 1 - 4+5 ]	Infiltration Cellular	Histiocyte, Minimal
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Moderate
* Pancreas	Acinus	Hyperplasia	Mild
* Pituitary Gland	Pars Distalis	Adenoma	
	[ Adenoma TGLs = 2 - 9 ]		
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Thymus		Atrophy	Moderate



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 208

TRT#: 4

SEX: Male

DAY ON TEST: 743

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101508

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla           | Blood Vessel             | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           |
| * Pituitary Gland           | * Preputial Gland        | * Prostate                 | * Salivary Glands         |
| * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      |
| * Thyroid Gland             | * Trachea                | * Urinary Bladder          |                           |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                  |                                |                               |                        |
|------------------|--------------------------------|-------------------------------|------------------------|
| * Adrenal Cortex |                                | Hypertrophy                   | Minimal                |
| * Heart          |                                | Cardiomyopathy                | Minimal                |
| * Kidney         |                                | Nephropathy                   | Chronicprogr, Moderate |
| * Liver          |                                | Clear Cell Focus              |                        |
|                  |                                | Inflammation                  | Focal, Minimal         |
| * Nose           | Olfactory Epi                  | Accumulation, Hyaline Droplet | Moderate               |
| * Pancreas       | Acinus                         | Adenoma                       | Multiple               |
|                  | Acinus                         | Atrophy                       | Minimal                |
|                  | Acinus                         | Hyperplasia                   | Marked                 |
|                  | [ Adenoma TGLs = 1 - 15 ]      |                               |                        |
| * Spleen         |                                | Extramedullary Hematopoiesis  | Minimal                |
|                  |                                | Pigment                       | Minimal                |
| * Testes         | Germinal Epith                 | Degeneration                  | Moderate               |
|                  | [ Degeneration TGLs = 2 - 12 ] |                               |                        |
| * Thymus         |                                | Atrophy                       | Moderate               |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 209

TRT#: 4

SEX: Male

DAY ON TEST: 743

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101509

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla           | Blood Vessel             | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Lung                    |
| * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            | * Parathyroid Gland       |
| * Preputial Gland           | * Prostate               | * Salivary Glands          | * Seminal Vesicle         |
| * Stomach, Forestomach      | * Stomach, Glandular     | * Testes                   | * Thyroid Gland           |
| * Trachea                   | * Urinary Bladder        |                            |                           |

OBSERVATIONS

- |                      |                                |                               |                        |
|----------------------|--------------------------------|-------------------------------|------------------------|
| * Adrenal Cortex     |                                | Hypertrophy                   | Minimal                |
| * Heart              |                                | Cardiomyopathy                | Minimal                |
| * Islets, Pancreatic |                                | Adenoma                       |                        |
|                      |                                | Hyperplasia                   | Minimal                |
| * Kidney             |                                | Nephropathy                   | Chronicprogr, Moderate |
| * Liver              |                                | Clear Cell Focus              |                        |
| * Nose               | Olfactory Epi                  | Accumulation, Hyaline Droplet | Moderate               |
|                      | Respirat Epith                 | Inflammation                  | Minimal                |
| * Pancreas           | Acinus                         | Adenoma                       | Multiple               |
|                      | Acinus                         | Hyperplasia                   | Marked                 |
|                      | [ Adenoma TGLs = 2 - 16 ]      |                               |                        |
| * Pituitary Gland    | Pars Distalis                  | Adenoma                       |                        |
|                      | [ Adenoma TGLs = 3 - 17 ]      |                               |                        |
| * Skin               |                                | Inflammation                  | Mild                   |
|                      | [ Inflammation TGLs = 1 - 15 ] |                               |                        |
| * Spleen             |                                | Extramedullary Hematopoiesis  | Mild                   |
|                      |                                | Pigment                       | Minimal                |
| * Thymus             |                                | Atrophy                       | Moderate               |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 210

TRT#: 4

SEX: Male

DAY ON TEST: 743

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101510

ORGAN AND ACCOUNTABLE SITE STATUS

**NORMAL**

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            |
| * Preputial Gland         | * Salivary Glands           | * Seminal Vesicle        | * Stomach, Forestomach     |
| * Stomach, Glandular      | * Testes                    | * Thyroid Gland          | * Trachea                  |
| * Urinary Bladder         |                             |                          |                            |

**MISSING**

- \* Parathyroid Gland

**OBSERVATIONS**

- |                   |  |                               |                         |
|-------------------|--|-------------------------------|-------------------------|
| * Heart           |  | Cardiomyopathy                | Mild                    |
| * Kidney          |  | Nephropathy                   | Chronicprogr, Minimal   |
| * Liver           |  | Clear Cell Focus              |                         |
| * Lung            |  | Infiltration Cellular         | Histiocyte, Mild        |
|                   | [ Infiltration Cellular TGLs = 4 - 4+5 ] |                               |                         |
| * Nose            | Olfactory Epi                            | Accumulation, Hyaline Droplet | Mild                    |
|                   | Respirat Epith                           | Inflammation                  | Minimal                 |
| * Pancreas        | Acinus                                   | Adenoma                       | Multiple                |
|                   | [ Adenoma TGLs = 1 - 15 ]                |                               |                         |
| * Pituitary Gland | Pars Distalis                            | Hyperplasia                   | Mild                    |
| * Prostate        | Ventral                                  | Adenoma                       |                         |
|                   | Ventral                                  | Inflammation                  | Chronic Active, Minimal |
| * Skin            | Subcut Tiss                              | Lipoma                        | Multiple                |
|                   | [ Lipoma TGLs = 2,3 - 16+17 ]            |                               |                         |
| * Spleen          |  | Extramedullary Hematopoiesis  | Mild                    |
|                   |  | Pigment                       | Minimal                 |
| * Thymus          |  | Atrophy                       | Mild                    |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 211

TRT#: 4

SEX: Male

DAY ON TEST: 746

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101511

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            | * Pancreas                |
| * Parathyroid Gland         | * Pituitary Gland        | * Preputial Gland          | * Prostate                |
| * Salivary Glands           | * Seminal Vesicle        | * Skin                     | * Stomach, Forestomach    |
| * Stomach, Glandular        | * Thyroid Gland          | * Trachea                  | * Urinary Bladder         |

OBSERVATIONS

- |   |                                    |                               |                                    |
|---|------------------------------------|-------------------------------|------------------------------------|
| Blood Vessel  |                                    | Inflammation                  | Chronic, Mild                      |
| Note: Inflammation involves hepatic, pancreatic, and testicular arterioles. |                                    |                               |                                    |
| * Heart   |                                    | Cardiomyopathy                | Mild                               |
| * Kidney  | Cortex                             | Cyst                          |                                    |
|   |                                    | Nephropathy                   | Chronicprogr, Marked               |
|   | [ Cyst TGLs = 2 - 17 ]             |                               |                                    |
|   | [ Nephropathy TGLs = 3 - 17 ]      |                               |                                    |
| * Liver   |                                    | Clear Cell Focus              |                                    |
|   |                                    | Eosinophilic Focus            |                                    |
|   | Bile Duct                          | Hyperplasia                   | Minimal                            |
|   |                                    | Pigment                       | Minimal                            |
|   | [ Clear Cell Focus TGLs = 1 - 16 ] |                               |                                    |
| * Lung  | Alveolar Epith                     | Hyperplasia                   | Minimal                            |
|   |                                    | Inflammation                  | Multifocal, Granulomatous, Minimal |
|   | [ Hyperplasia TGLs = 5 - 18 ]      |                               |                                    |
|   | [ Inflammation TGLs = 4 - 4 ]      |                               |                                    |
| * Nose  | Olfactory Epi                      | Accumulation, Hyaline Droplet | Mild                               |
| * Spleen  |                                    | Extramedullary Hematopoiesis  | Minimal                            |
|   | Lymph Follic                       | Hyperplasia                   | Minimal                            |
|   |                                    | Pigment                       | Minimal                            |
| * Testes  | Bilateral, Germinal Epith          | Degeneration                  | Minimal                            |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 211

**TRT#:** 4

**SEX:** Male

**DAY ON TEST:** 746

**DOSE:** 300/20 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101511

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* Thymus

Atrophy

Mild

---

Experiment Number: 20614 - 02  
 Test Type: CHRONIC  
 Route: DOSED FEED  
 Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA  
 Perfluorooctanoic Acid  
 CAS Number: 335-67-1

Date Report Requested: 07/24/2018  
 Time Report Requested: 12:59:13  
 First Dose M/F: 07/27/09 / NA  
 Lab: BAT

ANIMAL ID: 212

TRT#: 4

SEX: Male

DAY ON TEST: 746

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101512

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Brain	* Epididymis
* Esophagus	* Harderian Gland	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Trachea	* Urinary Bladder		

OBSERVATIONS

* Adrenal Cortex	Zona Fascult	Hyperplasia	Moderate
Blood Vessel		Inflammation	Marked
Note: Inflammation involves pancreatic arteries.			
* Bone Marrow		Hyperplasia	Mild
* Eye	Cornea	Inflammation	Mild
* Heart		Cardiomyopathy	Minimal
* Islets, Pancreatic		Adenoma	
* Kidney		Nephropathy	Chronicprogr, Moderate
* Liver		Clear Cell Focus	
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Moderate
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Atrophy	Minimal
	Acinus	Hyperplasia	Marked
[ Adenoma TGLs = 1 - 15 ]			
* Prostate	Ventral	Inflammation	Chronic Active, Minimal
* Spleen		Extramedullary Hematopoiesis	Mild
* Testes	Germinal Epith	Degeneration	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Adenoma	

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 213

TRT#: 4

SEX: Male

DAY ON TEST: 747

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101513

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           |
| * Parathyroid Gland         | * Preputial Gland        | * Prostate                 | * Salivary Glands         |
| * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      |
| * Testes                    | * Trachea                | * Urinary Bladder          |                           |

OBSERVATIONS

- |   |               |                               |                                     |
|---|---------------|-------------------------------|-------------------------------------|
| Blood Vessel                                    | Aorta         | Mineral                       | Minimal                             |
| * Heart   |               | Cardiomyopathy                | Minimal                             |
| * Kidney  |               | Nephropathy                   | Chronicprogr, Mild                  |
| * Liver   |               | Cholangiofibrosis             | Moderate                            |
|   | Bile Duct     | Clear Cell Focus              |                                     |
|   |               | Dilation                      | Moderate                            |
|   |               | Inflammation                  | Focal, Minimal                      |
|   |               | Mixed Cell Focus              |                                     |
| Note: Cholangioma = probable cholangiofibrosis. |               |                               |                                     |
|   |               |                               | [ Cholangiofibrosis TGLs = 3 - 17 ] |
|   |               |                               | [ Dilation TGLs = 2 - 16 ]          |
| * Nose  | Olfactory Epi | Accumulation, Hyaline Droplet | Minimal                             |
| * Pancreas                                      | Acinus        | Adenoma                       | Multiple                            |
|   | Acinus        | Atrophy                       | Minimal                             |
|   | Acinus        | Hyperplasia                   | Marked                              |
|   |               |                               | [ Adenoma TGLs = 1 - 15 ]           |
| * Pituitary Gland                               | Pars Distalis | Hyperplasia                   | Moderate                            |
| * Spleen  |               | Extramedullary Hematopoiesis  | Mild                                |
|   |               | Pigment                       | Minimal                             |
| * Thymus  |               | Atrophy                       | Moderate                            |
| * Thyroid Gland                                 | C Cell        | Adenoma                       |                                     |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20614 - 02

**Test Type:** CHRONIC

**Route:** DOSED FEED

**Species/Strain:** RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

**CAS Number:** 335-67-1

**Date Report Requested:** 07/24/2018

**Time Report Requested:** 12:59:13

**First Dose M/F:** 07/27/09 / NA

**Lab:** BAT

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**ANIMAL ID:** 213

**TRT#:** 4

**SEX:** Male

**DAY ON TEST:** 747

**DOSE:** 300/20 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101513

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

C Cell

Hyperplasia

Moderate

---



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 214

TRT#: 4

SEX: Male

DAY ON TEST: 747

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101514

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | Blood Vessel               | * Bone                    |
| * Bone Marrow               | * Brain                  | * Epididymis               | * Esophagus               |
| * Eye                       | * Harderian Gland        | * Intestine Large, Cecum   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            | * Parathyroid Gland       |
| * Pituitary Gland           | * Preputial Gland        | * Prostate                 | * Salivary Glands         |
| * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      |
| * Testes                    | * Thymus                 | * Trachea                  | * Urinary Bladder         |

OBSERVATIONS

- |                          |  |                               |                       |
|--------------------------|--|-------------------------------|-----------------------|
| * Heart                  |  | Cardiomyopathy                | Minimal               |
| * Intestine Large, Colon |  | Parasite Metazoan             |                       |
| * Kidney                 |  | Nephropathy                   | Chronicprogr, Minimal |
| * Liver                  |  | Clear Cell Focus              |                       |
|                          | Hepatocyte                                   | Cytoplasmic Alteration        | Minimal               |
|                          |  | Fatty Change                  | Mild                  |
|                          | Hepatocyte                                   | Hepatodiaphragmatic Nodule    |                       |
|                          |  | Hypertrophy                   | Minimal               |
|                          |  | Necrosis                      | Mild                  |
|                          | [ Fatty Change TGLs = 2 - 16 ]               |                               |                       |
|                          | [ Hepatodiaphragmatic Nodule TGLs = 1 - 15 ] |                               |                       |
| * Lung                   |  | Infiltration Cellular         | Histiocyte, Minimal   |
|                          | [ Infiltration Cellular TGLs = 3 - 4+5 ]     |                               |                       |
| * Nose                   | Olfactory Epi                                | Accumulation, Hyaline Droplet | Marked                |
| * Pancreas               | Acinus                                       | Atrophy                       | Minimal               |
| * Spleen                 |  | Extramedullary Hematopoiesis  | Mild                  |
|                          |  | Pigment                       | Minimal               |
| * Thyroid Gland          | C Cell                                       | Adenoma                       |                       |
|                          | C Cell                                       | Hyperplasia                   | Marked                |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 215

TRT#: 4

SEX: Male

DAY ON TEST: 746

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101515

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone
- \* Brain
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Parathyroid Gland
- \* Pituitary Gland
- \* Preputial Gland
- \* Prostate
- \* Salivary Glands
- \* Seminal Vesicle
- \* Skin
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Thyroid Gland
- \* Trachea
- \* Urinary Bladder

OBSERVATIONS

- Blood Vessel
  - Aorta
    - Inflammation: Chronic, Minimal
    - Mineral: Minimal
    - Note: Inflammation involves the testicular arterioles.
- \* Bone Marrow
  - Hyperplasia: Mild
- \* Heart
  - Cardiomyopathy: Mild
- \* Kidney
  - Nephropathy: Chronicprogr, Moderate
- \* Liver
  - Clear Cell Focus
  - Hepatocyte
    - Cytoplasmic Alteration: Minimal
  - Bile Duct
    - Hyperplasia: Minimal
  - Hepatocyte
    - Hypertrophy: Minimal
- \* Lung
  - Infiltration Cellular TGLs = 4 - 4+5
    - Inflammation: Histocyte, Minimal
- \* Nose
  - Olfactory Epi
    - Accumulation, Hyaline Droplet: Minimal
- \* Pancreas
  - Acinus
    - Adenoma: Multiple
    - Hyperplasia: Marked
  - Acinus
    - Adenoma TGLs = 3 - 7+15
- \* Spleen
  - Extramedullary Hematopoiesis: Mild
  - Pigment: Minimal
- \* Testes
  - Interstitial Cell
    - Adenoma
  - Germinal Epith
    - Degeneration: Mild
  - Adenoma TGLs = 2 - 12

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

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ANIMAL ID: 215

TRT#: 4

SEX: Male

DAY ON TEST: 746

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101515

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

[ Degeneration TGLs = 1 - 12 ]

\* Thymus

Atrophy

Marked

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 216

TRT#: 4

SEX: Male

DAY ON TEST: 241

DOSE: 300/20 ppm

DISP: Natural Death

HISTO: 1101516

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Epididymis                | * Esophagus              | * Eye                      |
| * Harderian Gland         | * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   |
| * Mammary Gland           | * Pancreas                  | * Parathyroid Gland      | * Pituitary Gland          |
| * Preputial Gland         | * Prostate                  | * Salivary Glands        | * Seminal Vesicle          |
| * Skin                    | * Stomach, Forestomach      | * Stomach, Glandular     | * Testes                   |
| * Trachea                 | * Urinary Bladder           |                          |                            |

OBSERVATIONS

- |                 |                |                               |                       |
|-----------------|----------------|-------------------------------|-----------------------|
| * Brain         |                | Necrosis                      | Mild                  |
| * Kidney        |                | Nephropathy                   | Chronicprogr, Minimal |
| * Liver         | Hepatocyte     | Single Cell Death             | Moderate              |
| * Nose          | Olfactory Epi  | Accumulation, Hyaline Droplet | Mild                  |
| * Spleen        |                | Pigment                       | Minimal               |
| * Thymus        |                | Atrophy                       | Mild                  |
| * Thyroid Gland | Follicular Cel | Hypertrophy                   | Moderate              |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 217

TRT#: 4

SEX: Male

DAY ON TEST: 744

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101517

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Preputial Gland
- \* Skin
- \* Trachea
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Testes

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- \* Adrenal Cortex
- \* Kidney
- \* Liver
- \* Lung
- \* Mammary Gland
- \* Nose
- \* Pancreas
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Hepatocyte
- Hepatocyte
- Olfactory Epi
- Acinus
- Acinus
- Acinus
- C Cell
- Hypertrophy
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Hypertrophy
- Inflammation
- Infiltration Cellular
- Adenoma
- Accumulation, Hyaline Droplet
- Adenoma
- Atrophy
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Adenoma
- Minimal
- Chronicprogr, Minimal
- Minimal
- Minimal
- Focal, Minimal
- Histiocyte, Mild
- Moderate
- Multiple
- Minimal
- Minimal
- Mild
- Minimal
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 218

TRT#: 4

SEX: Male

DAY ON TEST: 744

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101518

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla           | * Bone                   | * Bone Marrow              | * Brain                   |
| * Epididymis                | * Esophagus              | * Eye                      | * Harderian Gland         |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           |
| * Pancreas                  | * Parathyroid Gland      | * Pituitary Gland          | * Preputial Gland         |
| * Prostate                  | * Salivary Glands        | * Seminal Vesicle          | * Stomach, Forestomach    |
| * Stomach, Glandular        | * Testes                 | * Trachea                  | * Urinary Bladder         |

OBSERVATIONS

- |   |                                   |                               |                    |
|---|-----------------------------------|-------------------------------|--------------------|
| * Adrenal Cortex                                |                                   | Degeneration                  | Cystic, Minimal    |
|   |                                   | Hypertrophy                   | Minimal            |
| Blood Vessel                                    |                                   | Inflammation                  | Minimal            |
| Note: Inflammation involves the carotid artery. |                                   |                               |                    |
| * Kidney  |                                   | Nephropathy                   | Chronicprogr, Mild |
| * Liver   |                                   | Basophilic Focus              |                    |
|   |                                   | Clear Cell Focus              |                    |
|   |                                   | Eosinophilic Focus            |                    |
|   |                                   | Inflammation                  | Focal, Minimal     |
|   |                                   | Necrosis                      | Minimal            |
| * Nose  | Olfactory Epi                     | Accumulation, Hyaline Droplet | Mild               |
| * Skin  |                                   | Cyst Epithelial Inclusion     |                    |
|   |                                   | Keratoacanthoma               |                    |
|   | [ Keratoacanthoma TGLs = 1 - 15 ] |                               |                    |
| * Spleen  |                                   | Extramedullary Hematopoiesis  | Minimal            |
| * Thymus  |                                   | Atrophy                       | Mild               |
| * Thyroid Gland                                 | C Cell                            | Hyperplasia                   | Minimal            |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02  
 Test Type: CHRONIC  
 Route: DOSED FEED  
 Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
 Perfluorooctanoic Acid  
 CAS Number: 335-67-1

Date Report Requested: 07/24/2018  
 Time Report Requested: 12:59:13  
 First Dose M/F: 07/27/09 / NA  
 Lab: BAT

ANIMAL ID: 219

TRT#: 4

SEX: Male

DAY ON TEST: 745

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101519

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Bone	* Bone Marrow	* Brain	* Epididymis
* Esophagus	* Harderian Gland	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Stomach, Forestomach	* Stomach, Glandular	* Trachea	* Urinary Bladder

**OBSERVATIONS**

* Adrenal Cortex		Hypertrophy	Minimal
* Adrenal Medulla		Pheochromocytoma Benign	
Blood Vessel		Inflammation	Chronic, Mild
Note: Inflammation involves a pulmonary arteriole and several testicular arterioles.			
* Eye	Cornea	Inflammation	Minimal
* Kidney		Nephropathy	Chronicprogr, Moderate
* Liver		Clear Cell Focus	
		Necrosis	Minimal
* Lung	Alveolar Epith	Hyperplasia	Moderate
	[ Hyperplasia TGLs = 2 - 5 ]		
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Atrophy	Mild
	Acinus	Hyperplasia	Marked
	[ Adenoma TGLs = 1 - 16 ]		
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Testes	Bilateral, Germinal Epith	Degeneration	Minimal
* Thymus		Atrophy	Mild
* Thyroid Gland	C Cell	Adenoma	

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 220

TRT#: 4

SEX: Male

DAY ON TEST: 465

DOSE: 300/20 ppm

DISP: Moribund Sacrifice

HISTO: 1101520

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                          |
|---------------------------|-----------------------------|--------------------------|--------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                   |
| * Brain                   | * Epididymis                | * Esophagus              | * Eye                    |
| * Harderian Gland         | * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Islets, Pancreatic     |
| * Lung                    | * Lymph Node, Mandibular    | * Mammary Gland          | * Parathyroid Gland      |
| * Pituitary Gland         | * Preputial Gland           | * Salivary Glands        | * Seminal Vesicle        |
| * Skin                    | * Stomach, Glandular        | * Trachea                | * Urinary Bladder        |

OBSERVATIONS

- |                                |               |                               |                       |
|--------------------------------|---------------|-------------------------------|-----------------------|
| * Bone Marrow                  |               | Hyperplasia                   | Marked                |
| * Intestine Small, Jejunum     |               | Sarcoma                       | Metastatic (Spleen)   |
| [ Sarcoma TGLs = 1 - 15+16 ]   |               |                               |                       |
| * Kidney                       |               | Accumulation, Hyaline Droplet | Mild                  |
|                                |               | Nephropathy                   | Chronicprogr, Minimal |
| * Liver                        | Hepatocyte    | Cytoplasmic Alteration        | Minimal               |
|                                | Kupffer Cell  | Hyperplasia                   | Minimal               |
|                                |               | Inflammation                  | Focal, Minimal        |
|                                |               | Pigment                       | Minimal               |
|                                | Hepatocyte    | Single Cell Death             | Minimal               |
| Lymph Node                     | Mediastinal   | Sarcoma                       | Metastatic (Spleen)   |
| [ Sarcoma TGLs = 5 - 20 ]      |               |                               |                       |
| * Lymph Node, Mesenteric       |               | Sarcoma                       | Metastatic (Spleen)   |
| Mesentery                      |               | Sarcoma                       | Metastatic (Spleen)   |
| [ Sarcoma TGLs = 6 - 21 ]      |               |                               |                       |
| * Nose                         | Olfactory Epi | Accumulation, Hyaline Droplet | Marked                |
| * Pancreas                     |               | Sarcoma                       | Metastatic (Spleen)   |
| * Prostate                     |               | Sarcoma                       | Metastatic (Spleen)   |
| Skeletal Muscle                |               | Sarcoma                       | Metastatic (Spleen)   |
| [ Sarcoma TGLs = 4 - 19 ]      |               |                               |                       |
| * Spleen                       |               | Sarcoma                       |                       |
| [ Sarcoma TGLs = 2,3 - 17+18 ] |               |                               |                       |

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 220

**TRT#:** 4

**SEX:** Male

**DAY ON TEST:** 465

**DOSE:** 300/20 ppm

**DISP:** Moribund Sacrifice

**HISTO:** 1101520

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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* Stomach, Forestomach	Epithelium	Erosion	Minimal
	Epithelium	Hyperplasia	Squamous, Moderate
		Inflammation	Moderate
* Testes		Sarcoma	Metastatic (Spleen)
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Hyperplasia	Moderate

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PRIMARY CAUSE OF DEATH - Spleen Sarcoma

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 221

TRT#: 4

SEX: Male

DAY ON TEST: 746

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101521

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Skin
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Prostate
- \* Stomach, Forestomach
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Trachea

MISSING

- \* Thymus

OBSERVATIONS

- |   |   |   |
|---|---|---|
| <ul style="list-style-type: none"> <li>* Adrenal Cortex</li> <li>Blood Vessel</li> <li>Note: Inflammation involves the testicular arterioles.</li> <li>* Heart</li> <li>* Kidney</li> <li style="padding-left: 20px;">[ Nephropathy TGLs = 5 - 6 ]</li> <li>* Liver</li> <li style="padding-left: 20px;">[ Clear Cell Focus TGLs = 4 - 18 ]</li> <li>* Lung</li> <li>Mesentery</li> <li style="padding-left: 20px;">[ Necrosis TGLs = 3 - 17 ]</li> <li>* Nose</li> <li>* Pancreas</li> <li style="padding-left: 20px;">[ Adenoma TGLs = 1,2 - 15+16 ]</li> <li>* Spleen</li> <li>* Testes</li> </ul> | <ul style="list-style-type: none"> <li>Hypertrophy</li> <li>Inflammation</li> <li>Cardiomyopathy</li> <li>Nephropathy</li> <li>Clear Cell Focus</li> <li>Degeneration</li> <li>Hyperplasia</li> <li>Necrosis</li> <li>Accumulation, Hyaline Droplet</li> <li>Adenoma</li> <li>Hyperplasia</li> <li>Extramedullary Hematopoiesis</li> <li>Pigment</li> <li>Degeneration</li> </ul> | <ul style="list-style-type: none"> <li>Minimal</li> <li>Chronic, Mild</li> <li>Mild</li> <li>Chronicprogr, Moderate</li> <li>Cystic, Minimal</li> <li>Minimal</li> <li>Mild</li> <li>Marked</li> <li>Multiple</li> <li>Marked</li> <li>Minimal</li> <li>Minimal</li> <li>Minimal</li> </ul> |
|---|---|---|

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 221

**TRT#:** 4

**SEX:** Male

**DAY ON TEST:** 746

**DOSE:** 300/20 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101521

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* Thyroid Gland

C Cell

Hyperplasia

Marked

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 222

TRT#: 4

SEX: Male

DAY ON TEST: 746

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101522

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric |
| * Mammary Gland            | * Pancreas                | * Parathyroid Gland         | * Preputial Gland        |
| * Prostate                 | * Salivary Glands         | * Seminal Vesicle           | * Skin                   |
| * Stomach, Forestomach     | * Stomach, Glandular      | * Testes                    | * Thyroid Gland          |
| * Trachea                  | * Urinary Bladder         |                             |                          |

OBSERVATIONS

- |                   |  |                               |                     |
|-------------------|--|-------------------------------|---------------------|
| * Kidney          |  | Nephropathy                   | Chronicprogr, Mild  |
| * Liver           |  | Clear Cell Focus              |                     |
| * Lung            |  | Infiltration Cellular         | Histiocyte, Minimal |
|                   | [ Infiltration Cellular TGLs = 1 - 4 ] |                               |                     |
| * Nose            | Olfactory Epi                          | Accumulation, Hyaline Droplet | Mild                |
|                   | Respirat Epith                         | Inflammation                  | Minimal             |
| * Pituitary Gland | Pars Distalis                          | Hyperplasia                   | Marked              |
| * Spleen          |  | Extramedullary Hematopoiesis  | Minimal             |
|                   |  | Pigment                       | Minimal             |
| * Thymus          |  | Atrophy                       | Moderate            |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02  
Test Type: CHRONIC  
Route: DOSED FEED  
Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA  
Perfluorooctanoic Acid  
CAS Number: 335-67-1

Date Report Requested: 07/24/2018  
Time Report Requested: 12:59:13  
First Dose M/F: 07/27/09 / NA  
Lab: BAT

ANIMAL ID: 223

TRT#: 4

SEX: Male

DAY ON TEST: 745

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101523

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Epididymis	* Esophagus	* Eye	* Harderian Gland
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Mammary Gland	* Parathyroid Gland	* Preputial Gland
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
Blood Vessel		Inflammation	Moderate
Note: Inflammation involves the pancreatic artery.			
* Heart		Cardiomyopathy	Mild
* Kidney		Nephropathy	Chronicprogr, Moderate
* Liver		Clear Cell Focus	
* Lung		Infiltration Cellular	Histiocyte, Moderate
[ Infiltration Cellular TGLs = 2 - 4+5 ]			
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Atrophy	Mild
	Acinus	Hyperplasia	Marked
[ Adenoma TGLs = 1 - 16 ]			
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Prostate	Epithelium, Ventral	Hyperplasia	Minimal
* Spleen		Extramedullary Hematopoiesis	Mild
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Adenoma	
	C Cell	Hyperplasia	Minimal

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 224

TRT#: 4

SEX: Male

DAY ON TEST: 711

DOSE: 300/20 ppm

DISP: Moribund Sacrifice

HISTO: 1101524

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Brain                   | * Epididymis                | * Esophagus              | * Eye                      |
| * Harderian Gland         | * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   |
| * Mammary Gland           | * Pancreas                  | * Parathyroid Gland      | * Preputial Gland          |
| * Prostate                | * Salivary Glands           | * Seminal Vesicle        | * Stomach, Forestomach     |
| * Stomach, Glandular      | * Testes                    | * Thyroid Gland          | * Trachea                  |
| * Urinary Bladder         |                             |                          |                            |

OBSERVATIONS

- |                   |                           |                               |                    |
|-------------------|---------------------------|-------------------------------|--------------------|
| * Bone Marrow     |                           | Hyperplasia                   | Mild               |
| * Kidney          |                           | Nephropathy                   | Chronicprogr, Mild |
| * Liver           |                           | Clear Cell Focus              |                    |
|                   |                           | Inflammation                  | Focal, Minimal     |
| * Nose            | Olfactory Epi             | Accumulation, Hyaline Droplet | Minimal            |
|                   | Respirat Epith            | Inflammation                  | Minimal            |
| * Pituitary Gland | Pars Distalis             | Hyperplasia                   | Minimal            |
| * Skin            | Subcut Tiss               | Fibroma                       |                    |
|                   | [ Fibroma TGLs = 1 - 15 ] |                               |                    |
| * Spleen          |                           | Extramedullary Hematopoiesis  | Mild               |
|                   |                           | Pigment                       | Minimal            |
| * Thymus          |                           | Atrophy                       | Moderate           |

PRIMARY CAUSE OF DEATH

- Skin Subcut Tiss Fibroma

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 225

TRT#: 4

SEX: Male

DAY ON TEST: 746

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101525

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Thyroid Gland
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
  - Blood Vessel
- Aorta
  - Note: Inflammation involves the testicular arterioles.
- \* Heart
- \* Kidney
  - [ Nephropathy TGLs = 9 - 6 ]
- \* Liver
  - [ Hepatocellular Adenoma TGLs = 6 - 20 ]
- \* Lung
  - [ Infiltration Cellular TGLs = 7 - 4+5 ]
- \* Nose
  - Olfactory Epi
- \* Pancreas
  - Acinus
  - Acinus
  - [ Adenoma TGLs = 1,2,3,4,5 - 15+16+17+18+19 ]
- \* Pituitary Gland
  - [ Cyst TGLs = 8 - 21 ]

- Hypertrophy
- Inflammation
- Mineral
- Cardiomyopathy
- Nephropathy
- Clear Cell Focus
- Degeneration
- Eosinophilic Focus
- Hepatocellular Adenoma
- Infiltration Cellular
- Inflammation
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Cyst
- Minimal
- Chronic, Mild
- Minimal
- Minimal
- Chronicprogr, Marked
- Cystic, Minimal
- Histiocyte, Marked
- Multifocal, Granulomatous, Minimal
- Moderate
- Multiple
- Marked

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

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**ANIMAL ID:** 225

**TRT#:** 4

**SEX:** Male

**DAY ON TEST:** 746

**DOSE:** 300/20 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101525

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Testes	Germinal Epith	Degeneration	Moderate
* Thymus		Atrophy	Moderate

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 226

TRT#: 4

SEX: Male

DAY ON TEST: 746

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101526

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla           | Blood Vessel             | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           |
| * Pancreas                  | * Parathyroid Gland      | * Pituitary Gland          | * Preputial Gland         |
| * Salivary Glands           | * Seminal Vesicle        | * Skin                     | * Stomach, Forestomach    |
| * Stomach, Glandular        | * Testes                 | * Thyroid Gland            | * Trachea                 |
| * Urinary Bladder           |                          |                            |                           |

OBSERVATIONS

- |                  |               |                               |                    |
|------------------|---------------|-------------------------------|--------------------|
| * Adrenal Cortex |               | Hypertrophy                   | Minimal            |
| * Heart          |               | Cardiomyopathy                | Minimal            |
| * Kidney         |               | Nephropathy                   | Chronicprogr, Mild |
| * Liver          |               | Clear Cell Focus              |                    |
|                  |               | Necrosis                      | Mild               |
| * Nose           | Olfactory Epi | Accumulation, Hyaline Droplet | Moderate           |
| * Prostate       | Ventral       | Adenoma                       |                    |
| * Spleen         |               | Extramedullary Hematopoiesis  | Mild               |
| * Thymus         |               | Atrophy                       | Moderate           |

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 227

TRT#: 4

SEX: Male

DAY ON TEST: 744

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101527

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla        | Blood Vessel               | * Bone                    | * Bone Marrow               |
| * Brain                  | * Epididymis               | * Esophagus               | * Harderian Gland           |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    |
| * Lymph Node, Mesenteric | * Mammary Gland            | * Parathyroid Gland       | * Pituitary Gland           |
| * Preputial Gland        | * Prostate                 | * Salivary Glands         | * Seminal Vesicle           |
| * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      | * Testes                    |
| * Thyroid Gland          | * Trachea                  | * Urinary Bladder         |                             |

OBSERVATIONS

- |                  |               |                               |                       |
|------------------|---------------|-------------------------------|-----------------------|
| * Adrenal Cortex |               | Hypertrophy                   | Moderate              |
| * Eye            | Cornea        | Inflammation                  | Minimal               |
| * Heart          |               | Cardiomyopathy                | Minimal               |
| * Kidney         |               | Nephropathy                   | Chronicprogr, Minimal |
| * Liver          |               | Clear Cell Focus              |                       |
|                  |               | Necrosis                      | Minimal               |
| * Lung           |               | Infiltration Cellular         | Histiocyte, Minimal   |
| * Nose           | Olfactory Epi | Accumulation, Hyaline Droplet | Mild                  |
|                  | Olfactory Epi | Inflammation                  | Minimal               |
|                  | Olfactory Epi | Metaplasia                    | Minimal               |
| * Pancreas       | Acinus        | Atrophy                       | Minimal               |
| * Spleen         |               | Extramedullary Hematopoiesis  | Minimal               |
|                  |               | Pigment                       | Minimal               |
| * Thymus         |               | Atrophy                       | Moderate              |

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 228

TRT#: 4

SEX: Male

DAY ON TEST: 744

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101528

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | Blood Vessel                | * Bone                   | * Bone Marrow              |
| * Brain                   | * Epididymis                | * Esophagus              | * Eye                      |
| * Harderian Gland         | * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Lymph Node, Mandibular  | * Lymph Node, Mesenteric    | * Mammary Gland          | * Preputial Gland          |
| * Prostate                | * Salivary Glands           | * Seminal Vesicle        | * Skin                     |
| * Stomach, Forestomach    | * Stomach, Glandular        | * Trachea                | * Urinary Bladder          |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                      |  |                               |                                    |
|----------------------|--|-------------------------------|------------------------------------|
| * Adrenal Medulla    |  | Pheochromocytoma Benign       |                                    |
| * Islets, Pancreatic |  | Adenoma                       |                                    |
| * Kidney             |  | Nephropathy                   | Chronicprogr, Mild                 |
| * Liver              |  | Clear Cell Focus              |                                    |
|                      |  | Inflammation                  | Focal, Minimal                     |
| * Lung               |  | Infiltration Cellular         | Histiocyte, Mild                   |
|                      |  | Inflammation                  | Multifocal, Granulomatous, Minimal |
|                      | [ Infiltration Cellular TGLs = 1 - 4+5 ] |                               |                                    |
| * Nose               | Olfactory Epi                            | Accumulation, Hyaline Droplet | Minimal                            |
| * Pancreas           | Acinus                                   | Adenoma                       | Multiple                           |
|                      | Acinus                                   | Hyperplasia                   | Marked                             |
|                      | [ Adenoma TGLs = 2 - 15 ]                |                               |                                    |
| * Pituitary Gland    | Pars Distalis                            | Hyperplasia                   | Minimal                            |
| * Spleen             |  | Extramedullary Hematopoiesis  | Mild                               |
| * Testes             | Germinal Epith                           | Degeneration                  | Minimal                            |
| * Thymus             |  | Atrophy                       | Moderate                           |
| * Thyroid Gland      | C Cell                                   | Adenoma                       |                                    |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 229

TRT#: 4

SEX: Male

DAY ON TEST: 747

DOSE: 300/20 ppm

DISP: Terminal Sacrifice

HISTO: 1101529

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla        | * Bone                     | * Bone Marrow             | * Brain                     |
| * Epididymis             | * Esophagus                | * Eye                     | * Harderian Gland           |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    |
| * Lymph Node, Mesenteric | * Mammary Gland            | * Pituitary Gland         | * Preputial Gland           |
| * Prostate               | * Salivary Glands          | * Seminal Vesicle         | * Skin                      |
| * Stomach, Forestomach   | * Stomach, Glandular       | * Testes                  | * Thyroid Gland             |
| * Trachea                | * Urinary Bladder          |                           |                             |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |  |                |                               |                                    |
|--|----------------|-------------------------------|------------------------------------|
| * Adrenal Cortex                                       |                | Hypertrophy                   | Minimal                            |
| Blood Vessel   |                | Inflammation                  | Minimal                            |
| Note: Inflammation involves the testicular arterioles. |                |                               |                                    |
| * Heart  |                | Cardiomyopathy                | Minimal                            |
| * Kidney   |                | Nephropathy                   | Chronicprogr, Marked               |
| [ Nephropathy TGLs = 3 - 6 ]                           |                |                               |                                    |
| * Liver  |                | Clear Cell Focus              |                                    |
|  |                | Eosinophilic Focus            |                                    |
|  |                | Mixed Cell Focus              |                                    |
| * Lung   | Alveolar Epith | Hyperplasia                   | Minimal                            |
|  |                | Infiltration Cellular         | Histiocyte, Marked                 |
|  |                | Inflammation                  | Multifocal, Granulomatous, Minimal |
| [ Infiltration Cellular TGLs = 1 - 4+5 ]               |                |                               |                                    |
| * Nose   | Olfactory Epi  | Accumulation, Hyaline Droplet | Mild                               |
| * Pancreas   | Acinus         | Atrophy                       | Minimal                            |
|  | Acinus         | Carcinoma                     |                                    |
|  | Acinus         | Hyperplasia                   | Marked                             |
| [ Carcinoma TGLs = 2 - 15 ]                            |                |                               |                                    |
| * Spleen   |                | Extramedullary Hematopoiesis  | Minimal                            |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 229

**TRT#:** 4

**SEX:** Male

**DAY ON TEST:** 747

**DOSE:** 300/20 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101529

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* Thymus

Pigment

Minimal

Atrophy

Mild

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 230

TRT#: 4

SEX: Male

DAY ON TEST: 739

DOSE: 300/20 ppm

DISP: Moribund Sacrifice

HISTO: 1101530

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Blood Vessel	* Bone	* Bone Marrow	* Brain
* Epididymis	* Esophagus	* Eye	* Harderian Gland
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Degeneration	Cystic, Minimal
* Adrenal Medulla		Hyperplasia	Mild
* Heart		Cardiomyopathy	Minimal
* Islets, Pancreatic		Adenoma	
* Kidney	Papilla, Urothelium	Hyperplasia	Minimal
		Nephropathy	Chronicprogr, Moderate
* Liver		Clear Cell Focus	
* Lung		Inflammation	Multifocal, Granulomatous, Minimal
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Atrophy	Minimal
	Acinus	Hyperplasia	Marked
	[ Adenoma TGLs = 1 - 15 ]		
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Stomach, Forestomach		Inflammation	Mild
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Hyperplasia	Minimal

PRIMARY CAUSE OF DEATH - Pancreas Acinus Adenoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 241

TRT#: 5

SEX: Male

DAY ON TEST: 747

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101541

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | Blood Vessel               | * Bone                    |
| * Bone Marrow               | * Brain                  | * Epididymis               | * Esophagus               |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           |
| * Preputial Gland           | * Salivary Glands        | * Seminal Vesicle          | * Skin                    |
| * Stomach, Forestomach      | * Stomach, Glandular     | * Testes                   | * Thyroid Gland           |
| * Trachea                   | * Urinary Bladder        |                            |                           |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                   |                           |                               |                         |
|-------------------|---------------------------|-------------------------------|-------------------------|
| * Eye             | Retina                    | Degeneration                  | Minimal                 |
| * Heart           |                           | Cardiomyopathy                | Minimal                 |
| * Kidney          |                           | Nephropathy                   | Chronicprogr, Mild      |
| * Liver           |                           | Clear Cell Focus              |                         |
|                   |                           | Inflammation                  | Focal, Minimal          |
| * Nose            | Olfactory Epi             | Accumulation, Hyaline Droplet | Mild                    |
| * Pancreas        | Acinus                    | Adenoma                       | Multiple                |
|                   | Acinus                    | Atrophy                       | Mild                    |
|                   | Acinus                    | Hyperplasia                   | Marked                  |
|                   |                           | Inflammation                  | Chronic Active, Minimal |
|                   | [ Adenoma TGLs = 1 - 15 ] |                               |                         |
| * Pituitary Gland | Pars Distalis             | Hyperplasia                   | Minimal                 |
| * Prostate        | Epithelium, Ventral       | Hyperplasia                   | Minimal                 |
| * Spleen          |                           | Pigment                       | Minimal                 |
| * Thymus          |                           | Atrophy                       | Mild                    |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 242

TRT#: 5

SEX: Male

DAY ON TEST: 747

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101542

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | Blood Vessel               | * Bone                    |
| * Bone Marrow               | * Brain                  | * Epididymis               | * Esophagus               |
| * Eye                       | * Harderian Gland        | * Intestine Large, Cecum   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           |
| * Pituitary Gland           | * Preputial Gland        | * Salivary Glands          | * Seminal Vesicle         |
| * Skin                      | * Stomach, Forestomach   | * Stomach, Glandular       | * Testes                  |
| * Trachea                   | * Urinary Bladder        |                            |                           |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                          |                           |                               |                         |
|--------------------------|---------------------------|-------------------------------|-------------------------|
| * Heart                  |                           | Cardiomyopathy                | Minimal                 |
| * Intestine Large, Colon |                           | Parasite Metazoan             |                         |
| * Kidney                 |                           | Nephropathy                   | Chronicprogr, Mild      |
| * Liver                  |                           | Inflammation                  | Focal, Minimal          |
|                          |                           | Necrosis                      | Minimal                 |
| * Nose                   | Olfactory Epi             | Accumulation, Hyaline Droplet | Marked                  |
| * Pancreas               | Acinus                    | Adenoma                       | Multiple                |
|                          | Acinus                    | Atrophy                       | Minimal                 |
|                          | Acinus                    | Hyperplasia                   | Mild                    |
|                          | [ Adenoma TGLs = 1 - 15 ] |                               |                         |
| * Prostate               |                           | Inflammation                  | Minimal                 |
|                          | Ventral                   | Inflammation                  | Chronic Active, Minimal |
| * Spleen                 |                           | Extramedullary Hematopoiesis  | Mild                    |
| * Thymus                 |                           | Atrophy                       | Moderate                |
| * Thyroid Gland          | C Cell                    | Hyperplasia                   | Minimal                 |
|                          | Follicular Cel            | Hypertrophy                   | Minimal                 |

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 243

TRT#: 5

SEX: Male

DAY ON TEST: 747

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101543

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Trachea
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Urinary Bladder
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach

OBSERVATIONS

- \* Adrenal Cortex
  - Blood Vessel
    - Note: Inflammation involves testicular arterioles.
- \* Heart
  - Islets, Pancreatic
    - Note: Pancreatic nodules = acinar hyperplasia.
    - [ Adenoma TGLs = 2 - 17 ]
- \* Kidney
  - Liver
    - [ Mixed Cell Focus TGLs = 1 - 16 ]
- \* Lung
  - [ Infiltration Cellular TGLs = 4 - 4+5 ]
- \* Nose
  - Pancreas
    - [ Adenoma TGLs = 3 - 17 ]
- \* Pituitary Gland
- \* Spleen

- Hypertrophy
- Inflammation
- Cardiomyopathy
- Adenoma
- Hyperplasia
- Metaplasia
- Nephropathy
- Clear Cell Focus
- Degeneration
- Mixed Cell Focus
- Pigment
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Extramedullary Hematopoiesis
- Minimal
- Chronic, Mild
- Moderate
- Mild
- Hepatocyte, Mild
- Chronicprogr, Moderate
- Cystic, Minimal
- Minimal
- Histiocyte, Moderate
- Mild
- Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 243

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 747

**DOSE:** 0/40 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101543

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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* Testes	Interstit Cell	Adenoma	
	Bilateral, Germinal Epith	Degeneration	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Adenoma	

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 244

TRT#: 5

SEX: Male

DAY ON TEST: 725

DOSE: 0/40 ppm

DISP: Moribund Sacrifice

HISTO: 1101544

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- Blood Vessel
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Pituitary Gland
- \* Trachea
- \* Bone
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Preputial Gland
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Seminal Vesicle
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Mammary Gland
- \* Skin

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Kidney
- \* Liver
- [ Lymphoma Malignant TGLs = 3 - 16 ]
- \* Lung
- Lymph Node
- Mediastinal
- Pancreatic
- [ Lymphoma Malignant TGLs = 4 - 17 ]
- [ Lymphoma Malignant TGLs = 2 - 15 ]
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Nose
- \* Pancreas
- \* Prostate
- \* Salivary Glands
- Lymphoma Malignant
- Lymphoma Malignant
- Lymphoma Malignant
- Infarct
- Nephropathy
- Fatty Change
- Lymphoma Malignant
- Inflammation
- Lymphoma Malignant
- Lymphoma Malignant
- Lymphoma Malignant
- Lymphoma Malignant
- Lymphoma Malignant
- Lymphoma Malignant
- Accumulation, Hyaline Droplet
- Lymphoma Malignant
- Inflammation
- Lymphoma Malignant
- Lymphoma Malignant
- Minimal
- Chronicprogr, Minimal
- Diffuse, Moderate
- Acute, Minimal
- Mild
- Chronic Active, Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 244

TRT#: 5

SEX: Male

DAY ON TEST: 725

DOSE: 0/40 ppm

DISP: Moribund Sacrifice

HISTO: 1101544

ORGAN AND ACCOUNTABLE SITE STATUS

Skeletal Muscle		Lymphoma Malignant	
* Spleen		Lymphoma Malignant	
	[ Lymphoma Malignant TGLs = 1 - 6 ]		
* Stomach, Forestomach		Lymphoma Malignant	
* Stomach, Glandular		Lymphoma Malignant	
* Testes	Interstit Cell	Adenoma	
	Germinal Epith	Degeneration	Moderate
* Thymus		Lymphoma Malignant	
* Thyroid Gland	Follicular Cel	Hypertrophy	Minimal
* Urinary Bladder		Inflammation	Minimal
		Lymphoma Malignant	

PRIMARY CAUSE OF DEATH - Spleen Lymphoma Malignant

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 245

TRT#: 5

SEX: Male

DAY ON TEST: 743

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101545

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Thyroid Gland
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Prostate
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Salivary Glands
- \* Testes

OBSERVATIONS

- \* Adrenal Cortex
  - \* Heart
  - \* Kidney
  - [ Nephropathy TGLs = 3 - 6 ]
  - \* Liver
  - \* Lung
  - [ Infiltration Cellular TGLs = 4 - 4+5 ]
  - \* Nose
  - \* Pancreas
  - [ Hyperplasia TGLs = 2 - 16 ]
  - \* Skin
  - [ Inflammation TGLs = 1 - 15 ]
  - \* Spleen
  - \* Thymus
- Hypertrophy
  - Cardiomyopathy
  - Nephropathy
  - Clear Cell Focus
  - Inflammation
  - Infiltration Cellular
  - Accumulation, Hyaline Droplet
  - Inflammation
  - Atrophy
  - Hyperplasia
  - Inflammation
  - Pigment
  - Atrophy
- Minimal
  - Minimal
  - Chronicprogr, Mild
  - Focal, Minimal
  - Histiocyte, Mild
  - Mild
  - Minimal
  - Minimal
  - Marked
  - Mild
  - Minimal
  - Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 246

TRT#: 5

SEX: Male

DAY ON TEST: 736

DOSE: 0/40 ppm

DISP: Natural Death

HISTO: 1101546

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Lymph Node, Mandibular  | * Lymph Node, Mesenteric    | * Mammary Gland          |
| * Nose                     | * Parathyroid Gland       | * Pituitary Gland           | * Preputial Gland        |
| * Salivary Glands          | * Seminal Vesicle         | * Skin                      | * Stomach, Forestomach   |
| * Stomach, Glandular       | * Thyroid Gland           | * Trachea                   | * Urinary Bladder        |

OBSERVATIONS

- |                      |  |                              |                      |
|----------------------|--|------------------------------|----------------------|
| * Islets, Pancreatic |  | Hyperplasia                  | Mild                 |
| * Kidney             |  | Nephropathy                  | Chronicprogr, Mild   |
| * Liver              |  | Basophilic Focus             |                      |
|                      |  | Clear Cell Focus             |                      |
| * Lung               |  | Infiltration Cellular        | Histiocyte, Mild     |
|                      | [ Infiltration Cellular TGLs = 1 - 4+5 ] |                              |                      |
| * Pancreas           | Acinus                                   | Adenoma                      | Multiple             |
|                      | Acinus                                   | Hyperplasia                  | Marked               |
|                      | [ Adenoma TGLs = 2 - 15 ]                |                              |                      |
| * Prostate           | Ventral                                  | Inflammation                 | Chronic Active, Mild |
| * Spleen             |  | Extramedullary Hematopoiesis | Mild                 |
|                      |  | Pigment                      | Minimal              |
| * Testes             | Bilateral, Germinal Epith                | Degeneration                 | Moderate             |
| * Thymus             |  | Atrophy                      | Marked               |

PRIMARY CAUSE OF DEATH

- Pancreas Acinus Adenoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 247

TRT#: 5

SEX: Male

DAY ON TEST: 535

DOSE: 0/40 ppm

DISP: Natural Death

HISTO: 1101547

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Parathyroid Gland
- \* Pituitary Gland
- \* Salivary Glands
- \* Seminal Vesicle
- \* Stomach, Glandular
- \* Testes
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Preputial Gland
- \* Skin
- \* Thyroid Gland
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Pancreas
- \* Prostate
- \* Stomach, Forestomach
- \* Trachea

OBSERVATIONS

- \* Heart
  - Cardiomyopathy
  - Mineral
- \* Intestine Large, Colon
  - Parasite Metazoan
- \* Kidney
  - Nephropathy
- \* Liver
  - Hepatocyte
  - Hepatocyte
  - Arteriole
- \* Lung
  - Cytoplasmic Alteration
  - Hypertrophy
  - Necrosis
  - Necrosis
  - Foreign Body
  - Inflammation
- \* Nose
  - Olfactory Epi
- \* Spleen
  - Lymph Follic
- \* Thymus
  - Accumulation, Hyaline Droplet
  - Atrophy
  - Pigment
  - Atrophy

Mild  
 Minimal  
 Chronicprogr, Mild  
 Minimal  
 Minimal  
 Mild  
 Minimal  
 Acute, Moderate  
 Minimal  
 Moderate  
 Mild  
 Moderate

PRIMARY CAUSE OF DEATH - Lung Inflammation

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 248

TRT#: 5

SEX: Male

DAY ON TEST: 743

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101548

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Islets, Pancreatic
- \* Lung
- \* Mammary Gland
- \* Parathyroid Gland
- \* Salivary Glands
- \* Seminal Vesicle
- \* Stomach, Glandular
- \* Testes
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Skin
- \* Thyroid Gland
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Trachea

OBSERVATIONS

- \* Heart
- \* Kidney
- \* Liver
- Hepatocyte
- Hepatocyte
- \* Nose
- \* Pancreas
- [ Adenoma TGLs = 1 - 15 ]
- \* Prostate
- \* Spleen
- \* Thymus
- Cardiomyopathy
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Degeneration
- Hypertrophy
- Necrosis
- Pigment
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Inflammation
- Extramedullary Hematopoiesis
- Atrophy
- Minimal
- Chronicprogr, Minimal
- Mild
- Cystic, Minimal
- Minimal
- Minimal
- Minimal
- Minimal
- Minimal
- Minimal
- Marked
- Chronic Active, Minimal
- Minimal
- Moderate

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 249

TRT#: 5

SEX: Male

DAY ON TEST: 241

DOSE: 0/40 ppm

DISP: Moribund Sacrifice

HISTO: 1101549

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex         | * Adrenal Medulla          | Blood Vessel              | * Bone                      |
| * Bone Marrow            | * Epididymis               | * Esophagus               | * Eye                       |
| * Harderian Gland        | * Intestine Large, Cecum   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lung                      |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           | * Nose                      |
| * Pancreas               | * Parathyroid Gland        | * Pituitary Gland         | * Preputial Gland           |
| * Prostate               | * Salivary Glands          | * Seminal Vesicle         | * Skin                      |
| * Stomach, Forestomach   | * Stomach, Glandular       | * Thyroid Gland           | * Trachea                   |
| * Urinary Bladder        |                            |                           |                             |

OBSERVATIONS

- |                          |                |                        |                       |
|--------------------------|----------------|------------------------|-----------------------|
| * Brain                  |                | Necrosis               | Marked                |
| * Heart                  |                | Cardiomyopathy         | Minimal               |
| * Intestine Large, Colon |                | Parasite Metazoan      |                       |
| * Kidney                 | Renal Tubule   | Necrosis               | Minimal               |
|                          |                | Nephropathy            | Chronicprogr, Minimal |
| * Liver                  |                | Basophilic Focus       |                       |
|                          | Hepatocyte     | Cytoplasmic Alteration | Mild                  |
|                          | Hepatocyte     | Hypertrophy            | Mild                  |
|                          | Hepatocyte     | Single Cell Death      | Mild                  |
| * Spleen                 | Lymph Follic   | Atrophy                | Moderate              |
|                          |                | Pigment                | Mild                  |
| * Testes                 | Germinal Epith | Degeneration           | Minimal               |
| * Thymus                 |                | Atrophy                | Minimal               |

PRIMARY CAUSE OF DEATH - Liver Hepatocyte Single Cell Death

CONTRIBUTORY CAUSE OF DEATH - Brain Necrosis

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 250

TRT#: 5

SEX: Male

DAY ON TEST: 746

DOSE: 0/40 ppm

DISP: Natural Death

HISTO: 1101550

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla        | * Bone                     | * Bone Marrow             | * Brain                     |
| * Epididymis             | * Esophagus                | * Eye                     | * Harderian Gland           |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    |
| * Lymph Node, Mesenteric | * Mammary Gland            | * Parathyroid Gland       | * Pituitary Gland           |
| * Preputial Gland        | * Prostate                 | * Salivary Glands         | * Seminal Vesicle           |
| * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      | * Testes                    |
| * Thyroid Gland          | * Trachea                  | * Urinary Bladder         |                             |

OBSERVATIONS

- |                  |  |                               |                        |
|------------------|--|-------------------------------|------------------------|
| * Adrenal Cortex |  | Degeneration                  | Cystic, Minimal        |
| Blood Vessel     | Aorta  | Mineral                       | Minimal                |
| * Heart          |  | Cardiomyopathy                | Minimal                |
| * Kidney         |  | Nephropathy                   | Chronicprogr, Moderate |
| * Liver          | Hepatocyte                                       | Cytoplasmic Alteration        | Minimal                |
|                  | Bile Duct  | Hyperplasia                   | Minimal                |
|                  | Hepatocyte                                       | Hypertrophy                   | Minimal                |
|                  |  | Mixed Cell Focus              |                        |
|                  |  | Necrosis                      | Minimal                |
|                  |  | Pigment                       | Minimal                |
|                  | [ Mixed Cell Focus TGLs = 1,2 - 15+16 ]          |                               |                        |
| * Lung           |  | Foreign Body                  |                        |
|                  |  | Inflammation                  | Acute, Marked          |
| * Nose           | Olfactory Epi                                    | Accumulation, Hyaline Droplet | Minimal                |
|                  | Olfactory Epi, Respirat Epith                    | Inflammation                  | Marked                 |
|                  | Note: Inflammation largely = exudate throughout. |                               |                        |
| * Pancreas       | Acinus   | Hyperplasia                   | Moderate               |
| * Spleen         |  | Extramedullary Hematopoiesis  | Mild                   |
|                  |  | Pigment                       | Minimal                |
| * Thymus         |  | Atrophy                       | Marked                 |

PRIMARY CAUSE OF DEATH - Lung Inflammation

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 251

TRT#: 5

SEX: Male

DAY ON TEST: 746

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101551

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   |
| * Mammary Gland           | * Nose                      | * Preputial Gland        | * Salivary Glands          |
| * Seminal Vesicle         | * Skin                      | * Stomach, Forestomach   | * Stomach, Glandular       |
| * Thyroid Gland           | * Trachea                   | * Urinary Bladder        |                            |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                   |                               |                              |                         |
|-------------------|-------------------------------|------------------------------|-------------------------|
| * Heart           |                               | Cardiomyopathy               | Minimal                 |
| * Kidney          |                               | Nephropathy                  | Chronicprogr, Minimal   |
| * Liver           |                               | Clear Cell Focus             |                         |
|                   | Hepatocyte                    | Cytoplasmic Alteration       | Mild                    |
|                   | Hepatocyte                    | Hypertrophy                  | Minimal                 |
|                   |                               | Necrosis                     | Mild                    |
|                   |                               | Pigment                      | Minimal                 |
| * Pancreas        | Acinus                        | Hyperplasia                  | Marked                  |
|                   | [ Hyperplasia TGLs = 1 - 15 ] |                              |                         |
| * Pituitary Gland | Pars Distalis                 | Hyperplasia                  | Minimal                 |
| * Prostate        | Ventral                       | Inflammation                 | Chronic Active, Minimal |
| * Spleen          |                               | Extramedullary Hematopoiesis | Mild                    |
|                   |                               | Pigment                      | Minimal                 |
| * Testes          | Germinal Epith                | Degeneration                 | Minimal                 |
| * Thymus          |                               | Atrophy                      | Moderate                |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 252

TRT#: 5

SEX: Male

DAY ON TEST: 314

DOSE: 0/40 ppm

DISP: Natural Death

HISTO: 1101552

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Liver                     | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric   | * Mammary Gland           | * Pancreas                  | * Parathyroid Gland      |
| * Pituitary Gland          | * Preputial Gland         | * Prostate                  | * Salivary Glands        |
| * Seminal Vesicle          | * Skin                    | * Spleen                    | * Stomach, Forestomach   |
| * Stomach, Glandular       | * Testes                  | * Thyroid Gland             | * Trachea                |
| * Urinary Bladder          |                           |                             |                          |

OBSERVATIONS

- |          |               |                               |                       |
|----------|---------------|-------------------------------|-----------------------|
| * Kidney |               | Mineral                       | Minimal               |
|          |               | Nephropathy                   | Chronicprogr, Minimal |
| * Lung   |               | Infiltration Cellular         | Histiocyte, Mild      |
| * Nose   | Olfactory Epi | Accumulation, Hyaline Droplet | Marked                |
| * Thymus |               | Atrophy                       | Mild                  |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 253

TRT#: 5

SEX: Male

DAY ON TEST: 747

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101553

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Glandular
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Salivary Glands
- \* Thyroid Gland
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
- \* Islets, Pancreatic
- Note: (1 pancreatic nodule B17, 1 in B15)
- \* Kidney
- \* Liver
- Hepatocyte
- Hepatocyte
- [ Hepatocellular Adenoma TGLs = 1, 3 - 16 + 18 ]
- \* Lung
- \* Nose
- \* Pancreas
- [ Hyperplasia TGLs = 2 - 17 ]
- \* Pituitary Gland
- \* Spleen
- Degeneration
- Adenoma
- Infarct
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Degeneration
- Hepatocellular Adenoma
- Hypertrophy
- Inflammation
- Necrosis
- Pigment
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Hyperplasia
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Cystic, Minimal
- Multiple
- Minimal
- Chronicprogr, Mild
- Mild
- Cystic, Minimal
- Multiple
- Mild
- Focal, Minimal
- Minimal
- Minimal
- Histiocyte, Minimal
- Minimal
- Mild
- Minimal
- Minimal
- Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 253

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 747

**DOSE:** 0/40 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101553

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Stomach, Forestomach

Epithelium

Hyperplasia

Squamous, Minimal

\* Testes

Germinal Epith

Degeneration

Minimal

\* Thymus

Atrophy

Moderate

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 254

TRT#: 5

SEX: Male

DAY ON TEST: 747

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101554

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder
- Blood Vessel
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone Marrow
- \* Eye
- \* Intestine Small, Duodenum
- \* Lung
- \* Preputial Gland
- \* Skin
- \* Thyroid Gland
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
- \* Bone
- \* Heart
- \* Intestine Large, Colon
- \* Kidney
- \* Liver
- \* Lymph Node, Mandibular
- \* Nose
- \* Pancreas
- Hypertrophy
- Osteopetrosis
- Cardiomyopathy
- Parasite Metazoan
- Pelvis
- Hepatocyte
- Hepatocyte
- Hepatocyte
- [ Eosinophilic Focus TGLs = 3 - 17 ]
- [ Hepatocellular Adenoma TGLs = 4 - 18 ]
- [ Ectasia TGLs = 2 - 16 ]
- Olfactory Epi
- Acinus
- Acinus
- Inflammation
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Eosinophilic Focus
- Hepatocellular Adenoma
- Hypertrophy
- Inflammation
- Single Cell Death
- Ectasia
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Minimal
- Minimal
- Minimal
- Minimal
- Chronicprogr, Mild
- Minimal
- Minimal
- Minimal
- Minimal
- Focal, Minimal
- Minimal
- Mild
- Mild
- Multiple
- Marked

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 254

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 747

**DOSE:** 0/40 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101554

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Pituitary Gland

Pars Distalis

Hyperplasia

Minimal

\* Spleen

Extramedullary Hematopoiesis

Mild

\* Thymus

Atrophy

Moderate

---



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 255

TRT#: 5

SEX: Male

DAY ON TEST: 743

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101555

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| Blood Vessel               | * Bone                    | * Bone Marrow               | * Brain                  |
| * Epididymis               | * Esophagus               | * Eye                       | * Harderian Gland        |
| * Intestine Large, Cecum   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric |
| * Mammary Gland            | * Parathyroid Gland       | * Pituitary Gland           | * Preputial Gland        |
| * Salivary Glands          | * Seminal Vesicle         | * Skin                      | * Stomach, Forestomach   |
| * Stomach, Glandular       | * Testes                  | * Trachea                   | * Urinary Bladder        |

MISSING

- \* Thymus

OBSERVATIONS

- |                          |                                 |                               |                                    |
|--------------------------|---------------------------------|-------------------------------|------------------------------------|
| * Adrenal Cortex         | Zona Fascult                    | Hyperplasia                   | Minimal                            |
| * Adrenal Medulla        |                                 | Hyperplasia                   | Moderate                           |
|                          |                                 | Pheochromocytoma Benign       |                                    |
| * Heart                  |                                 | Cardiomyopathy                | Minimal                            |
| * Intestine Large, Colon |                                 | Parasite Metazoan             |                                    |
| * Kidney                 |                                 | Nephropathy                   | Chronicprogr, Moderate             |
| * Liver                  |                                 | Clear Cell Focus              |                                    |
|                          |                                 | Pigment                       | Minimal                            |
| * Lung                   | Alveolar Epith                  | Hyperplasia                   | Minimal                            |
|                          |                                 | Inflammation                  | Multifocal, Granulomatous, Minimal |
|                          | [ Inflammation TGLs = 3 - 4+5 ] |                               |                                    |
| * Nose                   | Olfactory Epi                   | Accumulation, Hyaline Droplet | Mild                               |
| * Pancreas               | Acinus                          | Adenoma                       | Multiple                           |
|                          | Acinus                          | Atrophy                       | Minimal                            |
|                          | Acinus                          | Carcinoma                     |                                    |
|                          | Acinus                          | Hyperplasia                   | Marked                             |
|                          | [ Adenoma TGLs = 2 - 7+16 ]     |                               |                                    |
|                          | [ Carcinoma TGLs = 1 - 15 ]     |                               |                                    |
| * Prostate               | Ventral                         | Inflammation                  | Chronic Active, Minimal            |
| * Spleen                 | Capsule                         | Cyst                          |                                    |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

ANIMAL ID: 255

TRT#: 5

SEX: Male

DAY ON TEST: 743

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101555

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

Extramedullary Hematopoiesis

Mild

Pigment

Minimal

[ Cyst TGLs = 4 - 17 ]

\* Thyroid Gland

C Cell

Hyperplasia

Minimal

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 256

TRT#: 5

SEX: Male

DAY ON TEST: 743

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101556

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Islets, Pancreatic
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Preputial Gland
- \* Skin
- \* Stomach, Forestomach
- \* Trachea
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Heart
- \* Kidney
- \* Liver
- Hepatocyte
- Cytoplasmic Alteration
- Hepatocellular Adenoma
- Hypertrophy
- [ Hepatocellular Adenoma TGLs = 2,3, 16 + 17 ]
- \* Lung
- [ Infiltration Cellular TGLs = 4 - 4+5 ]
- \* Nose
- \* Pancreas
- Olfactory Epi
- Acinus
- Acinus
- [ Adenoma TGLs = 1 - 15 ]
- \* Pituitary Gland
- [ Hyperplasia TGLs = 5 - 18 ]
- \* Prostate
- \* Spleen
- Ventral
- Inflammation
- Extramedullary Hematopoiesis
- Pigment
- \* Thymus
- \* Thyroid Gland
- C Cell
- Follicular Cel
- Cardiomyopathy
- Nephropathy
- Clear Cell Focus
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Hyperplasia
- Inflammation
- Atrophy
- Adenoma
- Hypertrophy
- Minimal
- Chronicprogr, Mild
- Mild
- Multiple
- Mild
- Histiocyte, Mild
- Marked
- Multiple
- Marked
- Moderate
- Chronic Active, Mild
- Minimal
- Minimal
- Mild
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 257

TRT#: 5

SEX: Male

DAY ON TEST: 745

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101557

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Trachea
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Thyroid Gland

OBSERVATIONS

- \* Adrenal Cortex
- \* Heart
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
- \* Lung
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Spleen
- \* Thymus
- Hepatocyte
- Hepatocyte
- Hypertrophy
- Cardiomyopathy
- Hyperplasia
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Hypertrophy
- Inflammation
- Necrosis
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Inflammation
- Adenoma
- Atrophy
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Minimal
- Minimal
- Minimal
- Chronicprogr, Mild
- Minimal
- Minimal
- Focal, Minimal
- Minimal
- Histiocyte, Moderate
- Mild
- Minimal
- Multiple
- Minimal
- Mild
- Mild
- Minimal
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 258

TRT#: 5

SEX: Male

DAY ON TEST: 745

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101558

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Skin
- \* Thyroid Gland
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Prostate
- \* Stomach, Forestomach
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
- \* Kidney
- \* Liver
- \* Lung
- \* Nose
- \* Pancreas
- \* Spleen
- \* Thymus
- Hepatocyte
- Hepatocyte
- [ Infiltration Cellular TGLs = 3 - 4+5 ]
- [ Adenoma TGLs = 1,2 - 15+16 ]
- Hypertrophy
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Eosinophilic Focus
- Hypertrophy
- Mixed Cell Focus
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Inflammation
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Minimal
- Chronicprogr, Mild
- Mild
- Mild
- Histiocyte, Mild
- Moderate
- Multiple
- Marked
- Chronic Active, Minimal
- Mild
- Minimal
- Moderate

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 260

TRT#: 5

SEX: Male

DAY ON TEST: 746

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101560

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| Blood Vessel             | * Bone                     | * Bone Marrow             | * Brain                     |
| * Epididymis             | * Esophagus                | * Eye                     | * Harderian Gland           |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lung                      |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           | * Pituitary Gland           |
| * Preputial Gland        | * Prostate                 | * Salivary Glands         | * Seminal Vesicle           |
| * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      | * Trachea                   |
| * Urinary Bladder        |                            |                           |                             |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                   |  |                               |                        |
|-------------------|--|-------------------------------|------------------------|
| * Adrenal Cortex  |  | Hypertrophy                   | Minimal                |
| * Adrenal Medulla |  | Hyperplasia                   | Marked                 |
| * Heart           |  | Cardiomyopathy                | Mild                   |
| * Kidney          |  | Nephropathy                   | Chronicprogr, Moderate |
| * Liver           |  | Clear Cell Focus              |                        |
|                   | Hepatocyte                               | Cytoplasmic Alteration        | Mild                   |
|                   | Hepatocyte                               | Hepatocellular Adenoma        |                        |
|                   | [ Hepatocellular Adenoma TGLs = 2 - 17 ] | Hypertrophy                   | Mild                   |
| * Nose            | Olfactory Epi                            | Accumulation, Hyaline Droplet | Mild                   |
| * Pancreas        | Acinus                                   | Adenoma                       | Multiple               |
|                   | Acinus                                   | Atrophy                       | Minimal                |
|                   | Acinus                                   | Hyperplasia                   | Marked                 |
|                   | [ Adenoma TGLs = 1 - 15 ]                |                               |                        |
|                   | [ Hyperplasia TGLs = 4 - 16 ]            |                               |                        |
| * Spleen          |  | Pigment                       | Minimal                |
| * Testes          | Interstit Cell                           | Adenoma                       |                        |
| * Thymus          |  | Atrophy                       | Mild                   |
| * Thyroid Gland   | C Cell                                   | Hyperplasia                   | Marked                 |

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20614 - 02

**Test Type:** CHRONIC

**Route:** DOSED FEED

**Species/Strain:** RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

**CAS Number:** 335-67-1

**Date Report Requested:** 07/24/2018

**Time Report Requested:** 12:59:13

**First Dose M/F:** 07/27/09 / NA

**Lab:** BAT

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**ANIMAL ID:** 260

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 746

**DOSE:** 0/40 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101560

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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[ Hyperplasia TGLs = 3 - 9 ]

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 261

TRT#: 5

SEX: Male

DAY ON TEST: 743

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101561

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone Marrow
- \* Eye
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
- \* Heart
- \* Intestine Large, Colon
- \* Kidney
- \* Liver
- Hepatocyte
- Hepatocyte
- [ Fatty Change TGLs = 3 - 17 ]
- \* Lung
- Lymph Node
- Note: 2 of the numerous nodules reported as TGL-1 in B15 were lymph nodes with metastases, 1 on B15 was a hyperplastic nodule, as was one in B07.
- [ Carcinoma TGLs = 1 - 15 ]
- \* Nose
- \* Pancreas
- Hypertrophy
- Cardiomyopathy
- Parasite Metazoan
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Fatty Change
- Hypertrophy
- Inflammation
- Necrosis
- Pigment
- Infiltration Cellular
- Carcinoma
- Accumulation, Hyaline Droplet
- Inflammation
- Metaplasia
- Adenoma
- Atrophy
- Minimal
- Mild
- Chronicprogr, Moderate
- Mild
- Minimal
- Minimal
- Focal, Minimal
- Mild
- Minimal
- Histiocyte, Minimal
- Mild
- Minimal
- Mucous, Minimal
- Multiple
- Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 261

TRT#: 5

SEX: Male

DAY ON TEST: 743

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101561

**ORGAN AND ACCOUNTABLE SITE STATUS**

	Acinus	Hyperplasia	Marked
	[ Adenoma TGLs = 4 - 18 ]		
	[ Hyperplasia TGLs = 1 - 7+15 ]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Hyperplasia	Mild

Experiment Number: 20614 - 02  
Test Type: CHRONIC  
Route: DOSED FEED  
Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid  
CAS Number: 335-67-1

Date Report Requested: 07/24/2018  
Time Report Requested: 12:59:13  
First Dose M/F: 07/27/09 / NA  
Lab: BAT

ANIMAL ID: 262

TRT#: 5

SEX: Male

DAY ON TEST: 218

DOSE: 0/40 ppm

DISP: Natural Death

HISTO: 1101562

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	Blood Vessel	* Bone
* Bone Marrow	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Kidney	* Lymph Node, Mandibular	* Mammary Gland	* Nose
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Stomach, Forestomach	* Stomach, Glandular	* Testes	* Thyroid Gland
* Trachea	* Urinary Bladder		

**OBSERVATIONS**

* Brain		Necrosis	Moderate
* Heart		Mineral	Minimal
		Necrosis	Minimal
* Liver	Hepatocyte	Cytoplasmic Alteration	Moderate
	Hepatocyte	Hypertrophy	Moderate
	Hepatocyte	Single Cell Death	Moderate
* Lung		Infiltration Cellular	Histiocyte, Minimal
* Lymph Node, Mesenteric		Atrophy	Mild
* Spleen	Lymph Follic	Atrophy	Moderate
		Pigment	Minimal
* Thymus		Atrophy	Mild

PRIMARY CAUSE OF DEATH - Liver Hepatocyte Single Cell Death

CONTRIBUTORY CAUSE OF DEATH - Brain Necrosis

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 263

TRT#: 5

SEX: Male

DAY ON TEST: 745

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101563

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Harderian Gland         |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Lymph Node, Mandibular  |
| * Lymph Node, Mesenteric    | * Mammary Gland          | * Parathyroid Gland        | * Preputial Gland         |
| * Prostate                  | * Salivary Glands        | * Seminal Vesicle          | * Skin                    |
| * Stomach, Forestomach      | * Stomach, Glandular     | * Testes                   | * Trachea                 |
| * Urinary Bladder           |                          |                            |                           |

OBSERVATIONS

- |   |  |                               |                    |
|---|--|-------------------------------|--------------------|
| Blood Vessel  | Pulmn Artery                             | Mineral                       | Minimal            |
| Note: Coronary or other heart-base artery also mineralized minimally. |  |                               |                    |
| * Eye   | Retina                                   | Gliosis                       | Focal, Minimal     |
| * Islets, Pancreatic  |  | Adenoma                       |                    |
| * Kidney  |  | Nephropathy                   | Chronicprogr, Mild |
| * Liver   |  | Clear Cell Focus              |                    |
|   | Hepatocyte                               | Cytoplasmic Alteration        | Mild               |
|   |  | Eosinophilic Focus            |                    |
|   |  | Fatty Change                  | Focal, Minimal     |
|   | Hepatocyte                               | Hypertrophy                   | Minimal            |
|   |  | Inflammation                  | Focal, Minimal     |
|   |  | Mixed Cell Focus              |                    |
|   |  | Pigment                       | Minimal            |
|   |  |                               |                    |
|   | [ Fatty Change TGLs = 2 - 16 ]           |                               |                    |
|   | [ Mixed Cell Focus TGLs = 3 - 17 ]       |                               |                    |
| * Lung  |  | Infiltration Cellular         | Histiocyte, Mild   |
|   | [ Infiltration Cellular TGLs = 5 - 4+5 ] |                               |                    |
| * Nose  | Olfactory Epi                            | Accumulation, Hyaline Droplet | Minimal            |
| * Pancreas  | Acinus                                   | Adenoma                       | Multiple           |
|   | Acinus                                   | Atrophy                       | Minimal            |
|   | Acinus                                   | Hyperplasia                   | Marked             |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

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**ANIMAL ID:** 263

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 745

**DOSE:** 0/40 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101563

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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[ Adenoma TGLs = 1,4 - 15+18 ]

* Pituitary Gland	Pars Distalis	Hyperplasia	Moderate
* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal
* Thymus		Atrophy	Minimal
* Thyroid Gland	C Cell	Adenoma	

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 264

TRT#: 5

SEX: Male

DAY ON TEST: 700

DOSE: 0/40 ppm

DISP: Natural Death

HISTO: 1101564

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla           | * Bone                   | * Bone Marrow              | * Brain                   |
| * Epididymis                | * Esophagus              | * Eye                      | * Harderian Gland         |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            | * Nose                    |
| * Preputial Gland           | * Prostate               | * Salivary Glands          | * Seminal Vesicle         |
| * Skin                      | * Stomach, Forestomach   | * Stomach, Glandular       | * Testes                  |
| * Trachea                   | * Urinary Bladder        |                            |                           |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |   |                |                              |                        |
|---|----------------|------------------------------|------------------------|
| * Adrenal Cortex  |                | Hypertrophy                  | Minimal                |
| Blood Vessel  |                | Mineral                      | Minimal                |
| Note: Mineral of cardiac and renal arteries and pulmonary vein. |                |                              |                        |
| * Kidney  |                | Mineral                      | Minimal                |
|   |                | Nephropathy                  | Chronicprogr, Moderate |
| * Liver   |                | Inflammation                 | Focal, Minimal         |
| * Lung  |                | Infiltration Cellular        | Histiocyte, Minimal    |
| * Pancreas  | Acinus         | Adenoma                      |                        |
| * Pituitary Gland   | Pars Distalis  | Adenoma                      |                        |
| [ Adenoma TGLs = 1 - 15 ]                                       |                |                              |                        |
| * Spleen  |                | Extramedullary Hematopoiesis | Minimal                |
|   |                | Pigment                      | Minimal                |
| * Thymus  |                | Atrophy                      | Moderate               |
| * Thyroid Gland   | Follicular Cel | Hypertrophy                  | Minimal                |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 265

TRT#: 5

SEX: Male

DAY ON TEST: 743

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101565

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric |
| * Mammary Gland            | * Pituitary Gland         | * Preputial Gland           | * Prostate               |
| * Salivary Glands          | * Seminal Vesicle         | * Skin                      | * Stomach, Forestomach   |
| * Stomach, Glandular       | * Testes                  | * Trachea                   | * Urinary Bladder        |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                 |  |                               |                         |
|-----------------|--|-------------------------------|-------------------------|
| * Kidney        |  | Nephropathy                   | Chronicprogr, Mild      |
| * Liver         |  | Clear Cell Focus              |                         |
|                 | Hepatocyte                               | Cytoplasmic Alteration        | Mild                    |
|                 | Hepatocyte                               | Hypertrophy                   | Minimal                 |
|                 |  | Necrosis                      | Minimal                 |
| * Lung          |  | Infiltration Cellular         | Histiocyte, Marked      |
|                 |  | Inflammation                  | Chronic Active, Minimal |
|                 | [ Infiltration Cellular TGLs = 2 - 4+5 ] |                               |                         |
| * Nose          | Olfactory Epi                            | Accumulation, Hyaline Droplet | Marked                  |
| * Pancreas      | Acinus                                   | Adenoma                       | Multiple                |
|                 | Acinus                                   | Atrophy                       | Mild                    |
|                 | Acinus                                   | Hyperplasia                   | Marked                  |
|                 | [ Adenoma TGLs = 1 - 7+15 ]              |                               |                         |
| * Spleen        |  | Extramedullary Hematopoiesis  | Minimal                 |
|                 |  | Pigment                       | Minimal                 |
| * Thymus        |  | Atrophy                       | Mild                    |
| * Thyroid Gland | C Cell                                   | Hyperplasia                   | Moderate                |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 266

TRT#: 5

SEX: Male

DAY ON TEST: 743

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101566

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Preputial Gland
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Trachea
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lung
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Skin
- \* Thyroid Gland

OBSERVATIONS

- \* Kidney
- \* Liver
- [ Hepatocellular Adenoma TGLs = 2 - 16 ]
- \* Nose
- \* Pancreas
- \* Prostate
- \* Spleen
- \* Thymus
- Nephropathy
- Clear Cell Focus
- Hepatocyte
- Cytoplasmic Alteration
- Hepatocellular Adenoma
- Bile Duct
- Hepatocyte
- Hyperplasia
- Hypertrophy
- Inflammation
- Necrosis
- Pigment
- Accumulation, Hyaline Droplet
- Hyperplasia
- Inflammation
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Chronicprogr, Mild
- Mild
- Minimal
- Minimal
- Focal, Minimal
- Mild
- Minimal
- Marked
- Marked
- Chronic Active, Mild
- Minimal
- Minimal
- Moderate

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 267

TRT#: 5

SEX: Male

DAY ON TEST: 557

DOSE: 0/40 ppm

DISP: Natural Death

HISTO: 1101567

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone
- \* Bone Marrow
- \* Brain
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Liver
- \* Lung
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Parathyroid Gland
- \* Pituitary Gland
- \* Preputial Gland
- \* Prostate
- \* Salivary Glands
- \* Seminal Vesicle
- \* Skin
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Testes
- \* Trachea
- \* Urinary Bladder

OBSERVATIONS

- Blood Vessel  
Mineral  
Minimal  
Note: Vascular mineral involves the pulmonary artery.
- \* Heart  
Cardiomyopathy  
Minimal
- \* Kidney  
Nephropathy  
Chronicprogr, Moderate
- \* Nose  
Olfactory Epi  
Accumulation, Hyaline Droplet  
Mild  
Olfactory Epi, Respirat Epith  
Inflammation  
Marked  
Note: Inflammation largely = exudate throughout.
- \* Pancreas  
Acinus  
Hyperplasia  
Moderate
- \* Spleen  
Lymph Follic  
Atrophy  
Mild  
Pigment  
Minimal
- \* Thymus  
Atrophy  
Marked
- \* Thyroid Gland  
Follicular Cel  
Hypertrophy  
Moderate

PRIMARY CAUSE OF DEATH - UNCERTAIN

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 268

TRT#: 5

SEX: Male

DAY ON TEST: 747

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101568

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Lung                    | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric |
| * Mammary Gland            | * Parathyroid Gland       | * Preputial Gland           | * Prostate               |
| * Salivary Glands          | * Seminal Vesicle         | * Skin                      | * Stomach, Forestomach   |
| * Stomach, Glandular       | * Testes                  | * Trachea                   | * Urinary Bladder        |

OBSERVATIONS

- |                      |  |                               |                       |
|----------------------|--|-------------------------------|-----------------------|
| * Islets, Pancreatic |  | Adenoma                       |                       |
| * Kidney             |  | Infarct                       | Minimal               |
|                      |  | Nephropathy                   | Chronicprogr, Minimal |
| * Liver              | Hepatocyte                                       | Cytoplasmic Alteration        | Mild                  |
|                      |  | Eosinophilic Focus            |                       |
|                      |  | Hepatocellular Adenoma        | Multiple              |
|                      | Bile Duct  | Hyperplasia                   | Minimal               |
|                      | Hepatocyte                                       | Hypertrophy                   | Minimal               |
|                      |  | Pigment                       | Minimal               |
|                      | [ Hepatocellular Adenoma TGLs = 2 - 16, 7 - 22 ] |                               |                       |
| * Nose               | Olfactory Epi                                    | Accumulation, Hyaline Droplet | Mild                  |
| * Pancreas           | Acinus   | Adenoma                       | Multiple              |
|                      | Acinus   | Hyperplasia                   | Marked                |
|                      | [ Adenoma TGLs = 1,3,4,5,6 - 15+18+19+20+21 ]    |                               |                       |
| * Pituitary Gland    | Pars Distalis                                    | Hyperplasia                   | Moderate              |
| * Spleen             |  | Extramedullary Hematopoiesis  | Mild                  |
|                      |  | Pigment                       | Minimal               |
| * Thymus             |  | Atrophy                       | Mild                  |
| * Thyroid Gland      | C Cell   | Hyperplasia                   | Minimal               |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 269

TRT#: 5

SEX: Male

DAY ON TEST: 744

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101569

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Harderian Gland         | * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Lymph Node, Mandibular  | * Lymph Node, Mesenteric    | * Mammary Gland          | * Pituitary Gland          |
| * Preputial Gland         | * Salivary Glands           | * Seminal Vesicle        | * Skin                     |
| * Stomach, Forestomach    | * Stomach, Glandular        | * Testes                 | * Thyroid Gland            |
| * Trachea                 | * Urinary Bladder           |                          |                            |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                      |  |                               |                         |
|----------------------|--|-------------------------------|-------------------------|
| * Eye                | Retina                                   | Degeneration                  | Minimal                 |
| * Islets, Pancreatic |  | Hyperplasia                   | Mild                    |
| * Kidney             | Cortex                                   | Cyst                          |                         |
|                      | [ Cyst TGLs = 6 - 20 ]                   | Nephropathy                   | Chronicprogr, Mild      |
| * Liver              |  | Clear Cell Focus              |                         |
|                      | Hepatocyte                               | Cytoplasmic Alteration        | Minimal                 |
|                      | Hepatocyte                               | Hypertrophy                   | Minimal                 |
|                      |  | Mixed Cell Focus              |                         |
|                      | [ Mixed Cell Focus TGLs = 4,5 - 18+19 ]  | Necrosis                      | Minimal                 |
| * Lung               |  | Infiltration Cellular         | Histiocyte, Mild        |
|                      | [ Infiltration Cellular TGLs = 7 - 4+5 ] | Inflammation                  | Chronic Active, Minimal |
| * Nose               | Olfactory Epi                            | Accumulation, Hyaline Droplet | Moderate                |
| * Pancreas           | Acinus                                   | Adenoma                       | Multiple                |
|                      | Acinus                                   | Hyperplasia                   | Mild                    |
|                      | [ Adenoma TGLs = 1,2 - 15+16 ]           |                               |                         |
|                      | [ Hyperplasia TGLs = 3 - 17 ]            |                               |                         |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 269

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 744

**DOSE:** 0/40 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101569

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

* Prostate	Epithelium, Ventral	Hyperplasia	Minimal
* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal
* Thymus		Atrophy	Minimal

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 270

TRT#: 5

SEX: Male

DAY ON TEST: 744

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101570

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Islets, Pancreatic
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Preputial Gland
- \* Skin
- \* Stomach, Forestomach
- \* Trachea
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Glandular
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Heart
- \* Kidney
- \* Liver
- Hepatocyte
- Hepatocyte
- [ Clear Cell Focus TGLs = 5 - 18 ]
- \* Lung
- [ Infiltration Cellular TGLs = 3 - 4+5 ]
- \* Nose
- \* Pancreas
- [ Adenoma TGLs = 2,4 - 7+16+17 ]
- \* Pituitary Gland
- \* Salivary Glands
- [ Myoepithelioma TGLs = 1 - 15 ]
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Cardiomyopathy
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Degeneration
- Hypertrophy
- Mixed Cell Focus
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Hyperplasia
- Myoepithelioma
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Hyperplasia
- Minimal
- Chronicprogr, Mild
- Mild
- Cystic, Minimal
- Minimal
- Histiocyte, Moderate
- Moderate
- Multiple
- Marked
- Mild
- Mild
- Minimal
- Moderate
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 271

TRT#: 5

SEX: Male

DAY ON TEST: 744

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101571

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Medulla          | * Bone                    | * Bone Marrow               | * Brain                  |
| * Epididymis               | * Esophagus               | * Eye                       | * Harderian Gland        |
| * Intestine Large, Cecum   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Lung                    | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric |
| * Mammary Gland            | * Parathyroid Gland       | * Preputial Gland           | * Prostate               |
| * Salivary Glands          | * Seminal Vesicle         | * Skin                      | * Stomach, Forestomach   |
| * Stomach, Glandular       | * Thyroid Gland           | * Trachea                   | * Urinary Bladder        |

OBSERVATIONS

- |   |                                  |                               |                      |
|---|----------------------------------|-------------------------------|----------------------|
| * Adrenal Cortex  |                                  | Hypertrophy                   | Minimal              |
| Blood Vessel  |                                  | Inflammation                  | Chronic, Mild        |
| Note: Vascular inflammation involves the testicular arterioles. |                                  |                               |                      |
| * Heart   |                                  | Cardiomyopathy                | Moderate             |
| * Intestine Large, Colon  |                                  | Parasite Metazoan             |                      |
| * Islets, Pancreatic  |                                  | Adenoma                       |                      |
| * Kidney  | Cortex                           | Cyst                          |                      |
|   | Papilla, Urothelium              | Hyperplasia                   | Minimal              |
|   |                                  | Nephropathy                   | Chronicprogr, Marked |
|   | [ Cyst TGLs = 4 - 17 ]           |                               |                      |
|   | [ Nephropathy TGLs = 3 - 6+17 ]  |                               |                      |
| * Liver   |                                  | Clear Cell Focus              |                      |
|   |                                  | Extramedullary Hematopoiesis  | Minimal              |
|   |                                  | Fatty Change                  | Focal, Minimal       |
|   |                                  | Inflammation                  | Focal, Minimal       |
|   | [ Fatty Change TGLs = 2 - 3+16 ] |                               |                      |
| * Nose  | Olfactory Epi                    | Accumulation, Hyaline Droplet | Mild                 |
| * Pancreas  | Acinus                           | Adenoma                       | Multiple             |
|   | Acinus                           | Atrophy                       | Mild                 |
|   | Acinus                           | Hyperplasia                   | Moderate             |
|   | [ Adenoma TGLs = 1 - 15 ]        |                               |                      |
| * Pituitary Gland   | Pars Distalis                    | Hyperplasia                   | Mild                 |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

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**ANIMAL ID:** 271

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 744

**DOSE:** 0/40 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101571

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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* Spleen		Extramedullary Hematopoiesis	Minimal
* Testes	Bilateral, Germinal Epith	Degeneration	Mild
* Thymus		Atrophy	Mild

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 272

TRT#: 5

SEX: Male

DAY ON TEST: 533

DOSE: 0/40 ppm

DISP: Moribund Sacrifice

HISTO: 1101572

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla        | * Bone                     | * Brain                   | * Epididymis                |
| * Esophagus              | * Eye                      | * Harderian Gland         | * Heart                     |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    |
| * Lymph Node, Mesenteric | * Parathyroid Gland        | * Pituitary Gland         | * Preputial Gland           |
| * Prostate               | * Salivary Glands          | * Seminal Vesicle         | * Skin                      |
| * Stomach, Forestomach   | * Stomach, Glandular       | * Testes                  | * Thyroid Gland             |
| * Trachea                | * Urinary Bladder          |                           |                             |

OBSERVATIONS

- |   |  |                               |                       |
|---|--|-------------------------------|-----------------------|
| * Adrenal Cortex                                      |  | Hypertrophy                   | Minimal               |
| Blood Vessel  |  | Mineral                       | Minimal               |
| Note: Vascular mineral involves the pulmonary artery. |  |                               |                       |
| * Bone Marrow   |  | Hyperplasia                   | Moderate              |
| * Kidney  |  | Nephropathy                   | Chronicprogr, Minimal |
| * Liver   | Hepatocyte                               | Cytoplasmic Alteration        | Mild                  |
|   | Hepatocyte                               | Extramedullary Hematopoiesis  | Minimal               |
|   |  | Hypertrophy                   | Minimal               |
| * Lung  |  | Infiltration Cellular         | Histiocyte, Minimal   |
|   | [ Infiltration Cellular TGLs = 2 - 4+5 ] |                               |                       |
| * Mammary Gland                                       |  | Fibroadenoma                  |                       |
|   | [ Fibroadenoma TGLs = 1 - 15 ]           |                               |                       |
| * Nose  | Olfactory Epi                            | Accumulation, Hyaline Droplet | Mild                  |
| * Pancreas  | Acinus                                   | Hyperplasia                   | Minimal               |
| * Spleen  |  | Extramedullary Hematopoiesis  | Moderate              |
| * Thymus  |  | Atrophy                       | Moderate              |

PRIMARY CAUSE OF DEATH - Mammary Gland Fibroadenoma

\* PROTOCOL REQUIRED TISSUE





Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

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ANIMAL ID: 273

TRT#: 5

SEX: Male

DAY ON TEST: 659

DOSE: 0/40 ppm

DISP: Natural Death

HISTO: 1101573

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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Lymphoma Malignant

[ Hemorrhage TGLs = 2 - 15 ]

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PRIMARY CAUSE OF DEATH - Spleen Lymphoma Malignant

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 274

TRT#: 5

SEX: Male

DAY ON TEST: 746

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101574

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            |
| * Pancreas                | * Parathyroid Gland         | * Preputial Gland        | * Prostate                 |
| * Salivary Glands         | * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     |
| * Stomach, Glandular      | * Testes                    | * Thyroid Gland          | * Trachea                  |
| * Urinary Bladder         |                             |                          |                            |

OBSERVATIONS

- |                   |  |                               |                                    |
|-------------------|--|-------------------------------|------------------------------------|
| * Heart           |  | Cardiomyopathy                | Minimal                            |
| * Kidney          |  | Nephropathy                   | Chronicprogr, Mild                 |
| * Liver           |  | Clear Cell Focus              |                                    |
|                   | Hepatocyte                               | Cytoplasmic Alteration        | Minimal                            |
|                   |  | Fatty Change                  | Mild                               |
|                   | Hepatocyte                               | Hypertrophy                   | Minimal                            |
|                   |  | Inflammation                  | Focal, Minimal                     |
|                   |  | Necrosis                      | Minimal                            |
|                   | [ Fatty Change TGLs = 1 - 16 ]           |                               |                                    |
| * Lung            |  | Infiltration Cellular         | Histiocyte, Minimal                |
|                   | [ Infiltration Cellular TGLs = 2 - 4+5 ] | Inflammation                  | Multifocal, Granulomatous, Minimal |
| * Nose            | Olfactory Epi                            | Accumulation, Hyaline Droplet | Mild                               |
|                   | Glands, Olfactory Epi                    | Inflammation                  | Minimal                            |
| * Pituitary Gland | Pars Distalis                            | Hyperplasia                   | Mild                               |
| * Spleen          |  | Extramedullary Hematopoiesis  | Minimal                            |
|                   |  | Pigment                       | Minimal                            |
| * Thymus          |  | Atrophy                       | Mild                               |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 275

TRT#: 5

SEX: Male

DAY ON TEST: 745

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101575

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Blood Vessel	* Bone	* Bone Marrow	* Brain
* Esophagus	* Eye	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Parathyroid Gland	* Preputial Gland	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Thyroid Gland	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Cortex		Degeneration	Cystic, Minimal
* Adrenal Medulla		Hyperplasia	Mild
* Epididymis		Mesothelioma Malignant	
* Harderian Gland		Metaplasia	Mild
* Kidney	Papilla	Necrosis	Minimal
		Nephropathy	Chronicprogr, Mild
* Liver		Clear Cell Focus	
	Hepatocyte	Cytoplasmic Alteration	Minimal
		Degeneration	Cystic, Minimal
	Hepatocyte	Hypertrophy	Minimal
		Necrosis	Minimal
	Hepatocyte	Single Cell Death	Minimal
* Lung	Alveolar Epith	Hyperplasia	Mild
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Hyperplasia	Moderate
	[ Adenoma TGLs = 1 - 7+15 ]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Prostate	Ventral	Inflammation	Chronic Active, Mild
* Spleen		Extramedullary Hematopoiesis	Minimal
* Testes		Mesothelioma Malignant	
* Thymus		Atrophy	Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 276

TRT#: 5

SEX: Male

DAY ON TEST: 502

DOSE: 0/40 ppm

DISP: Moribund Sacrifice

HISTO: 1101576

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | Blood Vessel               | * Bone                    |
| * Brain                     | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Kidney                    | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           |
| * Parathyroid Gland         | * Preputial Gland        | * Prostate                 | * Salivary Glands         |
| * Seminal Vesicle           | * Stomach, Forestomach   | * Stomach, Glandular       | * Testes                  |
| * Thyroid Gland             | * Trachea                | * Urinary Bladder          |                           |

OBSERVATIONS

- |                   |  |                               |                  |
|-------------------|--|-------------------------------|------------------|
| * Bone Marrow     |  | Hyperplasia                   | Marked           |
| * Heart           |  | Cardiomyopathy                | Minimal          |
| * Liver           | Hepatocyte                               | Cytoplasmic Alteration        | Minimal          |
|                   | Hepatocyte                               | Extramedullary Hematopoiesis  | Minimal          |
|                   | Hepatocyte                               | Hypertrophy                   | Minimal          |
|                   | Hepatocyte                               | Pigment                       | Mild             |
| * Lung            | Hepatocyte                               | Single Cell Death             | Moderate         |
|                   | [ Infiltration Cellular TGLs = 2 - 4+5 ] | Infiltration Cellular         | Histiocyte, Mild |
| * Nose            | Olfactory Epi                            | Accumulation, Hyaline Droplet | Minimal          |
| * Pancreas        | Acinus                                   | Hyperplasia                   | Minimal          |
| * Pituitary Gland | Pars Distalis                            | Hyperplasia                   | Minimal          |
| * Skin            | Subcut Tiss                              | Hemangiosarcoma               |                  |
|                   | [ Hemangiosarcoma TGLs = 1 - 15 ]        |                               |                  |
| * Spleen          |  | Extramedullary Hematopoiesis  | Moderate         |
| * Thymus          |  | Atrophy                       | Moderate         |

PRIMARY CAUSE OF DEATH - Skin Subcut Tiss Hemangiosarcoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 277

TRT#: 5

SEX: Male

DAY ON TEST: 746

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101577

ORGAN AND ACCOUNTABLE SITE STATUS

**NORMAL**

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   |
| * Mammary Gland           | * Parathyroid Gland         | * Pituitary Gland        | * Preputial Gland          |
| * Prostate                | * Salivary Glands           | * Seminal Vesicle        | * Skin                     |
| * Stomach, Forestomach    | * Stomach, Glandular        | * Testes                 | * Thyroid Gland            |
| * Trachea                 | * Urinary Bladder           |                          |                            |

**OBSERVATIONS**

- |            |               |                               |                    |
|------------|---------------|-------------------------------|--------------------|
| * Heart    |               | Cardiomyopathy                | Minimal            |
| * Kidney   |               | Nephropathy                   | Chronicprogr, Mild |
| * Liver    |               | Clear Cell Focus              |                    |
|            |               | Fatty Change                  | Focal, Minimal     |
| * Nose     | Olfactory Epi | Accumulation, Hyaline Droplet | Marked             |
| * Pancreas | Acinus        | Hyperplasia                   | Moderate           |
| * Spleen   |               | Extramedullary Hematopoiesis  | Minimal            |
|            |               | Pigment                       | Minimal            |
| * Thymus   |               | Atrophy                       | Moderate           |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 278

TRT#: 5

SEX: Male

DAY ON TEST: 746

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101578

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Thyroid Gland
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Adrenal Cortex
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
- Hepatocyte
- Hepatocyte
- Hepatocyte
- [ Mixed Cell Focus TGLs = 3 - 17 ]
- \* Lung
- [ Infiltration Cellular TGLs = 4 - 4+5 ]
- \* Nose
- \* Pancreas
- Acinus
- Acinus
- [ Adenoma TGLs = 1 - 15 ]
- [ Hyperplasia TGLs = 2 - 16 ]
- \* Pituitary Gland
- \* Spleen
- Hypertrophy
- Adenoma
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Degeneration
- Hypertrophy
- Inflammation
- Mixed Cell Focus
- Single Cell Death
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Adenoma
- Basophilic Focus
- Hyperplasia
- Hyperplasia
- Extramedullary Hematopoiesis
- Minimal
- Chronicprogr, Minimal
- Mild
- Cystic, Minimal
- Minimal
- Focal, Minimal
- Mild
- Histiocyte, Moderate
- Mild
- Multiple
- Marked
- Minimal
- Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 278

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 746

**DOSE:** 0/40 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101578

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thymus

Atrophy

Moderate

---



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 279

TRT#: 5

SEX: Male

DAY ON TEST: 745

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101579

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Islets, Pancreatic
- \* Lung
- \* Mammary Gland
- \* Parathyroid Gland
- \* Salivary Glands
- \* Seminal Vesicle
- \* Stomach, Glandular
- \* Testes
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Thyroid Gland
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Trachea

OBSERVATIONS

- \* Intestine Large, Colon
- \* Kidney
- \* Liver
- Hepatocyte
- Hepatocyte
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Spleen
- \* Thymus
- Parasite Metazoan
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Hypertrophy
- Inflammation
- Necrosis
- Accumulation, Hyaline Droplet
- Hyperplasia
- Hyperplasia
- Extramedullary Hematopoiesis
- Atrophy
- Chronicprogr, Minimal
- Minimal
- Minimal
- Focal, Minimal
- Minimal
- Mild
- Mild
- Mild
- Minimal
- Moderate

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 280

TRT#: 5

SEX: Male

DAY ON TEST: 745

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101580

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Heart
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Lung
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
  - Blood Vessel
- \* Intestine Large, Colon
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
  - Hypertrophy
  - Inflammation
  - Parasite Metazoan
  - Adenoma
  - Hyperplasia
  - Nephropathy
  - Clear Cell Focus
  - Inflammation
  - Mixed Cell Focus
- \* Nose
  - [ Clear Cell Focus TGLs = 6 - 3+20 ]
  - Olfactory Epi
  - Glands, Respirat Epith
- \* Pancreas
  - Acinus
  - Acinus
  - Acinus
  - [ Adenoma TGLs = 1,2,4,5 - 15+16+18+19 ]
  - [ Hyperplasia TGLs = 3 - 17 ]
- \* Pituitary Gland
  - Pars Distalis
- \* Spleen
- \* Thymus
- \* Thyroid Gland
  - Follicular Cel

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 281

TRT#: 5

SEX: Male

DAY ON TEST: 134

DOSE: 0/40 ppm

DISP: Moribund Sacrifice

HISTO: 1101581

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Brain                   | * Epididymis                | * Esophagus              | * Eye                      |
| * Harderian Gland         | * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   |
| * Mammary Gland           | * Nose                      | * Pancreas               | * Parathyroid Gland        |
| * Pituitary Gland         | * Preputial Gland           | * Prostate               | * Salivary Glands          |
| * Seminal Vesicle         | * Skin                      | * Stomach, Glandular     | * Testes                   |
| * Thyroid Gland           | * Trachea                   | * Urinary Bladder        |                            |

OBSERVATIONS

- |                        |              |                              |                       |
|------------------------|--------------|------------------------------|-----------------------|
| * Bone Marrow          |              | Hyperplasia                  | Mild                  |
| * Kidney               |              | Nephropathy                  | Chronicprogr, Minimal |
| * Liver                | Hepatocyte   | Cytoplasmic Alteration       | Minimal               |
|                        | Hepatocyte   | Extramedullary Hematopoiesis | Minimal               |
|                        | Hepatocyte   | Hypertrophy                  | Mild                  |
|                        | Hepatocyte   | Necrosis                     | Minimal               |
| * Spleen               | Lymph Follic | Single Cell Death            | Mild                  |
| * Stomach, Forestomach | Epithelium   | Hyperplasia                  | Minimal               |
|                        |              | Inflammation                 | Squamous, Marked      |
| * Thymus               |              | Atrophy                      | Moderate              |
|                        |              |                              | Moderate              |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 282

TRT#: 5

SEX: Male

DAY ON TEST: 683

DOSE: 0/40 ppm

DISP: Moribund Sacrifice

HISTO: 1101582

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Medulla          | * Bone                    | * Bone Marrow               | * Brain                  |
| * Epididymis               | * Esophagus               | * Harderian Gland           | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric   | * Mammary Gland           | * Parathyroid Gland         | * Preputial Gland        |
| * Prostate                 | * Salivary Glands         | * Seminal Vesicle           | * Stomach, Forestomach   |
| * Stomach, Glandular       | * Trachea                 | * Urinary Bladder           |                          |

OBSERVATIONS

- |  |                |                               |                      |
|--|----------------|-------------------------------|----------------------|
| * Adrenal Cortex   |                | Hypertrophy                   | Minimal              |
| Blood Vessel   |                | Inflammation                  | Mild                 |
| Note: Vascular inflammation affects testicular arteries.   |                |                               |                      |
| * Eye  | Cornea         | Inflammation                  | Mild                 |
| * Heart  |                | Cardiomyopathy                | Minimal              |
| * Kidney   |                | Nephropathy                   | Chronicprogr, Marked |
| [ Nephropathy TGLs = 2 - 16 ]  |                |                               |                      |
| * Liver  |                | Eosinophilic Focus            |                      |
| * Nose   | Olfactory Epi  | Accumulation, Hyaline Droplet | Mild                 |
| * Pancreas   | Acinus         | Hyperplasia                   | Minimal              |
| Peripheral Nerve   | Axon           | Degeneration                  | Minimal              |
| * Pituitary Gland  | Pars Distalis  | Adenoma                       |                      |
| [ Adenoma TGLs = 3 - 17 ]  |                |                               |                      |
| * Skin   |                | Keratoacanthoma               |                      |
| [ Keratoacanthoma TGLs = 1 - 15 ]  |                |                               |                      |
| Spinal Cord  | Nerve          | Degeneration                  | Mild                 |
| Note: Axonal degeneration marked by swollen axon sheaths and macrophages within sheaths, especially within the filum terminale but throughout cord white matter. |                |                               |                      |
| * Spleen   |                | Extramedullary Hematopoiesis  | Minimal              |
|  |                | Pigment                       | Minimal              |
| * Testes   | Germinal Epith | Degeneration                  | Marked               |
| [ Degeneration TGLs = 4 - 12 ]   |                |                               |                      |
| * Thymus   |                | Atrophy                       | Moderate             |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

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**ANIMAL ID:** 282

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 683

**DOSE:** 0/40 ppm

**DISP:** Moribund Sacrifice

**HISTO:** 1101582

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thyroid Gland

C Cell

Hyperplasia

Minimal

---

PRIMARY CAUSE OF DEATH

- Pituitary Gland Pars Distalis Adenoma

CONTRIBUTORY CAUSE OF DEATH

- Kidney Nephropathy

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 283

TRT#: 5

SEX: Male

DAY ON TEST: 743

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101583

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Parathyroid Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Thyroid Gland	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Cortex		Degeneration	Cystic, Minimal
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Chronicprogr, Minimal
* Liver		Clear Cell Focus	
	Hepatocyte	Cytoplasmic Alteration	Mild
	Hepatocyte	Hypertrophy	Minimal
		Inflammation	Focal, Mild
		Mixed Cell Focus	
		Necrosis	Mild
		Pigment	Mild
	[ Necrosis TGLs = 2 - 3+16 ]		
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Hyperplasia	Minimal
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Spleen		Extramedullary Hematopoiesis	Minimal
* Testes	Germinal Epith	Degeneration	Moderate
	[ Degeneration TGLs = 1 - 15 ]		
* Thymus		Atrophy	Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 284

TRT#: 5

SEX: Male

DAY ON TEST: 743

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101584

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Medulla          | * Bone                    | * Bone Marrow               | * Brain                  |
| * Epididymis               | * Esophagus               | * Eye                       | * Harderian Gland        |
| * Intestine Large, Cecum   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric |
| * Mammary Gland            | * Parathyroid Gland       | * Preputial Gland           | * Prostate               |
| * Salivary Glands          | * Seminal Vesicle         | * Skin                      | * Stomach, Forestomach   |
| * Stomach, Glandular       | * Thyroid Gland           | * Trachea                   | * Urinary Bladder        |

OBSERVATIONS

- |                          |  |                               |                       |
|--------------------------|--|-------------------------------|-----------------------|
| * Adrenal Cortex         |  | Hypertrophy                   | Minimal               |
| Blood Vessel             | Aorta, Pulmn Artery                    | Mineral                       | Minimal               |
| * Heart                  |  | Cardiomyopathy                | Minimal               |
| * Intestine Large, Colon |  | Parasite Metazoan             |                       |
| * Kidney                 |  | Nephropathy                   | Chronicprogr, Minimal |
| * Liver                  |  | Clear Cell Focus              |                       |
|                          | Hepatocyte                             | Cytoplasmic Alteration        | Minimal               |
|                          |  | Degeneration                  | Cystic, Minimal       |
|                          | Hepatocyte                             | Hypertrophy                   | Minimal               |
|                          |  | Necrosis                      | Mild                  |
|                          | Hepatocyte                             | Single Cell Death             | Minimal               |
| * Lung                   |  | Infiltration Cellular         | Histiocyte, Mild      |
|                          | [ Infiltration Cellular TGLs = 1 - 4 ] |                               |                       |
| * Nose                   | Olfactory Epi                          | Accumulation, Hyaline Droplet | Marked                |
| * Pancreas               | Acinus                                 | Hyperplasia                   | Minimal               |
| * Pituitary Gland        | Rathkes Cleft                          | Hyperplasia                   | Minimal               |
| * Spleen                 |  | Extramedullary Hematopoiesis  | Minimal               |
| * Testes                 | Germinal Epith                         | Degeneration                  | Marked                |
|                          | [ Degeneration TGLs = 2 - 16 ]         |                               |                       |
| * Thymus                 |  | Atrophy                       | Moderate              |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 285

TRT#: 5

SEX: Male

DAY ON TEST: 744

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101585

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Cortex	* Adrenal Medulla	Blood Vessel	* Bone
* Bone Marrow	* Brain	* Epididymis	* Esophagus
* Eye	* Harderian Gland	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Nose	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thyroid Gland	* Trachea
* Urinary Bladder			

**MISSING**

\* Parathyroid Gland

**OBSERVATIONS**

* Kidney		Nephropathy	Chronicprogr, Mild
* Liver		Clear Cell Focus	
	Hepatocyte	Cytoplasmic Alteration	Mild
	Hepatocyte	Hypertrophy	Minimal
		Necrosis	Minimal
	Hepatocyte	Single Cell Death	Minimal
* Lung		Infiltration Cellular	Histiocyte, Marked
	[ Infiltration Cellular TGLs = 2 - 4+5 ]		
* Pancreas	Acinus	Adenoma	
	[ Adenoma TGLs = 1 - 16 ]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Spleen		Extramedullary Hematopoiesis	Minimal
		Infarct	Minimal
		Pigment	Minimal
* Thymus		Atrophy	Moderate

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 286

TRT#: 5

SEX: Male

DAY ON TEST: 744

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101586

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Lung                    | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Pituitary Gland          |
| * Preputial Gland         | * Prostate                  | * Salivary Glands        | * Seminal Vesicle          |
| * Skin                    | * Stomach, Forestomach      | * Stomach, Glandular     | * Testes                   |
| * Trachea                 | * Urinary Bladder           |                          |                            |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                      |  |                               |                       |
|----------------------|--|-------------------------------|-----------------------|
| * Heart              |  | Cardiomyopathy                | Minimal               |
| * Islets, Pancreatic |  | Adenoma                       |                       |
| * Kidney             |  | Nephropathy                   | Chronicprogr, Minimal |
| * Liver              |  | Clear Cell Focus              |                       |
|                      | Hepatocyte                               | Cytoplasmic Alteration        | Mild                  |
|                      |  | Hepatocellular Adenoma        |                       |
|                      | Hepatocyte                               | Hypertrophy                   | Minimal               |
|                      |  | Necrosis                      | Mild                  |
|                      |  | Pigment                       | Minimal               |
|                      | Hepatocyte                               | Single Cell Death             | Minimal               |
|                      | [ Hepatocellular Adenoma TGLs = 4 - 17 ] |                               |                       |
| * Mammary Gland      |  | Fibroadenoma                  |                       |
|                      | [ Fibroadenoma TGLs = 1 - 15 ]           |                               |                       |
| * Nose               | Olfactory Epi                            | Accumulation, Hyaline Droplet | Moderate              |
| * Pancreas           | Acinus                                   | Adenoma                       | Multiple              |
|                      | Acinus                                   | Hyperplasia                   | Marked                |
|                      | [ Adenoma TGLs = 2,3 - 16 ]              |                               |                       |
| * Spleen             |  | Extramedullary Hematopoiesis  | Minimal               |
|                      |  | Pigment                       | Minimal               |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 286

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 744

**DOSE:** 0/40 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101586

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thymus

Atrophy

Moderate

\* Thyroid Gland

C Cell

Adenoma

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 287

TRT#: 5

SEX: Male

DAY ON TEST: 697

DOSE: 0/40 ppm

DISP: Moribund Sacrifice

HISTO: 1101587

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Mesenteric
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Mammary Gland
- \* Seminal Vesicle
- \* Trachea
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Liver
- \* Nose
- \* Skin
- \* Urinary Bladder

OBSERVATIONS

- \* Adrenal Medulla  
Blood Vessel  
Note: Vascular inflammation affects testicular arteries.
- \* Heart
- \* Kidney  
[ Nephropathy TGLs = 1 - 15 ]
- \* Lung
- \* Pancreas
- \* Parathyroid Gland
- \* Pituitary Gland
- \* Prostate
- \* Spleen
- \* Testes
- \* Thymus
- \* Thyroid Gland
- Hyperplasia
- Inflammation
- Cardiomyopathy
- Nephropathy
- Inflammation
- Hyperplasia
- Hyperplasia
- Hyperplasia
- Inflammation
- Extramedullary Hematopoiesis
- Pigment
- Degeneration
- Atrophy
- Hypertrophy
- Minimal
- Chronic, Mild
- Moderate
- Chronicprogr, Marked
- Chronic Active, Minimal
- Moderate
- Mild
- Minimal
- Minimal
- Mild
- Minimal
- Minimal
- Moderate
- Moderate

PRIMARY CAUSE OF DEATH - Kidney Nephropathy

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 288

TRT#: 5

SEX: Male

DAY ON TEST: 745

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101588

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla        | * Bone                     | * Brain                   | * Epididymis                |
| * Esophagus              | * Eye                      | * Harderian Gland         | * Heart                     |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    |
| * Lymph Node, Mesenteric | * Mammary Gland            | * Parathyroid Gland       | * Prostate                  |
| * Salivary Glands        | * Seminal Vesicle          | * Stomach, Forestomach    | * Stomach, Glandular        |
| * Testes                 | * Thyroid Gland            | * Trachea                 | * Urinary Bladder           |

OBSERVATIONS

- |  |                                |                               |                    |
|--|--------------------------------|-------------------------------|--------------------|
| * Adrenal Cortex   |                                | Hypertrophy                   | Minimal            |
| Blood Vessel   |                                | Inflammation                  | Minimal            |
| Note: Inflammation involved a seminal vesicular arteriole. |                                |                               |                    |
| * Bone Marrow  |                                | Myelofibrosis                 | Minimal            |
| * Kidney   |                                | Nephropathy                   | Chronicprogr, Mild |
| * Liver  |                                | Clear Cell Focus              |                    |
|  | Hepatocyte                     | Cytoplasmic Alteration        | Mild               |
|  | Hepatocyte                     | Hypertrophy                   | Minimal            |
|  |                                | Necrosis                      | Mild               |
|  | Hepatocyte                     | Single Cell Death             | Mild               |
| * Lung   |                                | Infiltration Cellular         | Histiocyte, Mild   |
| * Nose   | Olfactory Epi                  | Accumulation, Hyaline Droplet | Mild               |
| * Pancreas   | Acinus                         | Adenoma                       | Multiple           |
|  | Acinus                         | Hyperplasia                   | Marked             |
|  | [ Adenoma TGLs = 3 - 18 ]      |                               |                    |
| * Pituitary Gland  | Pars Distalis                  | Hyperplasia                   | Mild               |
| * Preputial Gland  |                                | Inflammation                  | Marked             |
|  | [ Inflammation TGLs = 2 - 17 ] |                               |                    |
| * Skin   | Subcut Tiss                    | Fibroma                       |                    |
|  | [ Fibroma TGLs = 1 - 16 ]      |                               |                    |
| * Spleen   |                                | Extramedullary Hematopoiesis  | Mild               |
| * Thymus   |                                | Atrophy                       | Moderate           |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 289

TRT#: 5

SEX: Male

DAY ON TEST: 533

DOSE: 0/40 ppm

DISP: Moribund Sacrifice

HISTO: 1101589

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex         | Blood Vessel               | * Bone                    | * Bone Marrow               |
| * Brain                  | * Epididymis               | * Esophagus               | * Eye                       |
| * Harderian Gland        | * Intestine Large, Cecum   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    |
| * Lymph Node, Mesenteric | * Mammary Gland            | * Pancreas                | * Preputial Gland           |
| * Prostate               | * Salivary Glands          | * Seminal Vesicle         | * Skin                      |
| * Stomach, Forestomach   | * Stomach, Glandular       | * Testes                  | * Trachea                   |
| * Urinary Bladder        |                            |                           |                             |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                                      |                               |                               |                          |
|--------------------------------------|-------------------------------|-------------------------------|--------------------------|
| * Adrenal Medulla                    |                               | Hyperplasia                   | Minimal                  |
| * Heart                              |                               | Cardiomyopathy                | Minimal                  |
| * Intestine Large, Colon             |                               | Parasite Metazoan             |                          |
| * Kidney                             |                               | Nephropathy                   | Chronicprogr, Mild       |
| * Liver                              |                               | Inflammation                  | Focal, Minimal           |
| * Lung                               |                               | Infiltration Cellular         | Histiocyte, Mild         |
|                                      |                               | Inflammation                  | Chronic Active, Moderate |
| Note: Possible P. carinii infection. |                               |                               |                          |
|                                      | [ Inflammation TGLs = 2 - 4 ] |                               |                          |
| Lymph Node                           | Mediastinal                   | Hyperplasia                   | Lymphoid, Moderate       |
|                                      | Mediastinal                   | Infiltration Cellular         | Plasma Cell, Mild        |
|                                      | [ Hyperplasia TGLs = 1 - 15 ] |                               |                          |
| * Nose                               | Olfactory Epi                 | Accumulation, Hyaline Droplet | Mild                     |
| * Pituitary Gland                    | Pars Distalis                 | Hyperplasia                   | Moderate                 |
| * Spleen                             |                               | Pigment                       | Minimal                  |
| * Thymus                             |                               | Atrophy                       | Moderate                 |
| * Thyroid Gland                      | C Cell                        | Carcinoma                     |                          |

PRIMARY CAUSE OF DEATH - Lung Inflammation

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 290

TRT#: 5

SEX: Male

DAY ON TEST: 744

DOSE: 0/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101590

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Preputial Gland
- \* Skin
- \* Trachea

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- \* Heart
  - Cardiomyopathy
  - Minimal
- \* Islets, Pancreatic
  - Hyperplasia
  - Mild
- \* Kidney
  - Nephropathy
  - Chronicprogr, Mild
- \* Liver
  - Clear Cell Focus
  - Hepatocyte
  - Cytoplasmic Alteration
  - Mild
  - Hepatocyte
  - Hypertrophy
  - Minimal
  - Inflammation
  - Focal, Minimal
  - Necrosis
  - Mild
  - Pigment
  - Minimal
  - Infiltration Cellular
  - Histiocyte, Marked
- \* Lung
  - [ Infiltration Cellular TGLs = 2 - 4+5 ]
- \* Nose
  - Olfactory Epi
  - Accumulation, Hyaline Droplet
  - Mild
- \* Pancreas
  - Acinus
  - Atrophy
  - Mild
  - Acinus
  - Hyperplasia
  - Marked
  - [ Hyperplasia TGLs = 1 - 16 ]
- \* Pituitary Gland
  - Pars Distalis
  - Hyperplasia
  - Minimal
- \* Spleen
  - Extramedullary Hematopoiesis
  - Mild
  - Pigment
  - Minimal
- \* Thymus
  - Atrophy
  - Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 290

**TRT#:** 5

**SEX:** Male

**DAY ON TEST:** 744

**DOSE:** 0/40 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101590

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thyroid Gland

C Cell

Carcinoma

Moderate

Follicular Cel

Hypertrophy

[ Carcinoma TGLs = 3 - 17 ]

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 301

TRT#: 6

SEX: Male

DAY ON TEST: 743

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101601

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | * Bone                   | * Bone Marrow              |
| * Brain                   | * Epididymis                | * Esophagus              | * Eye                      |
| * Harderian Gland         | * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Lymph Node, Mandibular  | * Lymph Node, Mesenteric    | * Mammary Gland          | * Parathyroid Gland        |
| * Preputial Gland         | * Prostate                  | * Salivary Glands        | * Seminal Vesicle          |
| * Skin                    | * Stomach, Forestomach      | * Stomach, Glandular     | * Testes                   |
| * Thyroid Gland           | * Trachea                   | * Urinary Bladder        |                            |

OBSERVATIONS

- |   |                   |                               |                     |
|---|-------------------|-------------------------------|---------------------|
| Blood Vessel                                  |                   | Mineral                       | Minimal             |
| Note: Mineral involves the mesenteric artery. |                   |                               |                     |
| * Islets, Pancreatic                          |                   | Adenoma                       |                     |
|   |                   | Hyperplasia                   | Minimal             |
| * Kidney                                      |                   | Nephropathy                   | Chronicprogr, Mild  |
| * Liver                                       |                   | Clear Cell Focus              |                     |
|   | Hepatocyte        | Cytoplasmic Alteration        | Mild                |
|   |                   | Eosinophilic Focus            |                     |
|   | Hepatocyte        | Hepatocellular Adenoma        |                     |
|   |                   | Hypertrophy                   | Minimal             |
|   |                   | Inflammation                  | Focal, Minimal      |
|   |                   | Mixed Cell Focus              |                     |
|   |                   | Pigment                       | Minimal             |
|   | Hepatocyte        | Single Cell Death             | Minimal             |
| [ Mixed Cell Focus                            | TGLs = 2,3 - 16 ] |                               |                     |
| * Lung  |                   | Infiltration Cellular         | Histiocyte, Minimal |
| [ Infiltration Cellular                       | TGLs = 4 - 4+5 ]  |                               |                     |
| * Nose  | Olfactory Epi     | Accumulation, Hyaline Droplet | Marked              |
| * Pancreas                                    | Acinus            | Adenoma                       | Multiple            |
|   | Acinus            | Atrophy                       | Minimal             |
|   | Acinus            | Hyperplasia                   | Marked              |

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

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ANIMAL ID: 301

TRT#: 6

SEX: Male

DAY ON TEST: 743

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101601

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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[ Adenoma TGLs = 1 - 15 ]		Inflammation	Chronic Active, Minimal
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Thymus		Atrophy	Mild

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 302

TRT#: 6

SEX: Male

DAY ON TEST: 743

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101602

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric   | * Mammary Gland           | * Pituitary Gland           | * Preputial Gland        |
| * Prostate                 | * Salivary Glands         | * Seminal Vesicle           | * Skin                   |
| * Stomach, Forestomach     | * Stomach, Glandular      | * Testes                    | * Thyroid Gland          |
| * Trachea                  | * Urinary Bladder         |                             |                          |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |            |               |                               |                    |
|------------|---------------|-------------------------------|--------------------|
| * Kidney   |               | Nephropathy                   | Chronicprogr, Mild |
| * Liver    |               | Inflammation                  | Focal, Minimal     |
|            |               | Necrosis                      | Minimal            |
| * Nose     | Olfactory Epi | Accumulation, Hyaline Droplet | Mild               |
| * Pancreas | Acinus        | Hyperplasia                   | Minimal            |
| * Spleen   |               | Extramedullary Hematopoiesis  | Minimal            |
|            |               | Pigment                       | Minimal            |
| * Thymus   |               | Atrophy                       | Mild               |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 303

TRT#: 6

SEX: Male

DAY ON TEST: 561

DOSE: 300/40 ppm

DISP: Natural Death

HISTO: 1101603

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | * Bone                      | * Brain                  |
| * Epididymis               | * Esophagus               | * Eye                       | * Harderian Gland        |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mesenteric |
| * Mammary Gland            | * Pancreas                | * Preputial Gland           | * Prostate               |
| * Salivary Glands          | * Seminal Vesicle         | * Skin                      | * Stomach, Glandular     |
| * Testes                   | * Thyroid Gland           | * Trachea                   | * Urinary Bladder        |

OBSERVATIONS

- |   |   |                               |                        |
|---|---|-------------------------------|------------------------|
| Blood Vessel  | Adventitia, Aorta                       | Hemorrhage                    | Mild                   |
|   |   | Inflammation                  | Mild                   |
| Note: Vascular inflammation involves pancreatic and testicular vessels. |   |                               |                        |
| * Bone Marrow   |   | Hyperplasia                   | Mild                   |
| * Heart   |   | Cardiomyopathy                | Minimal                |
| * Intestine Large, Cecum  |   | Inflammation                  | Mild                   |
| * Kidney  | Renal Tubule                            | Necrosis                      | Moderate               |
|   |   | Nephropathy                   | Chronicprogr, Moderate |
| * Liver   | Hepatocyte                              | Hypertrophy                   | Mild                   |
| * Lymph Node, Mandibular  |   | Atrophy                       | Moderate               |
| * Nose  | Olfactory Epi<br>Glands, Respirat Epith | Accumulation, Hyaline Droplet | Mild                   |
|   |   | Inflammation                  | Minimal                |
| * Parathyroid Gland   |   | Hyperplasia                   | Minimal                |
| * Pituitary Gland   | Pars Distalis                           | Adenoma                       |                        |
| [ Adenoma TGLs = 1 - 15 ]   |   |                               |                        |
| * Spleen  | Lymph Follic                            | Atrophy                       | Mild                   |
|   |   | Pigment                       | Minimal                |
| * Stomach, Forestomach  |   | Inflammation                  | Mild                   |
| * Thymus  |   | Atrophy                       | Marked                 |

PRIMARY CAUSE OF DEATH - Kidney Renal Tubule Necrosis  
 CONTRIBUTORY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 304

TRT#: 6

SEX: Male

DAY ON TEST: 746

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101604

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Skin
- \* Trachea
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone Marrow
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Adrenal Cortex
- \* Eye
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
- \* Lung
- [ Infiltration Cellular TGLs = 2 - 4+5 ]
- \* Nose
- \* Pancreas
- [ Adenoma TGLs = 1 - 15 ]
- [ Hyperplasia TGLs = 3 - 15 ]
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Retina
- Hepatocyte
- Hepatocyte
- Hypertrophy
- Degeneration
- Hyperplasia
- Metaplasia
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Hypertrophy
- Inflammation
- Infiltration Cellular
- Inflammation
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Hypertrophy
- Minimal
- Minimal
- Marked
- Hepatocyte, Minimal
- Chronicprogr, Mild
- Minimal
- Minimal
- Focal, Minimal
- Histiocyte, Mild
- Multifocal, Granulomatous, Minimal
- Mild
- Marked
- Minimal
- Minimal
- Mild
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 305

TRT#: 6

SEX: Male

DAY ON TEST: 745

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101605

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Chronicprogr, Mild
* Liver		Clear Cell Focus	
	Hepatocyte	Cytoplasmic Alteration	Minimal
	Hepatocyte	Hypertrophy	Mild
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Minimal
* Pancreas	Acinus	Adenoma	
	Acinus	Hyperplasia	Marked
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Thymus		Atrophy	Mild
* Thyroid Gland	Follicular Cel	Hypertrophy	Mild

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20614 - 02  
**Test Type:** CHRONIC  
**Route:** DOSED FEED  
**Species/Strain:** RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
 Perfluorooctanoic Acid  
**CAS Number:** 335-67-1

**Date Report Requested:** 07/24/2018  
**Time Report Requested:** 12:59:13  
**First Dose M/F:** 07/27/09 / NA  
**Lab:** BAT

**ANIMAL ID:** 306

**TRT#:** 6

**SEX:** Male

**DAY ON TEST:** 715

**DOSE:** 300/40 ppm

**DISP:** Natural Death

**HISTO:** 1101606

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Epididymis	* Esophagus	* Eye	* Harderian Gland
* Intestine Large, Cecum	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Islets, Pancreatic	* Lung	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Mammary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Thyroid Gland	* Trachea
* Urinary Bladder			

**MISSING**

\* Parathyroid Gland

**OBSERVATIONS**

* Adrenal Cortex	Zona Fascult	Hyperplasia	Minimal
		Hypertrophy	Minimal
* Brain		Necrosis	Minimal
* Heart		Cardiomyopathy	Minimal
* Intestine Large, Colon		Parasite Metazoan	
* Kidney		Nephropathy	Chronicprogr, Moderate
* Liver		Inflammation	Focal, Minimal
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Adenoma	
	Acinus	Atrophy	Minimal
	Acinus	Hyperplasia	Marked
	[ Adenoma TGLs = 2 - 16 ]		
* Pituitary Gland	Pars Distalis	Adenoma	
	[ Adenoma TGLs = 1 - 15 ]		
* Spleen	Lymph Follic	Atrophy	Minimal
		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal
* Thymus		Atrophy	Marked

**PRIMARY CAUSE OF DEATH** - Pituitary Gland Pars Distalis Adenoma

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20614 - 02

**Test Type:** CHRONIC

**Route:** DOSED FEED

**Species/Strain:** RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

**CAS Number:** 335-67-1

**Date Report Requested:** 07/24/2018

**Time Report Requested:** 12:59:13

**First Dose M/F:** 07/27/09 / NA

**Lab:** BAT

---

**ANIMAL ID:** 306

**TRT#:** 6

**SEX:** Male

**DAY ON TEST:** 715

**DOSE:** 300/40 ppm

**DISP:** Natural Death

**HISTO:** 1101606

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

CONTRIBUTORY CAUSE OF DEATH - Pancreas Acinus Adenoma

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 307

TRT#: 6

SEX: Male

DAY ON TEST: 743

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101607

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Kidney
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Trachea	* Urinary Bladder		

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Intestine Large, Colon		Parasite Metazoan	
* Islets, Pancreatic		Hyperplasia	Minimal
* Liver	Hepatocyte	Clear Cell Focus	
		Cytoplasmic Alteration	Mild
	Hepatocyte	Degeneration	Cystic, Minimal
		Hypertrophy	Mild
		Necrosis	Minimal
* Lung		Infiltration Cellular	Histiocyte, Moderate
		Inflammation	Chronic Active, Minimal
	[ Infiltration Cellular TGLs = 2 - 4+5 ]		
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Atrophy	Minimal
	Acinus	Hyperplasia	Marked
	[ Hyperplasia TGLs = 1 - 7+15 ]		
* Prostate		Adenoma	
	Epithelium, Ventral	Hyperplasia	Minimal
	Ventral	Inflammation	Chronic Active, Minimal
* Spleen		Extramedullary Hematopoiesis	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	Follicular Cel	Hyperplasia	Minimal

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 308

TRT#: 6

SEX: Male

DAY ON TEST: 743

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101608

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Lung
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Nose
* Parathyroid Gland	* Preputial Gland	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Trachea	* Urinary Bladder		

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Heart		Cardiomyopathy	Minimal
* Islets, Pancreatic		Adenoma	
		Hyperplasia	Minimal
* Kidney		Infarct	Minimal
		Nephropathy	Chronicprogr, Mild
* Liver		Clear Cell Focus	
	Hepatocyte	Cytoplasmic Alteration	Minimal
	Hepatocyte	Hypertrophy	Minimal
		Inflammation	Focal, Minimal
		Pigment	Minimal
	[ Clear Cell Focus TGLs = 1 - 3+16 ]		
* Pancreas	Acinus	Adenoma	
	Acinus	Hyperplasia	Moderate
* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
* Prostate	Epithelium, Ventral	Hyperplasia	Minimal
	Ventral	Inflammation	Chronic Active, Minimal
* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Hyperplasia	Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 309

TRT#: 6

SEX: Male

DAY ON TEST: 745

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101609

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Prostate
- \* Skin
- \* Stomach, Forestomach
- \* Trachea
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Liver
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lung
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Kidney
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Nephropathy
- Accumulation, Hyaline Droplet
- Inflammation
- Atrophy
- Hyperplasia
- Adenoma
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Adenoma
- Hypertrophy
- Chronicprogr, Moderate
- Mild
- Minimal
- Minimal
- Mild
- Minimal
- Minimal
- Moderate
- Moderate

[ Adenoma TGLs = 1 - 16 ]

[ Adenoma TGLs = 2 - 9 ]

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 310

TRT#: 6

SEX: Male

DAY ON TEST: 745

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101610

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla         | Blood Vessel                | * Bone                   | * Bone Marrow              |
| * Brain                   | * Epididymis                | * Esophagus              | * Eye                      |
| * Harderian Gland         | * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   |
| * Mammary Gland           | * Pituitary Gland           | * Preputial Gland        | * Prostate                 |
| * Salivary Glands         | * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     |
| * Stomach, Glandular      | * Testes                    | * Trachea                | * Urinary Bladder          |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                  |                                    |                               |                        |
|------------------|------------------------------------|-------------------------------|------------------------|
| * Adrenal Cortex |                                    | Hypertrophy                   | Minimal                |
| * Kidney         |                                    | Nephropathy                   | Chronicprogr, Moderate |
| * Liver          |                                    | Clear Cell Focus              |                        |
|                  | Hepatocyte                         | Cytoplasmic Alteration        | Mild                   |
|                  | Bile Duct                          | Hyperplasia                   | Minimal                |
|                  | Hepatocyte                         | Hypertrophy                   | Mild                   |
|                  |                                    | Inflammation                  | Focal, Minimal         |
|                  | [ Clear Cell Focus TGLs = 2 - 16 ] |                               |                        |
| * Nose           | Olfactory Epi                      | Accumulation, Hyaline Droplet | Mild                   |
| * Pancreas       | Acinus                             | Adenoma                       | Multiple               |
|                  | Acinus                             | Hyperplasia                   | Marked                 |
|                  | [ Adenoma TGLs = 1 - 15 ]          |                               |                        |
| * Spleen         |                                    | Extramedullary Hematopoiesis  | Mild                   |
|                  |                                    | Pigment                       | Minimal                |
| * Thymus         |                                    | Atrophy                       | Moderate               |
| * Thyroid Gland  | C Cell                             | Hyperplasia                   | Mild                   |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 311

TRT#: 6

SEX: Male

DAY ON TEST: 722

DOSE: 300/40 ppm

DISP: Moribund Sacrifice

HISTO: 1101611

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular |
| * Mammary Gland            | * Nose                    | * Pancreas                  | * Parathyroid Gland      |
| * Preputial Gland          | * Salivary Glands         | * Seminal Vesicle           | * Skin                   |
| * Stomach, Forestomach     | * Stomach, Glandular      | * Thyroid Gland             | * Trachea                |
| * Urinary Bladder          |                           |                             |                          |

OBSERVATIONS

- |                           |                |              |                        |
|---------------------------|----------------|--------------|------------------------|
| * Kidney                  |                | Nephropathy  | Chronicprogr, Moderate |
| * Liver                   |                | Inflammation | Focal, Minimal         |
| * Lymph Node, Mesenteric  |                | Atrophy      | Moderate               |
| * Pituitary Gland         | Pars Distalis  | Adenoma      |                        |
| [ Adenoma TGLs = 1 - 15 ] |                |              |                        |
| * Prostate                | Ventral        | Inflammation | Chronic Active, Mild   |
| * Spleen                  |                | Pigment      | Mild                   |
| * Testes                  | Germinal Epith | Degeneration | Minimal                |
| * Thymus                  |                | Atrophy      | Moderate               |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 312

TRT#: 6

SEX: Male

DAY ON TEST: 739

DOSE: 300/40 ppm

DISP: Moribund Sacrifice

HISTO: 1101612

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Bone
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Brain
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Salivary Glands
- \* Thyroid Gland
- \* Epididymis
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Seminal Vesicle
- \* Trachea
- \* Esophagus
- \* Intestine Large, Rectum
- \* Liver
- \* Parathyroid Gland
- \* Skin
- \* Urinary Bladder

OBSERVATIONS

- \* Adrenal Cortex
- \* Adrenal Medulla
- Blood Vessel
- \* Bone Marrow
- \* Eye
- \* Heart
- \* Islets, Pancreatic
- \* Kidney
- [ Cyst TGLs = 2 - 15 ]
- [ Nephropathy TGLs = 1 - 6+15 ]
- \* Lung
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Prostate
- \* Spleen
- \* Stomach, Glandular
- \* Testes
- Thrombus
- Hyperplasia
- Inflammation
- Mineral
- Hyperplasia
- Inflammation
- Cardiomyopathy
- Adenoma
- Cyst
- Nephropathy
- Inflammation
- Accumulation, Hyaline Droplet
- Inflammation
- Necrosis
- Hyperplasia
- Hyperplasia
- Inflammation
- Extramedullary Hematopoiesis
- Pigment
- Mineral
- Degeneration
- Minimal
- Moderate
- Chronic, Marked
- Minimal
- Marked
- Mild
- Moderate
- Chronicprogr, Marked
- Chronic Active, Minimal
- Mild
- Moderate
- Mild
- Marked
- Minimal
- Chronic Active, Mild
- Mild
- Mild
- Moderate
- Marked

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

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ANIMAL ID: 312

TRT#: 6

SEX: Male

DAY ON TEST: 739

DOSE: 300/40 ppm

DISP: Moribund Sacrifice

HISTO: 1101612

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* Thymus

Atrophy

Marked

---

PRIMARY CAUSE OF DEATH

- Kidney Nephropathy

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 313

TRT#: 6

SEX: Male

DAY ON TEST: 744

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101613

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla           | Blood Vessel             | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            | * Parathyroid Gland       |
| * Pituitary Gland           | * Preputial Gland        | * Prostate                 | * Salivary Glands         |
| * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      |
| * Testes                    | * Trachea                | * Urinary Bladder          |                           |

OBSERVATIONS

- |                  |                                  |                               |                         |
|------------------|----------------------------------|-------------------------------|-------------------------|
| * Adrenal Cortex |                                  | Hypertrophy                   | Minimal                 |
| * Heart          |                                  | Cardiomyopathy                | Mild                    |
| * Kidney         |                                  | Nephropathy                   | Chronicprogr, Moderate  |
| * Liver          |                                  | Clear Cell Focus              |                         |
|                  | Hepatocyte                       | Cytoplasmic Alteration        | Minimal                 |
|                  |                                  | Degeneration                  | Cystic, Minimal         |
|                  | Hepatocyte                       | Hypertrophy                   | Minimal                 |
|                  |                                  | Inflammation                  | Focal, Moderate         |
| * Lung           |                                  | Inflammation                  | Chronic Active, Minimal |
| * Nose           | Olfactory Epi                    | Accumulation, Hyaline Droplet | Moderate                |
|                  | Glands, Respirat Epith           | Inflammation                  | Minimal                 |
| * Pancreas       | Acinus                           | Adenoma                       | Multiple                |
|                  | Acinus                           | Hyperplasia                   | Marked                  |
|                  | [ Adenoma TGLs = 1,2,3 - 15+16 ] |                               |                         |
| * Spleen         |                                  | Extramedullary Hematopoiesis  | Minimal                 |
|                  |                                  | Pigment                       | Minimal                 |
| * Thymus         |                                  | Atrophy                       | Moderate                |
| * Thyroid Gland  | C Cell                           | Hyperplasia                   | Mild                    |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 314

TRT#: 6

SEX: Male

DAY ON TEST: 744

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101614

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Skin
- \* Thyroid Gland
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Prostate
- \* Stomach, Forestomach
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
- \* Kidney
- \* Liver
- [ Hepatocellular Adenoma TGLs = 6 - 18 ]
- \* Lung
- [ Infiltration Cellular TGLs = 7 - 4 ]
- \* Nose
- \* Pancreas
- [ Adenoma TGLs = 4,5 - 16+17 ]
- [ Carcinoma TGLs = 1,2 - 15+16 ]
- [ Inflammation TGLs = 3 - 16 ]
- \* Spleen
- \* Thymus
- Degeneration
- Nephropathy
- Clear Cell Focus
- Hepatocellular Adenoma
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Adenoma
- Carcinoma
- Hyperplasia
- Inflammation
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Cystic, Minimal
- Chronicprogr, Moderate
- Histiocyte, Moderate
- Marked
- Multiple
- Multiple
- Marked
- Chronic Active, Marked
- Mild
- Minimal
- Moderate

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 315

TRT#: 6

SEX: Male

DAY ON TEST: 116

DOSE: 300/40 ppm

DISP: Moribund Sacrifice

HISTO: 1101615

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	Blood Vessel	* Bone
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lung	* Lymph Node, Mandibular	* Mammary Gland	* Nose
* Pancreas	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

OBSERVATIONS

* Bone Marrow		Hyperplasia	Moderate
* Heart		Cardiomyopathy	Minimal
* Kidney		Nephropathy	Chronicprogr, Mild
* Liver	Hepatocyte	Cytoplasmic Alteration	Mild
	Hepatocyte	Hypertrophy	Mild
	Hepatocyte	Single Cell Death	Moderate
* Lymph Node, Mesenteric		Hyperplasia	Lymphoid, Mild
* Spleen	Lymph Follic	Atrophy	Minimal
* Stomach, Forestomach	Epithelium	Hyperplasia	Squamous, Moderate
		Inflammation	Marked
		Perforation	
		Ulcer	Marked
	[ Ulcer TGLs = 1 - 15 ]		
* Thymus		Atrophy	Mild
* Thyroid Gland	Follicular Cel	Hypertrophy	Moderate

PRIMARY CAUSE OF DEATH - Stomach, Forestomach Perforation

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 316

TRT#: 6

SEX: Male

DAY ON TEST: 743

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101616

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Blood Vessel           | * Bone                     | * Bone Marrow             | * Brain                     |
| * Epididymis             | * Esophagus                | * Eye                     | * Harderian Gland           |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    |
| * Lymph Node, Mesenteric | * Parathyroid Gland        | * Preputial Gland         | * Prostate                  |
| * Salivary Glands        | * Seminal Vesicle          | * Skin                    | * Stomach, Forestomach      |
| * Stomach, Glandular     | * Testes                   | * Thyroid Gland           | * Trachea                   |
| * Urinary Bladder        |                            |                           |                             |

OBSERVATIONS

- |                   |  |                               |                        |
|-------------------|--|-------------------------------|------------------------|
| * Adrenal Cortex  | Zona Fascult                             | Hyperplasia                   | Mild                   |
| * Adrenal Medulla |  | Hyperplasia                   | Minimal                |
| * Heart           |  | Cardiomyopathy                | Minimal                |
| * Kidney          |  | Nephropathy                   | Chronicprogr, Moderate |
| * Liver           |  | Clear Cell Focus              |                        |
|                   |  | Inflammation                  | Focal, Minimal         |
| * Lung            |  | Infiltration Cellular         | Histiocyte, Marked     |
|                   | [ Infiltration Cellular TGLs = 2 - 4+5 ] |                               |                        |
| * Mammary Gland   |  | Fibroadenoma                  |                        |
|                   | [ Fibroadenoma TGLs = 1 - 15 ]           |                               |                        |
| * Nose            | Olfactory Epi                            | Accumulation, Hyaline Droplet | Mild                   |
| * Pancreas        | Acinus                                   | Adenoma                       |                        |
|                   | Acinus                                   | Atrophy                       | Minimal                |
|                   | Acinus                                   | Hyperplasia                   | Minimal                |
|                   | [ Adenoma TGLs = 3 - 16 ]                |                               |                        |
| * Pituitary Gland | Pars Distalis                            | Hyperplasia                   | Minimal                |
| * Spleen          |  | Extramedullary Hematopoiesis  | Minimal                |
|                   |  | Pigment                       | Minimal                |
| * Thymus          |  | Atrophy                       | Moderate               |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 317

TRT#: 6

SEX: Male

DAY ON TEST: 743

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101617

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Degeneration	Cystic, Minimal
* Kidney		Nephropathy	Chronicprogr, Minimal
* Liver		Clear Cell Focus	
	Hepatocyte	Cytoplasmic Alteration	Mild
	Hepatocyte	Hypertrophy	Mild
		Necrosis	Mild
		Pigment	Mild
	Hepatocyte	Single Cell Death	Mild
* Lung		Infiltration Cellular	Histiocyte, Minimal
		Inflammation	Multifocal, Granulomatous, Minimal
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
	Glands, Respirat Epith	Inflammation	Minimal
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Hyperplasia	Marked
	[ Adenoma TGLs = 1,2 - 15+16 ]		
* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Adenoma	

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 318

TRT#: 6

SEX: Male

DAY ON TEST: 743

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101618

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla           | Blood Vessel             | * Bone                     | * Brain                   |
| * Epididymis                | * Esophagus              | * Eye                      | * Harderian Gland         |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           |
| * Parathyroid Gland         | * Pituitary Gland        | * Preputial Gland          | * Salivary Glands         |
| * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      |
| * Testes                    | * Trachea                | * Urinary Bladder          |                           |

OBSERVATIONS

- |                  |                                |                               |                         |
|------------------|--------------------------------|-------------------------------|-------------------------|
| * Adrenal Cortex |                                | Hypertrophy                   | Minimal                 |
| * Bone Marrow    |                                | Hyperplasia                   | Mild                    |
| * Kidney         |                                | Nephropathy                   | Chronicprogr, Minimal   |
| * Liver          |                                | Necrosis                      | Minimal                 |
| * Nose           | Olfactory Epi                  | Accumulation, Hyaline Droplet | Moderate                |
| * Pancreas       | Acinus                         | Atrophy                       | Minimal                 |
|                  | Acinus                         | Hyperplasia                   | Minimal                 |
| * Prostate       | Ventral                        | Inflammation                  | Chronic Active, Minimal |
|                  | [ Inflammation TGLs = 1 - 14 ] |                               |                         |
| * Spleen         |                                | Pigment                       | Minimal                 |
| * Thymus         |                                | Atrophy                       | Mild                    |
| * Thyroid Gland  | C Cell                         | Hyperplasia                   | Mild                    |

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 319

TRT#: 6

SEX: Male

DAY ON TEST: 746

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101619

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Islets, Pancreatic
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Prostate
- \* Skin
- \* Stomach, Forestomach
- \* Trachea
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Seminal Vesicle
- \* Testes

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- \* Intestine Large, Colon
- \* Kidney
- \* Liver
- \* Lung
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Spleen
- \* Thymus
- Parasite Metazoan
- Infarct
- Nephropathy
- Clear Cell Focus
- Hepatocyte
- Hepatocyte
- [ Hepatocellular Adenoma TGLs = 6 - 20 ]
- [ Infiltration Cellular TGLs = 7 - 4+5 ]
- Olfactory Epi
- Glands, Respirat Epith
- Acinus
- Acinus
- [ Adenoma TGLs = 1,2,3,4,5 - 7+15+16+17+18+19 ]
- Pars Distalis
- Hyperplasia
- Hyperplasia
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Minimal
- Chronicprogr, Mild
- Minimal
- Minimal
- Histiocyte, Minimal
- Mild
- Minimal
- Multiple
- Marked
- Marked
- Mild
- Minimal
- Mild

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20614 - 02

**Test Type:** CHRONIC

**Route:** DOSED FEED

**Species/Strain:** RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

**CAS Number:** 335-67-1

**Date Report Requested:** 07/24/2018

**Time Report Requested:** 12:59:13

**First Dose M/F:** 07/27/09 / NA

**Lab:** BAT

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**ANIMAL ID:** 319

**TRT#:** 6

**SEX:** Male

**DAY ON TEST:** 746

**DOSE:** 300/40 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101619

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* Thyroid Gland

C Cell

Adenoma

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 320

TRT#: 6

SEX: Male

DAY ON TEST: 701

DOSE: 300/40 ppm

DISP: Natural Death

HISTO: 1101620

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla        | Blood Vessel               | * Bone                    | * Bone Marrow               |
| * Brain                  | * Epididymis               | * Esophagus               | * Eye                       |
| * Harderian Gland        | * Intestine Large, Cecum   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Liver                     |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           | * Parathyroid Gland         |
| * Preputial Gland        | * Prostate                 | * Salivary Glands         | * Seminal Vesicle           |
| * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      | * Testes                    |
| * Trachea                | * Urinary Bladder          |                           |                             |

OBSERVATIONS

- |   |  |                               |                     |
|---|--|-------------------------------|---------------------|
| * Adrenal Cortex  |  | Degeneration                  | Cystic, Minimal     |
| * Heart   |  | Cardiomyopathy                | Moderate            |
| * Intestine Large, Colon                                  |  | Parasite Metazoan             |                     |
| * Kidney  |  | Nephropathy                   | Chronicprogr, Mild  |
| * Lung  | Alveolar Epith                           | Hyperplasia                   | Minimal             |
|   | [ Infiltration Cellular TGLs = 1 - 4+5 ] | Infiltration Cellular         | Histiocyte, Minimal |
| * Nose  | Olfactory Epi                            | Accumulation, Hyaline Droplet | Marked              |
|   | Respirat Epith                           | Inflammation                  | Minimal             |
| Note: Inflammation is primarily within the nasal passage. |  |                               |                     |
| * Pancreas  | Acinus                                   | Adenoma                       |                     |
|   | Acinus                                   | Hyperplasia                   | Minimal             |
| * Pituitary Gland   |  | Hemorrhage                    | Marked              |
| * Spleen  | Lymph Follic                             | Atrophy                       | Mild                |
|   |  | Extramedullary Hematopoiesis  | Minimal             |
|   |  | Pigment                       | Minimal             |
| * Thymus  |  | Atrophy                       | Moderate            |
| * Thyroid Gland   | Follicular Cel                           | Hypertrophy                   | Minimal             |

PRIMARY CAUSE OF DEATH - Pituitary Gland Hemorrhage

\* PROTOCOL REQUIRED TISSUE





Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 321

**TRT#:** 6

**SEX:** Male

**DAY ON TEST:** 744

**DOSE:** 300/40 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101621

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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[ Hyperplasia TGLs = 2 - 16 ]	Inflammation	Minimal
* Spleen	Extramedullary Hematopoiesis	Minimal
	Pigment	Minimal
* Thyroid Gland	Follicular Cel Hypertrophy	Mild

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 322

TRT#: 6

SEX: Male

DAY ON TEST: 744

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101622

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Glandular	* Testes	* Thyroid Gland
* Trachea	* Urinary Bladder		

MISSING

\* Parathyroid Gland

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Islets, Pancreatic		Adenoma	
* Kidney		Infarct	Minimal
		Nephropathy	Chronicprogr, Mild
* Liver		Clear Cell Focus	
	Hepatocyte	Cytoplasmic Alteration	Minimal
	Hepatocyte	Hypertrophy	Minimal
		Necrosis	Minimal
	Hepatocyte	Single Cell Death	Minimal
* Lung		Infiltration Cellular	Histiocyte, Moderate
	[ Infiltration Cellular TGLs = 2 - 4+5 ]		
* Nose		Accumulation, Hyaline Droplet	Moderate
	Olfactory Epi	Inflammation	Minimal
* Pancreas		Adenoma	Multiple
	Acinus	Atrophy	Mild
	Acinus	Hyperplasia	Marked
	[ Adenoma TGLs = 1 - 16 ]		
* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 322

**TRT#:** 6

**SEX:** Male

**DAY ON TEST:** 744

**DOSE:** 300/40 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101622

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Stomach, Forestomach

Inflammation

Minimal

\* Thymus

Atrophy

Moderate

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 323

TRT#: 6

SEX: Male

DAY ON TEST: 746

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101623

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| Blood Vessel               | * Bone                    | * Bone Marrow               | * Brain                  |
| * Epididymis               | * Esophagus               | * Eye                       | * Harderian Gland        |
| * Intestine Large, Cecum   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric |
| * Mammary Gland            | * Parathyroid Gland       | * Preputial Gland           | * Salivary Glands        |
| * Seminal Vesicle          | * Skin                    | * Stomach, Forestomach      | * Stomach, Glandular     |
| * Testes                   | * Trachea                 | * Urinary Bladder           |                          |

OBSERVATIONS

- |                          |   |                               |                        |
|--------------------------|---|-------------------------------|------------------------|
| * Adrenal Cortex         |   | Hypertrophy                   | Minimal                |
| * Adrenal Medulla        |   | Pheochromocytoma Benign       |                        |
| * Heart                  |   | Cardiomyopathy                | Mild                   |
| * Intestine Large, Colon |   | Parasite Metazoan             |                        |
| * Kidney                 |   | Nephropathy                   | Chronicprogr, Moderate |
| * Liver                  |   | Clear Cell Focus              |                        |
|                          | Hepatocyte                                    | Cytoplasmic Alteration        | Minimal                |
|                          | Hepatocyte                                    | Hypertrophy                   | Minimal                |
| * Lung                   |   | Infiltration Cellular         | Histiocyte, Marked     |
|                          | [ Infiltration Cellular TGLs = 6 - 4+5 ]      |                               |                        |
| * Nose                   | Olfactory Epi                                 | Accumulation, Hyaline Droplet | Moderate               |
| * Pancreas               | Acinus  | Adenoma                       | Multiple               |
|                          | [ Adenoma TGLs = 1,2,3,4,5 - 15+16+17+18+19 ] |                               |                        |
| * Pituitary Gland        | Pars Distalis                                 | Hyperplasia                   | Minimal                |
|                          | [ Hyperplasia TGLs = 7 - 20 ]                 |                               |                        |
| * Prostate               | Ventral                                       | Inflammation                  | Chronic Active, Mild   |
| * Spleen                 |   | Extramedullary Hematopoiesis  | Mild                   |
|                          |   | Pigment                       | Minimal                |
| * Thymus                 |   | Atrophy                       | Mild                   |
| * Thyroid Gland          | C Cell  | Adenoma                       |                        |
|                          | C Cell  | Hyperplasia                   | Mild                   |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 324

TRT#: 6

SEX: Male

DAY ON TEST: 746

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101624

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   |
| * Mammary Gland           | * Parathyroid Gland         | * Pituitary Gland        | * Preputial Gland          |
| * Prostate                | * Salivary Glands           | * Seminal Vesicle        | * Stomach, Forestomach     |
| * Stomach, Glandular      | * Testes                    | * Trachea                | * Urinary Bladder          |

OBSERVATIONS

- |                 |                           |                               |                        |
|-----------------|---------------------------|-------------------------------|------------------------|
| * Heart         |                           | Cardiomyopathy                | Minimal                |
| * Kidney        |                           | Nephropathy                   | Chronicprogr, Moderate |
| * Liver         |                           | Clear Cell Focus              |                        |
|                 |                           | Leukemia Mononuclear          |                        |
| Lymph Node      | Pancreatic                | Leukemia Mononuclear          |                        |
| * Nose          | Olfactory Epi             | Accumulation, Hyaline Droplet | Mild                   |
|                 | Respirat Epith            | Inflammation                  | Minimal                |
| * Pancreas      | Acinus                    | Adenoma                       | Multiple               |
|                 | Acinus                    | Hyperplasia                   | Marked                 |
|                 | [ Adenoma TGLs = 2 - 16 ] |                               |                        |
| * Skin          | Subcut Tiss               | Fibroma                       |                        |
|                 | [ Fibroma TGLs = 1 - 15 ] |                               |                        |
| * Spleen        |                           | Extramedullary Hematopoiesis  | Mild                   |
|                 |                           | Leukemia Mononuclear          |                        |
| * Thymus        |                           | Atrophy                       | Mild                   |
| * Thyroid Gland | C Cell                    | Adenoma                       |                        |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 325

TRT#: 6

SEX: Male

DAY ON TEST: 745

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101625

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Jejunum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Preputial Gland
- \* Seminal Vesicle
- \* Skin
- \* Testes
- \* Thyroid Gland
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder

OBSERVATIONS

- \* Islets, Pancreatic
- \* Kidney
- \* Liver
- Hepatocyte
- Hepatocyte
- \* Lung
- [ Infiltration Cellular TGLs = 2 - 4+5 ]
- \* Nose
- \* Pancreas
- [ Adenoma TGLs = 1 - 15 ]
- \* Pituitary Gland
- \* Spleen
- \* Thymus
- Hyperplasia
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Hypertrophy
- Inflammation
- Necrosis
- Pigment
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Minimal
- Chronicprogr, Mild
- Minimal
- Minimal
- Minimal
- Minimal
- Minimal
- Minimal
- Histiocyte, Mild
- Marked
- Multiple
- Marked
- Minimal
- Mild
- Minimal
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 326

TRT#: 6

SEX: Male

DAY ON TEST: 745

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101626

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Blood Vessel	* Bone	* Bone Marrow	* Brain
* Epididymis	* Esophagus	* Harderian Gland	* Heart
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Mammary Gland	* Parathyroid Gland	* Preputial Gland
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Adrenal Medulla		Hyperplasia	Minimal
* Eye	Retina	Degeneration	Minimal
* Kidney		Nephropathy	Chronicprogr, Moderate
* Liver	Hepatocyte	Cytoplasmic Alteration	Minimal
	Hepatocyte	Hypertrophy	Minimal
		Necrosis	Minimal
* Lung		Infiltration Cellular	Histiocyte, Minimal
	[ Infiltration Cellular TGLs = 2 - 4+5 ]		
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Atrophy	Moderate
		Inflammation	Chronic Active, Minimal
* Pituitary Gland	Pars Distalis	Hyperplasia	Moderate
* Prostate	Ventral	Inflammation	Chronic Active, Mild
* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Adenoma	
	[ Adenoma TGLs = 1 - 9 ]		

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 327

TRT#: 6

SEX: Male

DAY ON TEST: 744

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101627

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	Blood Vessel	* Bone
* Bone Marrow	* Brain	* Epididymis	* Esophagus
* Eye	* Harderian Gland	* Heart	* Intestine Large, Cecum
* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum
* Intestine Small, Jejunum	* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Stomach, Forestomach	* Stomach, Glandular	* Trachea	* Urinary Bladder

OBSERVATIONS

* Islets, Pancreatic		Hyperplasia	Minimal
* Kidney		Nephropathy	Chronicprogr, Minimal
* Liver		Clear Cell Focus	
		Inflammation	Focal, Minimal
		Pigment	Minimal
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Atrophy	Moderate
	[ Adenoma TGLs = 1 - 15 ]		
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Testes	Bilateral, Germinal Epith	Degeneration	Moderate
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Adenoma	

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 328

TRT#: 6

SEX: Male

DAY ON TEST: 744

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101628

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	Blood Vessel	* Bone	* Brain
* Epididymis	* Esophagus	* Eye	* Harderian Gland
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Medulla		Hyperplasia	Minimal
* Bone Marrow		Hyperplasia	Mild
* Kidney		Nephropathy	Chronicprogr, Mild
* Liver		Clear Cell Focus	
	Hepatocyte	Cytoplasmic Alteration	Minimal
	Hepatocyte	Hepatocellular Adenoma	
		Hypertrophy	Minimal
		Necrosis	Minimal
	[ Hepatocellular Adenoma TGLs = 5-19 ]		
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Hyperplasia	Marked
	[ Adenoma TGLs = 1,2,3,4 - 15+16+17+18 ]		
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Thymus		Atrophy	Mild
* Thyroid Gland	Follicular Cel	Hypertrophy	Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 329

TRT#: 6

SEX: Male

DAY ON TEST: 746

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101629

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Thyroid Gland

OBSERVATIONS

- \* Adrenal Cortex
  - Hyperplasia
  - Hypertrophy
  - Inflammation
  - Mineral
- Blood Vessel
  - Aorta, Pulmn Vein
  - Note: Inflammation involves the testicular arterioles.
- \* Kidney
  - Nephropathy
  - Clear Cell Focus
- \* Liver
  - Hepatocyte
  - Hepatocyte
  - Cytoplasmic Alteration
  - Hypertrophy
  - Inflammation
  - Infiltration Cellular
- \* Lung
  - [ Infiltration Cellular TGLs = 1 - 4+5 ]
  - Infiltration Cellular
- \* Nose
  - Olfactory Epi
  - Accumulation, Hyaline Droplet
- \* Pancreas
  - Acinus
  - Hyperplasia
- \* Pituitary Gland
  - Pars Distalis
  - Hyperplasia
- \* Spleen
  - Extramedullary Hematopoiesis
  - Pigment
- \* Testes
  - Germinal Epith
  - Degeneration
- \* Thymus
  - Atrophy

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 330

TRT#: 6

SEX: Male

DAY ON TEST: 746

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101630

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Trachea
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Lung
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Adrenal Cortex
- \* Heart
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
- \* Nose
- \* Pancreas
- [ Adenoma TGLs = 1 - 15 ]
- \* Pituitary Gland
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Hepatocyte
- Hepatocyte
- Olfactory Epi
- Acinus
- Acinus
- Pars Distalis
- Follicular Cel
- Hypertrophy
- Cardiomyopathy
- Adenoma
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Hypertrophy
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Hyperplasia
- Extramedullary Hematopoiesis
- Atrophy
- Hyperplasia
- Minimal
- Minimal
- Chronicprogr, Minimal
- Mild
- Mild
- Mild
- Multiple
- Marked
- Minimal
- Mild
- Moderate
- Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 331

TRT#: 6

SEX: Male

DAY ON TEST: 747

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101631

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric |
| * Mammary Gland            | * Preputial Gland         | * Prostate                  | * Salivary Glands        |
| * Seminal Vesicle          | * Skin                    | * Stomach, Forestomach      | * Stomach, Glandular     |
| * Testes                   | * Trachea                 | * Urinary Bladder           |                          |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                   |  |                               |                        |
|-------------------|--|-------------------------------|------------------------|
| * Kidney          |  | Nephropathy                   | Chronicprogr, Moderate |
| * Liver           |  | Clear Cell Focus              |                        |
|                   | Hepatocyte                               | Cytoplasmic Alteration        | Minimal                |
|                   | Hepatocyte                               | Hypertrophy                   | Minimal                |
|                   |  | Necrosis                      | Minimal                |
| * Lung            |  | Infiltration Cellular         | Histiocyte, Moderate   |
|                   | [ Infiltration Cellular TGLs = 2 - 4+5 ] |                               |                        |
| * Nose            | Olfactory Epi                            | Accumulation, Hyaline Droplet | Mild                   |
| * Pancreas        | Acinus                                   | Adenoma                       | Multiple               |
|                   | Acinus                                   | Hyperplasia                   | Marked                 |
|                   | [ Adenoma TGLs = 1 - 15 ]                |                               |                        |
| * Pituitary Gland | Pars Distalis                            | Adenoma                       |                        |
| * Spleen          | Lymph Follic                             | Atrophy                       | Minimal                |
|                   |  | Extramedullary Hematopoiesis  | Mild                   |
| * Thymus          |  | Atrophy                       | Moderate               |
| * Thyroid Gland   | C Cell                                   | Adenoma                       |                        |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 332

TRT#: 6

SEX: Male

DAY ON TEST: 747

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101632

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla           | Blood Vessel             | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            | * Pancreas                |
| * Parathyroid Gland         | * Preputial Gland        | * Prostate                 | * Salivary Glands         |
| * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      |
| * Thyroid Gland             | * Trachea                | * Urinary Bladder          |                           |

MISSING

- \* Thymus

OBSERVATIONS

- |                   |                        |                               |                    |
|-------------------|------------------------|-------------------------------|--------------------|
| * Adrenal Cortex  |                        | Hypertrophy                   | Minimal            |
| * Heart           |                        | Cardiomyopathy                | Minimal            |
| * Kidney          |                        | Nephropathy                   | Chronicprogr, Mild |
| * Liver           |                        | Clear Cell Focus              |                    |
|                   | Hepatocyte             | Cytoplasmic Alteration        | Mild               |
|                   | Hepatocyte             | Hypertrophy                   | Minimal            |
| * Lung            | Alveolar Epith         | Hyperplasia                   | Minimal            |
| * Nose            | Olfactory Epi          | Accumulation, Hyaline Droplet | Marked             |
|                   | Glands, Respirat Epith | Inflammation                  | Minimal            |
| * Pituitary Gland | Pars Distalis          | Hyperplasia                   | Marked             |
| * Spleen          |                        | Extramedullary Hematopoiesis  | Minimal            |
|                   |                        | Pigment                       | Minimal            |
| * Testes          | Interstitial Cell      | Adenoma                       |                    |
|                   | Germinal Epith         | Degeneration                  | Mild               |

[ Degeneration TGLs = 1 - 12 ]

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 333

TRT#: 6

SEX: Male

DAY ON TEST: 744

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101633

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Mammary Gland
- \* Pancreas
- \* Preputial Gland
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Skin
- \* Trachea

OBSERVATIONS

- \* Kidney
  - Infarct
  - Nephropathy
  - Mild
  - Chronicprogr, Minimal
- \* Liver
  - Clear Cell Focus
  - Cytoplasmic Alteration
  - Hepatocyte
  - Hypertrophy
  - Mild
- \* Lung
  - Infiltration Cellular
  - Inflammation
  - Histiocyte, Marked
  - Chronic Active, Minimal
- [ Infiltration Cellular TGLs = 1 - 4+5 ]
- \* Nose
  - Olfactory Epi
  - Accumulation, Hyaline Droplet
  - Mild
- \* Prostate
  - Ventral
  - Inflammation
  - Chronic Active, Mild
- \* Spleen
  - Extramedullary Hematopoiesis
  - Minimal
- \* Thymus
  - Atrophy
  - Moderate
- \* Thyroid Gland
  - C Cell
  - Hyperplasia
  - Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 334

TRT#: 6

SEX: Male

DAY ON TEST: 683

DOSE: 300/40 ppm

DISP: Natural Death

HISTO: 1101634

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Heart                  | * Intestine Large, Cecum   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   |
| * Mammary Gland           | * Pituitary Gland           | * Preputial Gland        | * Prostate                 |
| * Salivary Glands         | * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     |
| * Stomach, Glandular      | * Testes                    | * Trachea                | * Urinary Bladder          |

OBSERVATIONS

- |                          |                   |                               |                    |
|--------------------------|-------------------|-------------------------------|--------------------|
| * Intestine Large, Colon |                   | Parasite Metazoan             |                    |
| * Kidney                 |                   | Nephropathy                   | Chronicprogr, Mild |
| * Liver                  | Hepatocyte        | Cytoplasmic Alteration        | Minimal            |
|                          |                   | Inflammation                  | Focal, Minimal     |
|                          |                   | Pigment                       | Mild               |
| * Nose                   | Olfactory Epi     | Accumulation, Hyaline Droplet | Moderate           |
| * Pancreas               | Acinus            | Hyperplasia                   | Mild               |
| * Parathyroid Gland      |                   | Hyperplasia                   | Focal, Minimal     |
| * Spleen                 | Lymph Follic      | Atrophy                       | Moderate           |
|                          |                   | Pigment                       | Minimal            |
| * Thymus                 |                   | Atrophy                       | Marked             |
| * Thyroid Gland          | Bilateral, C Cell | Adenoma                       |                    |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 335

TRT#: 6

SEX: Male

DAY ON TEST: 747

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101635

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone
- \* Bone Marrow
- \* Brain
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Liver
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Parathyroid Gland
- \* Pituitary Gland
- \* Preputial Gland
- \* Salivary Glands
- \* Seminal Vesicle
- \* Stomach, Glandular
- \* Testes
- \* Thyroid Gland
- \* Trachea
- \* Urinary Bladder

OBSERVATIONS

- Blood Vessel Inflammation Minimal
  - Note: Inflammation involves the mesenteric artery.
- \* Heart Cardiomyopathy Minimal
- \* Islets, Pancreatic Adenoma
- \* Kidney Nephropathy Chronicprogr, Marked
  - [ Nephropathy TGLs = 2 - 6 ]
- \* Lung Infiltration Cellular Histiocyte, Minimal
  - [ Infiltration Cellular TGLs = 5 - 4+5 ]
- Lymph Node Mediastinal Pigment Mild
  - [ Pigment TGLs = 4 - 17 ]
- \* Nose Olfactory Epi Accumulation, Hyaline Droplet Mild
  - Respirat Epith Inflammation Minimal
- \* Pancreas Acinus Adenoma Multiple
  - Acinus Hyperplasia Marked
  - Inflammation Mild
  - [ Adenoma TGLs = 3 - 7+16 ]
- \* Prostate Ventral Inflammation Chronic Active, Mild
- \* Skin Squamous Cell Papilloma
  - [ Squamous Cell Papilloma TGLs = 1 - 15 ]
- \* Spleen Pigment Mild
- \* Stomach, Forestomach Epithelium Hyperplasia Squamous, Minimal

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

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ANIMAL ID: 335

TRT#: 6

SEX: Male

DAY ON TEST: 747

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101635

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thymus

Atrophy

Moderate

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 336

TRT#: 6

SEX: Male

DAY ON TEST: 747

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101636

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Trachea
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Testes

OBSERVATIONS

- \* Adrenal Cortex
- \* Kidney
- \* Liver
- \* Lung
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Spleen
- \* Stomach, Glandular
- \* Thymus
- \* Thyroid Gland
- Hepatocyte
- Hypertrophy
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Inflammation
- Necrosis
- Pigment
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Inflammation
- Adenoma
- Hyperplasia
- Hyperplasia
- Pigment
- Neuroendocrine Tumor, Malignant
- Atrophy
- Adenoma
- Minimal
- Chronicprogr, Moderate
- Minimal
- Focal, Minimal
- Minimal
- Minimal
- Histiocyte, Marked
- Moderate
- Minimal
- Multiple
- Minimal
- Minimal
- Minimal
- Minimal
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 337

TRT#: 6

SEX: Male

DAY ON TEST: 648

DOSE: 300/40 ppm

DISP: Moribund Sacrifice

HISTO: 1101637

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Nose
- \* Seminal Vesicle
- \* Trachea
- \* Bone
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lung
- \* Pancreas
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Brain
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Stomach, Glandular
- \* Epididymis
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Testes

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- \* Adrenal Cortex
  - Blood Vessel
    - Hypertrophy
    - Inflammation
    - Mineral
  - Note: Inflammation involves cardiac and pancreatic arteries.
  - Note: Vascular mineral involves the pulmonary artery.
- \* Bone Marrow
  - Hyperplasia
- \* Eye
  - Retina
    - Degeneration
- \* Heart
  - Cardiomyopathy
- \* Kidney
  - Nephropathy
    - [ Nephropathy TGLs = 5 - 18 ]
- \* Liver
  - Basophilic Focus
- \* Lymph Node, Mandibular
  - Hyperplasia
  - Infiltration Cellular
    - [ Infiltration Cellular TGLs = 3 - 16 ]
- \* Pituitary Gland
  - Pars Distalis
    - Adenoma
      - [ Adenoma TGLs = 6 - 19 ]
- \* Prostate
  - Lateral
    - Inflammation
- \* Skin
  - Hemangiosarcoma
    - Inflammation
      - [ Hemangiosarcoma TGLs = 1 - 20 ]

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

ANIMAL ID: 337

TRT#: 6

SEX: Male

DAY ON TEST: 648

DOSE: 300/40 ppm

DISP: Moribund Sacrifice

HISTO: 1101637

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Spleen

Extramedullary Hematopoiesis

Mild

\* Thymus

Atrophy

Moderate

\* Thyroid Gland

C Cell

Adenoma

[ Adenoma TGLs = 4 - 17 ]

---

PRIMARY CAUSE OF DEATH

- Skin Inflammation

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 338

TRT#: 6

SEX: Male

DAY ON TEST: 624

DOSE: 300/40 ppm

DISP: Moribund Sacrifice

HISTO: 1101638

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | Blood Vessel             | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           |
| * Pancreas                  | * Parathyroid Gland      | * Preputial Gland          | * Prostate                |
| * Salivary Glands           | * Seminal Vesicle        | * Stomach, Forestomach     | * Stomach, Glandular      |
| * Trachea                   | * Urinary Bladder        |                            |                           |

OBSERVATIONS

- |                   |                           |                               |                    |
|-------------------|---------------------------|-------------------------------|--------------------|
| * Adrenal Medulla |                           | Hyperplasia                   | Minimal            |
|                   |                           | Pheochromocytoma Benign       |                    |
| * Heart           |                           | Cardiomyopathy                | Mild               |
| * Kidney          |                           | Nephropathy                   | Chronicprogr, Mild |
| * Liver           |                           | Clear Cell Focus              |                    |
|                   |                           | Inflammation                  | Focal, Minimal     |
| * Nose            | Olfactory Epi             | Accumulation, Hyaline Droplet | Mild               |
| * Pituitary Gland | Pars Distalis             | Hyperplasia                   | Mild               |
| * Skin            | Subcut Tiss               | Fibroma                       |                    |
|                   | [ Fibroma TGLs = 1 - 15 ] |                               |                    |
| * Spleen          |                           | Extramedullary Hematopoiesis  | Mild               |
| * Testes          | Germinal Epith            | Degeneration                  | Minimal            |
| * Thymus          |                           | Atrophy                       | Moderate           |
| * Thyroid Gland   | C Cell                    | Hyperplasia                   | Mild               |

PRIMARY CAUSE OF DEATH

- Skin Subcut Tiss Fibroma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 339

TRT#: 6

SEX: Male

DAY ON TEST: 746

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101639

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Preputial Gland
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Trachea
- \* Urinary Bladder
- \* Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lung
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Skin
- \* Thyroid Gland

OBSERVATIONS

- \* Kidney
  - Nephropathy
  - Chronicprogr, Mild
- \* Liver
  - Clear Cell Focus
  - Hepatocyte
    - Cytoplasmic Alteration
    - Minimal
    - Bile Duct
      - Hyperplasia
      - Minimal
    - Hepatocyte
      - Hypertrophy
      - Minimal
      - Inflammation
      - Focal, Minimal
      - Pigment
      - Mild
  - \* Nose
    - Olfactory Epi
      - Accumulation, Hyaline Droplet
      - Mild
  - \* Pancreas
    - Acinus
      - Adenoma
      - Multiple
    - Acinus
      - Hyperplasia
      - Minimal
  - \* Prostate
    - [ Adenoma TGLs = 1,2,3 - 15+16+17 ]
    - Epithelium, Ventral
      - Hyperplasia
      - Minimal
    - Ventral
      - Inflammation
      - Chronic Active, Mild
  - \* Spleen
    - Extramedullary Hematopoiesis
    - Mild
    - Pigment
    - Minimal
  - \* Thymus
    - Atrophy
    - Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 340

TRT#: 6

SEX: Male

DAY ON TEST: 746

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101640

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Medulla          | Blood Vessel              | * Bone                      | * Brain                  |
| * Epididymis               | * Esophagus               | * Eye                       | * Harderian Gland        |
| * Intestine Large, Cecum   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Lymph Node, Mandibular  | * Lymph Node, Mesenteric    | * Mammary Gland          |
| * Parathyroid Gland        | * Preputial Gland         | * Prostate                  | * Salivary Glands        |
| * Seminal Vesicle          | * Skin                    | * Stomach, Forestomach      | * Stomach, Glandular     |
| * Testes                   | * Thyroid Gland           | * Trachea                   | * Urinary Bladder        |

OBSERVATIONS

- |                          |  |                               |                         |
|--------------------------|--|-------------------------------|-------------------------|
| * Adrenal Cortex         | Zona Fascult                             | Hyperplasia                   | Minimal                 |
| * Bone Marrow            |  | Hyperplasia                   | Mild                    |
| * Heart                  |  | Cardiomyopathy                | Minimal                 |
| * Intestine Large, Colon |  | Parasite Metazoan             |                         |
| * Islets, Pancreatic     |  | Adenoma                       |                         |
|                          | [ Adenoma TGLs = 1 - 15 ]                |                               |                         |
| * Kidney                 |  | Nephropathy                   | Chronicprogr, Mild      |
| * Liver                  |  | Clear Cell Focus              |                         |
|                          | Hepatocyte                               | Cytoplasmic Alteration        | Mild                    |
|                          | Hepatocyte                               | Hypertrophy                   | Minimal                 |
|                          |  | Mixed Cell Focus              |                         |
|                          |  | Necrosis                      | Mild                    |
|                          |  | Pigment                       | Minimal                 |
|                          | Hepatocyte                               | Single Cell Death             | Minimal                 |
|                          | [ Mixed Cell Focus TGLs = 5,6 - 17+18 ]  |                               |                         |
| * Lung                   |  | Infiltration Cellular         | Histiocyte, Mild        |
|                          | [ Infiltration Cellular TGLs = 7 - 4+5 ] |                               |                         |
| * Nose                   | Olfactory Epi                            | Accumulation, Hyaline Droplet | Mild                    |
| * Pancreas               | Acinus                                   | Adenoma                       | Multiple                |
|                          | Acinus                                   | Hyperplasia                   | Marked                  |
|                          |  | Inflammation                  | Chronic Active, Minimal |
|                          | [ Adenoma TGLs = 2,3,4 - 16 ]            |                               |                         |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 340

**TRT#:** 6

**SEX:** Male

**DAY ON TEST:** 746

**DOSE:** 300/40 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101640

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Pituitary Gland

Pars Distalis

Hyperplasia

Mild

\* Spleen

Extramedullary Hematopoiesis

Minimal

Pigment

Minimal

\* Thymus

Atrophy

Moderate

---



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 341

TRT#: 6

SEX: Male

DAY ON TEST: 745

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101641

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Jejunum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Forestomach
- \* Stomach, Glandular
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Seminal Vesicle
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Skin
- \* Urinary Bladder

OBSERVATIONS

- \* Islets, Pancreatic
- \* Kidney
- \* Liver
- Hepatocyte
- Hepatocyte
- [ Fatty Change TGLs = 6 - 19 ]
- [ Mixed Cell Focus TGLs = 7 - 20 ]
- \* Lung
- [ Infiltration Cellular TGLs = 9 - 4+5 ]
- \* Nose
- \* Pancreas
- Olfactory Epi
- Acinus
- Acinus
- Acinus
- [ Adenoma TGLs = 1,3,4,5 - 15+16+17+18 ]
- \* Pituitary Gland
- [ Adenoma TGLs = 10 - 21 ]
- \* Preputial Gland
- [ Inflammation TGLs = 2 - 13 ]
- Hyperplasia
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Fatty Change
- Hypertrophy
- Inflammation
- Mixed Cell Focus
- Pigment
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Adenoma
- Atrophy
- Hyperplasia
- Adenoma
- Inflammation
- Minimal
- Chronicprogr, Mild
- Minimal
- Focal, Minimal
- Minimal
- Focal, Minimal
- Mild
- Histiocyte, Mild
- Mild
- Multiple
- Minimal
- Marked
- Marked

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 341

**TRT#:** 6

**SEX:** Male

**DAY ON TEST:** 745

**DOSE:** 300/40 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101641

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

* Prostate	Epithelium, Ventral	Hyperplasia	Minimal
* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal
* Testes	Bilateral, Germinal Epith	Degeneration	Moderate
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Hyperplasia	Moderate

---



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 343

TRT#: 6

SEX: Male

DAY ON TEST: 260

DOSE: 300/40 ppm

DISP: Natural Death

HISTO: 1101643

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric   | * Mammary Gland           | * Nose                      | * Pancreas               |
| * Parathyroid Gland        | * Pituitary Gland         | * Preputial Gland           | * Prostate               |
| * Salivary Glands          | * Seminal Vesicle         | * Skin                      | * Stomach, Forestomach   |
| * Stomach, Glandular       | * Testes                  | * Thyroid Gland             | * Trachea                |
| * Urinary Bladder          |                           |                             |                          |

OBSERVATIONS

- |          |              |             |                       |
|----------|--------------|-------------|-----------------------|
| * Kidney |              | Nephropathy | Chronicprogr, Minimal |
| * Liver  | Hepatocyte   | Hypertrophy | Mild                  |
| * Spleen | Lymph Follic | Atrophy     | Mild                  |
| * Thymus |              | Atrophy     | Mild                  |

PRIMARY CAUSE OF DEATH

- UNCERTAIN

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 344

TRT#: 6

SEX: Male

DAY ON TEST: 747

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101644

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	* Bone	* Bone Marrow	* Brain
* Epididymis	* Esophagus	* Eye	* Harderian Gland
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Liver
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Parathyroid Gland
* Preputial Gland	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
Blood Vessel		Inflammation	Chronic, Mild
Note: Inflammation involves the cecal, hepatic, rectal, and testicular arteries.			
* Heart		Cardiomyopathy	Mild
* Kidney	Papilla, Urothelium	Hyperplasia	Minimal
		Nephropathy	Chronicprogr, Marked
	[ Nephropathy TGLs = 2 - 6+16 ]		
* Lung		Infiltration Cellular	Histiocyte, Mild
	[ Infiltration Cellular TGLs = 3 - 4+5 ]		
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Hyperplasia	Marked
	[ Adenoma TGLs = 4 - 17 ]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Marked
* Prostate	Epithelium, Ventral	Hyperplasia	Minimal
* Salivary Glands		Schwannoma Malignant	
	[ Schwannoma Malignant TGLs = 1 - 15 ]		
* Spleen		Pigment	Minimal
* Testes	Bilateral, Germinal Epith	Degeneration	Marked
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Adenoma	

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 345

TRT#: 6

SEX: Male

DAY ON TEST: 708

DOSE: 300/40 ppm

DISP: Natural Death

HISTO: 1101645

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Brain
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Salivary Glands
- \* Thyroid Gland
- \* Adrenal Medulla
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Nose
- \* Seminal Vesicle
- \* Trachea
- \* Bone
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Skin
- \* Urinary Bladder
- \* Bone Marrow
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Glandular

MISSING

- \* Epididymis
- \* Preputial Gland
- \* Testes

OBSERVATIONS

- Blood Vessel
- \* Heart
- \* Kidney
- \* Liver
- \* Lung
  - [ Infiltration Cellular TGLs = 1 - 4+5 ]
- \* Lymph Node, Mandibular
- \* Pancreas
- \* Pituitary Gland
  - [ Adenoma TGLs = 2 - 15 ]
- \* Spleen
- \* Stomach, Forestomach
- \* Thymus
- Pulmn Artery
- Mineral
- Cardiomyopathy
- Nephropathy
- Amyloid Deposition
- Infiltration Cellular
- Atrophy
- Hyperplasia
- Adenoma
- Atrophy
- Extramedullary Hematopoiesis
- Pigment
- Hyperplasia
- Atrophy
- Minimal
- Minimal
- Chronicprogr, Minimal
- Mild
- Histiocyte, Mild
- Mild
- Moderate
- Moderate
- Minimal
- Mild
- Basal Cell, Moderate
- Marked

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

**ANIMAL ID:** 346

**TRT#:** 6

**SEX:** Male

**DAY ON TEST:** 744

**DOSE:** 300/40 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101646

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            |
| * Preputial Gland         | * Prostate                  | * Salivary Glands        | * Seminal Vesicle          |
| * Skin                    | * Stomach, Forestomach      | * Stomach, Glandular     | * Trachea                  |
| * Urinary Bladder         |                             |                          |                            |

**MISSING**

- \* Parathyroid Gland

**OBSERVATIONS**

- |   |                                |                               |                         |
|---|--------------------------------|-------------------------------|-------------------------|
| * Heart   |                                | Cardiomyopathy                | Minimal                 |
| * Kidney  |                                | Nephropathy                   | Chronicprogr, Moderate  |
| * Liver   |                                | Clear Cell Focus              |                         |
| * Lung  |                                | Inflammation                  | Chronic Active, Minimal |
| * Nose  | Olfactory Epi                  | Accumulation, Hyaline Droplet | Moderate                |
|   | Respirat Epith                 | Inflammation                  | Minimal                 |
| Note: Inflammation is largely within the nasal passage. |                                |                               |                         |
| * Pancreas  | Acinus                         | Adenoma                       |                         |
|   | Acinus                         | Atrophy                       | Minimal                 |
|   | Duct                           | Degeneration                  | Mucoid, Mild            |
|   | Acinus                         | Hyperplasia                   | Marked                  |
|   |                                | Inflammation                  | Chronic Active, Minimal |
|   | [ Hyperplasia TGLs = 3 - 16 ]  |                               |                         |
| * Pituitary Gland                                       | Pars Distalis                  | Adenoma                       |                         |
|   | [ Adenoma TGLs = 2 - 9 ]       |                               |                         |
| * Spleen  |                                | Extramedullary Hematopoiesis  | Mild                    |
|   |                                | Pigment                       | Minimal                 |
| * Testes  | Germinal Epith                 | Degeneration                  | Moderate                |
|   | [ Degeneration TGLs = 1 - 12 ] |                               |                         |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

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**ANIMAL ID:** 346

**TRT#:** 6

**SEX:** Male

**DAY ON TEST:** 744

**DOSE:** 300/40 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101646

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* Thymus

Atrophy

Moderate

\* Thyroid Gland

Follicular Cel

Hypertrophy

Minimal

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 347

TRT#: 6

SEX: Male

DAY ON TEST: 745

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101647

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| Blood Vessel              | * Bone                      | * Bone Marrow            | * Brain                    |
| * Epididymis              | * Esophagus                 | * Harderian Gland        | * Intestine Large, Cecum   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Lung                    | * Lymph Node, Mesenteric    | * Mammary Gland          | * Preputial Gland          |
| * Prostate                | * Salivary Glands           | * Seminal Vesicle        | * Skin                     |
| * Stomach, Forestomach    | * Stomach, Glandular        | * Testes                 | * Trachea                  |
| * Urinary Bladder         |                             |                          |                            |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                          |                                      |                               |                      |
|--------------------------|--------------------------------------|-------------------------------|----------------------|
| * Adrenal Cortex         |                                      | Hypertrophy                   | Minimal              |
| * Adrenal Medulla        |                                      | Pheochromocytoma Benign       |                      |
| * Eye                    | Cornea                               | Inflammation                  | Mild                 |
| * Heart                  |                                      | Cardiomyopathy                | Mild                 |
| * Intestine Large, Colon |                                      | Parasite Metazoan             |                      |
| * Islets, Pancreatic     |                                      | Hyperplasia                   | Minimal              |
| * Kidney                 |                                      | Nephropathy                   | Chronicprogr, Marked |
| * Liver                  |                                      | Clear Cell Focus              |                      |
|                          |                                      | Inflammation                  | Focal, Minimal       |
|                          | [ Clear Cell Focus TGLs = 3 - 3+18 ] |                               |                      |
| * Lymph Node, Mandibular |                                      | Infiltration Cellular         | Plasma Cell, Mild    |
| * Nose                   | Olfactory Epi                        | Accumulation, Hyaline Droplet | Mild                 |
| * Pancreas               | Acinus                               | Adenoma                       |                      |
|                          | Acinus                               | Atrophy                       | Mild                 |
|                          | Acinus                               | Hyperplasia                   | Marked               |
|                          | [ Hyperplasia TGLs = 1 - 16 ]        |                               |                      |
| * Pituitary Gland        | Pars Distalis                        | Hyperplasia                   | Minimal              |
| * Spleen                 |                                      | Extramedullary Hematopoiesis  | Minimal              |
|                          |                                      | Pigment                       | Minimal              |
| * Thymus                 |                                      | Atrophy                       | Mild                 |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 347

**TRT#:** 6

**SEX:** Male

**DAY ON TEST:** 745

**DOSE:** 300/40 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101647

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thyroid Gland

C Cell

Adenoma

[ Adenoma TGLs = 2 - 17 ]

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 348

TRT#: 6

SEX: Male

DAY ON TEST: 645

DOSE: 300/40 ppm

DISP: Moribund Sacrifice

HISTO: 1101648

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Blood Vessel
- \* Bone
- \* Brain
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Harderian Gland
- \* Heart
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Kidney
- \* Lymph Node, Mandibular
- \* Mammary Gland
- \* Pancreas
- \* Pituitary Gland
- \* Preputial Gland
- \* Prostate
- \* Salivary Glands
- \* Seminal Vesicle
- \* Skin
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Testes
- \* Thyroid Gland
- \* Trachea
- \* Urinary Bladder

MISSING

- \* Parathyroid Gland
- \* Thymus

OBSERVATIONS

- \* Bone Marrow
- Hyperplasia
- Marked
- \* Liver
- Lymphoma Malignant
- Necrosis
- Minimal
- \* Lung
- Infiltration Cellular
- Histiocyte, Minimal
- Lymph Node
- Pancreatic
- Pigment
- Mild
- [ Pigment TGLs = 2 - 16 ]
- \* Lymph Node, Mesenteric
- Lymphoma Malignant
- TGLs = 3 - 17 ]
- \* Nose
- Olfactory Epi
- Accumulation, Hyaline Droplet
- Mild
- \* Spleen
- Lymphoma Malignant
- [ Lymphoma Malignant TGLs = 1 - 15 ]

PRIMARY CAUSE OF DEATH - Spleen Lymphoma Malignant

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 349

TRT#: 6

SEX: Male

DAY ON TEST: 747

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101649

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Harderian Gland
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Cortex	Zona Fascult	Hyperplasia	Minimal
		Hypertrophy	Minimal
* Eye	Retina	Degeneration	Minimal
* Kidney		Nephropathy	Chronicprogr, Mild
* Liver		Clear Cell Focus	
	Hepatocyte	Cytoplasmic Alteration	Mild
	Hepatocyte	Hypertrophy	Mild
		Necrosis	Minimal
* Lung		Infiltration Cellular	Histiocyte, Minimal
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Hyperplasia	Marked
	[ Hyperplasia TGLs = 1 - 15 ]		
* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal
* Thymus		Atrophy	Marked
* Thyroid Gland	C Cell	Adenoma	
	C Cell	Hyperplasia	Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 350

TRT#: 6

SEX: Male

DAY ON TEST: 747

DOSE: 300/40 ppm

DISP: Terminal Sacrifice

HISTO: 1101650

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Prostate
- \* Stomach, Forestomach
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Trachea
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Skin
- \* Urinary Bladder

OBSERVATIONS

- \* Adrenal Cortex
    - Blood Vessel
      - Note: Inflammation involves the testicular arterioles.
  - \* Heart
  - \* Intestine Large, Colon
  - \* Kidney
    - [ Nephropathy TGLs = 2 - 6 ]
  - \* Liver
    - Hepatocyte
    - Hepatocyte
  - \* Lung
    - [ Infiltration Cellular TGLs = 3 - 4+5 ]
  - \* Nose
  - \* Pancreas
    - Acinus
    - Acinus
    - Acinus
  - \* Spleen
    - [ Adenoma TGLs = 1 - 15 ]
  - \* Testes
  - \* Thymus
  - \* Thyroid Gland
- Hypertrophy
  - Inflammation
  - Cardiomyopathy
  - Parasite Metazoan
  - Nephropathy
  - Clear Cell Focus
  - Cytoplasmic Alteration
  - Hypertrophy
  - Infiltration Cellular
  - Accumulation, Hyaline Droplet
  - Adenoma
  - Atrophy
  - Hyperplasia
  - Extramedullary Hematopoiesis
  - Pigment
  - Degeneration
  - Atrophy
  - Adenoma
- Minimal
  - Chronic, Mild
  - Mild
  - Chronicprogr, Moderate
  - Minimal
  - Minimal
  - Histiocyte, Marked
  - Mild
  - Multiple
  - Minimal
  - Marked
  - Mild
  - Minimal
  - Minimal
  - Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 361

TRT#: 7

SEX: Male

DAY ON TEST: 743

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101661

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone Marrow
- \* Eye
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Thyroid Gland
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
    - Blood Vessel
      - Note: Vascular mineral involved mesenteric and renal arteries.
  - \* Heart
  - \* Intestine Large, Colon
  - \* Kidney
  - \* Liver
    - Hepatocyte
      - Hepatocyte
        - [ Hepatocellular Adenoma TGLs = 1 - 15 ]
  - \* Lung
    - [ Infiltration Cellular TGLs = 2 - 4+5 ]
  - \* Nose
    - Olfactory Epi
  - \* Pancreas
    - Acinus
  - \* Pituitary Gland
    - Pars Distalis
  - \* Spleen
  - \* Thymus
- Hypertrophy
  - Mineral
  - Cardiomyopathy
  - Parasite Metazoan
  - Nephropathy
  - Clear Cell Focus
  - Cytoplasmic Alteration
  - Hepatocellular Adenoma
  - Hypertrophy
  - Inflammation
  - Infiltration Cellular
  - Accumulation, Hyaline Droplet
  - Adenoma
  - Hyperplasia
  - Extramedullary Hematopoiesis
  - Atrophy
- Minimal
  - Minimal
  - Minimal
  - Chronicprogr, Mild
  - Minimal
  - Minimal
  - Focal, Minimal
  - Histiocyte, Minimal
  - Mild
  - Minimal
  - Minimal
  - Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 362

TRT#: 7

SEX: Male

DAY ON TEST: 432

DOSE: 0/80 ppm

DISP: Moribund Sacrifice

HISTO: 1101662

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Blood Vessel
- \* Bone
- \* Bone Marrow
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Pancreas
- \* Parathyroid Gland
- \* Pituitary Gland
- \* Preputial Gland
- \* Salivary Glands
- \* Seminal Vesicle
- \* Skin
- \* Spleen
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Testes
- \* Thymus
- \* Thyroid Gland
- \* Trachea
- \* Urinary Bladder

OBSERVATIONS

- \* Brain [ Meningioma Malignant TGLs = 2 - 16 ] Meningioma Malignant
- \* Heart Cardiomyopathy Minimal
- \* Kidney Pelvis Inflammation Mild
- \* Liver Nephropathy Chronicprogr, Minimal
- \* Lung Cytoplasmic Alteration Minimal
- \* Lymph Node, Mandibular Infiltration Cellular Histiocyte, Mild
- \* Nose Atrophy Mild
- \* Prostate Olfactory Epi Accumulation, Hyaline Droplet Mild
- \* Prostate Ventral Inflammation Chronic Active, Marked
- [ Inflammation TGLs = 1 - 15 ]

PRIMARY CAUSE OF DEATH - Brain Meningioma Malignant

CONTRIBUTORY CAUSE OF DEATH - Prostate Ventral Inflammation

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 363

TRT#: 7

SEX: Male

DAY ON TEST: 744

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101663

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Preputial Gland
- \* Seminal Vesicle
- \* Skin
- \* Testes
- \* Trachea
- \* Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Glandular

OBSERVATIONS

- \* Heart: Cardiomyopathy (Minimal)
- \* Intestine Large, Colon: Parasite Metazoan
- \* Kidney: Nephropathy (Chronicprogr, Minimal)
- \* Liver:
  - Clear Cell Focus
  - Hepatocyte: Cytoplasmic Alteration (Mild)
  - Hepatocyte: Hepatocellular Adenoma
  - Hepatocyte: Hypertrophy (Mild)
  - Hepatocyte: Inflammation (Focal, Mild)
  - Hepatocyte: Necrosis (Mild)
  - Hepatocyte: Single Cell Death (Minimal)
- \* Lung: [ Hepatocellular Adenoma TGLs = 1 - 15 ]
  - Infiltration Cellular
  - Inflammation
 (Histiocyte, Moderate; Chronic Active, Minimal)
- \* Nose: [ Infiltration Cellular TGLs = 2 - 4+5 ]
  - Olfactory Epi: Accumulation, Hyaline Droplet (Mild)
  - Respirat Epith: Inflammation (Minimal)
- \* Pancreas: Acinus: Adenoma (Multiple)
  - [ Adenoma TGLs = 3,4 - 16 ]
- \* Spleen: Extramedullary Hematopoiesis (Minimal)
- \* Thymus: Pigment (Minimal); Atrophy (Mild)

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 363

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 744

**DOSE:** 0/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101663

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thyroid Gland

Follicular Cel

Hypertrophy

Mild

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 364

TRT#: 7

SEX: Male

DAY ON TEST: 414

DOSE: 0/80 ppm

DISP: Natural Death

HISTO: 1101664

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Kidney                    | * Lung                   |
| * Lymph Node, Mandibular   | * Lymph Node, Mesenteric  | * Mammary Gland             | * Pancreas               |
| * Parathyroid Gland        | * Pituitary Gland         | * Preputial Gland           | * Prostate               |
| * Salivary Glands          | * Seminal Vesicle         | * Skin                      | * Spleen                 |
| * Stomach, Forestomach     | * Stomach, Glandular      | * Testes                    | * Thyroid Gland          |
| * Trachea                  | * Urinary Bladder         |                             |                          |

OBSERVATIONS

- |          |               |                               |          |
|----------|---------------|-------------------------------|----------|
| * Liver  | Hepatocyte    | Cytoplasmic Alteration        | Mild     |
|          | Hepatocyte    | Hypertrophy                   | Mild     |
|          |               | Necrosis                      | Mild     |
|          |               | Pigment                       | Minimal  |
| * Nose   | Olfactory Epi | Accumulation, Hyaline Droplet | Marked   |
| * Thymus |               | Atrophy                       | Moderate |

PRIMARY CAUSE OF DEATH

- Liver Necrosis

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 365

TRT#: 7

SEX: Male

DAY ON TEST: 194

DOSE: 0/80 ppm

DISP: Natural Death

HISTO: 1101665

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | Blood Vessel               | * Bone                    |
| * Epididymis                | * Esophagus              | * Eye                      | * Harderian Gland         |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           |
| * Nose                      | * Pancreas               | * Parathyroid Gland        | * Pituitary Gland         |
| * Preputial Gland           | * Prostate               | * Salivary Glands          | * Seminal Vesicle         |
| * Skin                      | * Stomach, Forestomach   | * Stomach, Glandular       | * Testes                  |
| * Thyroid Gland             | * Trachea                | * Urinary Bladder          |                           |

OBSERVATIONS

- |               |              |                        |                       |
|---------------|--------------|------------------------|-----------------------|
| * Bone Marrow |              | Hyperplasia            | Mild                  |
| * Brain       |              | Necrosis               | Moderate              |
| * Kidney      |              | Nephropathy            | Chronicprogr, Minimal |
| * Liver       | Hepatocyte   | Cytoplasmic Alteration | Mild                  |
|               | Hepatocyte   | Hypertrophy            | Marked                |
|               | Hepatocyte   | Single Cell Death      | Marked                |
| * Spleen      | Lymph Follic | Atrophy                | Moderate              |
|               |              | Pigment                | Minimal               |
| * Thymus      |              | Atrophy                | Minimal               |

PRIMARY CAUSE OF DEATH - Liver Hepatocyte Single Cell Death

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 366

TRT#: 7

SEX: Male

DAY ON TEST: 745

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101666

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Nose	* Parathyroid Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Thyroid Gland	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Mild
* Heart		Cardiomyopathy	Minimal
* Kidney		Infarct	Minimal
		Nephropathy	Chronicprogr, Minimal
* Liver	Hepatocyte	Cytoplasmic Alteration	Mild
	Hepatocyte	Hypertrophy	Mild
		Inflammation	Focal, Minimal
		Necrosis	Minimal
		Pigment	Marked
* Pancreas	Hepatocyte	Single Cell Death	Minimal
	Acinus	Adenoma	Multiple
	Acinus	Hyperplasia	Moderate
	[ Adenoma TGLs = 1 - 15 ]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Spleen		Extramedullary Hematopoiesis	Minimal
* Testes	Bilateral, Germinal Epith	Degeneration	Mild
* Thymus		Atrophy	Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 367

TRT#: 7

SEX: Male

DAY ON TEST: 747

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101667

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Islets, Pancreatic
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Prostate
- \* Skin
- \* Stomach, Forestomach
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Trachea

OBSERVATIONS

- \* Heart
- \* Kidney
- \* Liver
- \* Lung
- \* Lymph Node, Mandibular
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Spleen
- \* Testes
- \* Thymus
- \* Thyroid Gland
- Hepatocyte
- Hepatocyte
- [ Infiltration Cellular TGLs = 1 - 15+16 ]
- Olfactory Epi
- Acinus
- Acinus
- [ Adenoma TGLs = 2,3 - 17 ]
- Pars Distalis
- Germinal Epith
- C Cell
- Cardiomyopathy
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Hypertrophy
- Inflammation
- Infiltration Cellular
- Inflammation
- Atrophy
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Degeneration
- Atrophy
- Adenoma
- Minimal
- Chronicprogr, Mild
- Mild
- Minimal
- Focal, Minimal
- Histiocyte, Moderate
- Chronic Active, Minimal
- Mild
- Minimal
- Multiple
- Moderate
- Minimal
- Minimal
- Minimal
- Minimal
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 368

TRT#: 7

SEX: Male

DAY ON TEST: 747

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101668

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

Blood Vessel	* Bone	* Bone Marrow	* Brain
* Epididymis	* Esophagus	* Eye	* Harderian Gland
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Adenoma	
		Hypertrophy	Minimal
* Adrenal Medulla		Hyperplasia	Minimal
* Kidney		Nephropathy	Chronicprogr, Minimal
* Liver		Clear Cell Focus	
	Hepatocyte	Cytoplasmic Alteration	Mild
		Degeneration	Cystic, Mild
	Hepatocyte	Hypertrophy	Minimal
		Inflammation	Focal, Minimal
		Necrosis	Minimal
		Pigment	Minimal
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Hyperplasia	Marked
	[ Adenoma TGLs = 1,2,3,4,5 - 15 ]		
* Spleen		Extramedullary Hematopoiesis	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Adenoma	
	Follicular Cel	Hypertrophy	Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 369

TRT#: 7

SEX: Male

DAY ON TEST: 747

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101669

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            |
| * Parathyroid Gland       | * Preputial Gland           | * Prostate               | * Salivary Glands          |
| * Seminal Vesicle         | * Skin                      | * Stomach, Forestomach   | * Stomach, Glandular       |
| * Testes                  | * Thyroid Gland             | * Trachea                | * Urinary Bladder          |

OBSERVATIONS

- |                   |   |                               |                       |
|-------------------|---|-------------------------------|-----------------------|
| * Heart           |   | Cardiomyopathy                | Minimal               |
|                   | Valve   | Degeneration                  | Minimal               |
| * Kidney          |   | Nephropathy                   | Chronicprogr, Minimal |
| * Liver           |   | Clear Cell Focus              |                       |
|                   | Hepatocyte  | Cytoplasmic Alteration        | Mild                  |
|                   |   | Hepatocellular Adenoma        | Multiple              |
|                   | Hepatocyte  | Hypertrophy                   | Minimal               |
|                   |   | Inflammation                  | Focal, Minimal        |
|                   |   | Necrosis                      | Minimal               |
|                   |   | Pigment                       | Mild                  |
|                   | [ Hepatocellular Adenoma TGLs = 1, 2, 3 - 15 + 16 ] |                               |                       |
| * Lung            |   | Infiltration Cellular         | Histiocyte, Mild      |
|                   | [ Infiltration Cellular TGLs = 4 - 4+5 ]            |                               |                       |
| * Nose            | Olfactory Epi                                       | Accumulation, Hyaline Droplet | Mild                  |
| * Pancreas        | Acinus  | Atrophy                       | Minimal               |
| * Pituitary Gland | Pars Distalis                                       | Hyperplasia                   | Minimal               |
| * Spleen          |   | Extramedullary Hematopoiesis  | Minimal               |
|                   |   | Pigment                       | Minimal               |
| * Thymus          |   | Atrophy                       | Mild                  |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 370

TRT#: 7

SEX: Male

DAY ON TEST: 747

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101670

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Nose
- \* Salivary Glands
- \* Testes
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Trachea
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Mammary Gland
- \* Prostate
- \* Stomach, Glandular

OBSERVATIONS

- \* Adrenal Cortex
  - Adenoma
  - Hypertrophy
  - Inflammation
- Blood Vessel
  - Inflammation

Note: Vascular inflammation involves pancreatic and testicular arteries and arterioles.
- \* Heart
  - Cardiomyopathy
- \* Kidney
  - Nephropathy
- \* Liver
  - Clear Cell Focus
  - Hepatocyte
    - Cytoplasmic Alteration
    - Degeneration
  - Hepatocyte
    - Hypertrophy
  - Alveolar Epith
    - Hyperplasia
    - Infiltration Cellular
  - Acinus
    - Hyperplasia
  - Acinus
    - Adenoma
  - Acinus
    - Atrophy
  - Acinus
    - Hyperplasia
    - Inflammation
- \* Lung
  - Minimal
- \* Lymph Node, Mandibular
  - Chronic, Mild
- \* Lymph Node, Mesenteric
  - Minimal
- \* Pancreas
  - Plasma Cell, Minimal
  - Lymphoid, Mild
- \* Pituitary Gland
  - [ Hyperplasia TGLs = 2 - 16 ]
  - Pars Distalis
    - Hyperplasia
- \* Skin
  - [ Keratoacanthoma TGLs = 1 - 15 ]
  - Keratoacanthoma
- \* Spleen
  - Extramedullary Hematopoiesis
  - Minimal

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 370

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 747

**DOSE:** 0/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101670

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thymus

Atrophy

Moderate

\* Thyroid Gland

Follicular Cel

Hypertrophy

Mild

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 371

TRT#: 7

SEX: Male

DAY ON TEST: 108

DOSE: 0/80 ppm

DISP: Natural Death

HISTO: 1101671

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex         | * Adrenal Medulla          | Blood Vessel              | * Bone                      |
| * Epididymis             | * Esophagus                | * Eye                     | * Harderian Gland           |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lung                      |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           | * Nose                      |
| * Pancreas               | * Pituitary Gland          | * Preputial Gland         | * Salivary Glands           |
| * Seminal Vesicle        | * Skin                     | * Stomach, Forestomach    | * Stomach, Glandular        |
| * Testes                 | * Thymus                   | * Thyroid Gland           | * Trachea                   |
| * Urinary Bladder        |                            |                           |                             |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |               |              |                        |                         |
|---------------|--------------|------------------------|-------------------------|
| * Bone Marrow |              | Hyperplasia            | Mild                    |
| * Brain       |              | Necrosis               | Marked                  |
| * Heart       | Myocardium   | Hemorrhage             | Mild                    |
| * Kidney      |              | Nephropathy            | Chronicprogr, Minimal   |
| * Liver       | Hepatocyte   | Cytoplasmic Alteration | Minimal                 |
|               | Hepatocyte   | Hypertrophy            | Mild                    |
|               | Hepatocyte   | Single Cell Death      | Moderate                |
| * Prostate    | Ventral      | Inflammation           | Chronic Active, Minimal |
| * Spleen      | Lymph Follic | Atrophy                | Mild                    |

PRIMARY CAUSE OF DEATH - Liver Hepatocyte Single Cell Death

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 372

TRT#: 7

SEX: Male

DAY ON TEST: 701

DOSE: 0/80 ppm

DISP: Natural Death

HISTO: 1101672

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex         | * Adrenal Medulla          | * Bone                    | * Bone Marrow               |
| * Brain                  | * Epididymis               | * Esophagus               | * Harderian Gland           |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lung                      |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           | * Nose                      |
| * Pancreas               | * Parathyroid Gland        | * Pituitary Gland         | * Preputial Gland           |
| * Salivary Glands        | * Seminal Vesicle          | * Stomach, Forestomach    | * Stomach, Glandular        |
| * Testes                 | * Thyroid Gland            | * Trachea                 | * Urinary Bladder           |

OBSERVATIONS

- |  |                                |                              |                         |
|--|--------------------------------|------------------------------|-------------------------|
| Blood Vessel   |                                | Mineral                      | Minimal                 |
| Note: Vascular mineral affects pulmonary artery and aorta. |                                |                              |                         |
| * Eye  | Cornea                         | Inflammation                 | Minimal                 |
| * Heart  |                                | Cardiomyopathy               | Mild                    |
| * Kidney   |                                | Nephropathy                  | Chronicprogr, Mild      |
| * Liver  | Hepatocyte                     | Cytoplasmic Alteration       | Minimal                 |
|  |                                | Eosinophilic Focus           |                         |
| * Prostate   | Ventral                        | Inflammation                 | Chronic Active, Minimal |
| * Skin   |                                | Foreign Body                 |                         |
|  |                                | Inflammation                 | Mild                    |
|  |                                | Ulcer                        | Minimal                 |
|  | [ Inflammation TGLs = 1 - 15 ] |                              |                         |
| * Spleen   |                                | Extramedullary Hematopoiesis | Minimal                 |
|  |                                | Pigment                      | Minimal                 |
| * Thymus   |                                | Atrophy                      | Moderate                |

PRIMARY CAUSE OF DEATH - UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 373

TRT#: 7

SEX: Male

DAY ON TEST: 745

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101673

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Salivary Glands
- \* Seminal Vesicle
- \* Stomach, Glandular
- \* Testes
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lung
- \* Preputial Gland
- \* Skin
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- \* Kidney
  - Renal Tubule
    - Adenoma
    - Nephropathy
  - [ Adenoma TGLs = 4 - 17 ]
- \* Liver
  - Hepatocyte
    - Clear Cell Focus
    - Cytoplasmic Alteration
    - Eosinophilic Focus
    - Hepatocellular Adenoma
    - Hypertrophy
    - Inflammation
    - Necrosis
    - Pigment
  - Hepatocyte
    - Chronicprogr, Minimal
    - Mild
    - Multiple
    - Minimal
    - Focal, Minimal
    - Minimal
    - Mild
  - [ Hepatocellular Adenoma TGLs = 2,3 - 3+16 ]
- \* Nose
  - Olfactory Epi
    - Accumulation, Hyaline Droplet
- \* Pancreas
  - Acinus
    - Adenoma
    - Hyperplasia
  - Acinus
    - Multiple
    - Marked
  - [ Adenoma TGLs = 1 - 15 ]
- \* Pituitary Gland
  - Pars Distalis
    - Hyperplasia
- \* Spleen
  - Pigment
    - Minimal
- \* Thymus
  - Atrophy
    - Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 373

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 745

**DOSE:** 0/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101673

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thyroid Gland

C Cell

Adenoma

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 374

TRT#: 7

SEX: Male

DAY ON TEST: 473

DOSE: 0/80 ppm

DISP: Moribund Sacrifice

HISTO: 1101674

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Pancreas
- \* Prostate
- \* Stomach, Glandular
- \* Bone Marrow
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Salivary Glands
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
- \* Eye
  - Note: Schwannoma invasive from skin.
  - [ Schwannoma Malignant TGLs = 1 - 15 ]
- \* Harderian Gland
  - Note: Schwannoma invasive from skin.
- \* Kidney
- \* Liver
- \* Lung
- \* Nose
- \* Skin
  - [ Schwannoma Malignant TGLs = 2 - 16 ]
- \* Spleen
- \* Testes
- \* Thymus
- Hypertrophy
- Schwannoma Malignant
- Schwannoma Malignant
- Nephropathy
- Cytoplasmic Alteration
- Hypertrophy
- Inflammation
- Necrosis
- Pigment
- Single Cell Death
- Infiltration Cellular
- Inflammation
- Accumulation, Hyaline Droplet
- Schwannoma Malignant
- Extramedullary Hematopoiesis
- Degeneration
- Atrophy
- Minimal
- Metastatic (Skin)
- Metastatic (Skin)
- Chronicprogr, Minimal
- Mild
- Mild
- Focal, Minimal
- Mild
- Minimal
- Minimal
- Histiocyte, Moderate
- Multifocal, Granulomatous, Minimal
- Moderate
- Mild
- Minimal
- Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

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**ANIMAL ID:** 374

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 473

**DOSE:** 0/80 ppm

**DISP:** Moribund Sacrifice

**HISTO:** 1101674

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thyroid Gland

Follicular Cel

Hypertrophy

Moderate

---

PRIMARY CAUSE OF DEATH

- Skin Subcut Tiss Schwannoma Malignant

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 375

TRT#: 7

SEX: Male

DAY ON TEST: 745

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101675

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | * Bone                   | * Bone Marrow              |
| * Brain                   | * Epididymis                | * Esophagus              | * Eye                      |
| * Harderian Gland         | * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            |
| * Preputial Gland         | * Prostate                  | * Salivary Glands        | * Seminal Vesicle          |
| * Skin                    | * Stomach, Forestomach      | * Stomach, Glandular     | * Testes                   |
| * Trachea                 | * Urinary Bladder           |                          |                            |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |  |  |                               |                       |
|--|--|-------------------------------|-----------------------|
| Blood Vessel                                       |  | Mineral                       | Minimal               |
| Note: Vascular mineral involves mesenteric artery. |  |                               |                       |
| * Kidney   |  | Nephropathy                   | Chronicprogr, Minimal |
| * Liver  |  | Clear Cell Focus              |                       |
|  | Hepatocyte                               | Cytoplasmic Alteration        | Mild                  |
|  |  | Degeneration                  | Cystic, Minimal       |
|  |  | Eosinophilic Focus            |                       |
|  | Hepatocyte                               | Hypertrophy                   | Minimal               |
|  |  | Inflammation                  | Focal, Minimal        |
|  |  | Mixed Cell Focus              |                       |
|  |  | Pigment                       | Minimal               |
|  | [ Mixed Cell Focus TGLs = 2 - 16 ]       |                               |                       |
| * Lung   |  | Infiltration Cellular         | Histiocyte, Moderate  |
|  | [ Infiltration Cellular TGLs = 3 - 4+5 ] |                               |                       |
| * Nose   | Olfactory Epi                            | Accumulation, Hyaline Droplet | Minimal               |
| * Pancreas   | Acinus                                   | Hyperplasia                   | Marked                |
|  | [ Hyperplasia TGLs = 1 - 15 ]            |                               |                       |
| * Pituitary Gland                                  | Pars Distalis                            | Hyperplasia                   | Minimal               |
| * Spleen   |  | Extramedullary Hematopoiesis  | Mild                  |

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 375

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 745

**DOSE:** 0/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101675

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* Thymus

Atrophy

Marked

\* Thyroid Gland

Follicular Cel

Hypertrophy

Minimal

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 376

TRT#: 7

SEX: Male

DAY ON TEST: 745

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101676

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | Blood Vessel               | * Bone                    |
| * Bone Marrow               | * Brain                  | * Epididymis               | * Esophagus               |
| * Eye                       | * Harderian Gland        | * Intestine Large, Cecum   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           |
| * Parathyroid Gland         | * Pituitary Gland        | * Preputial Gland          | * Prostate                |
| * Salivary Glands           | * Seminal Vesicle        | * Skin                     | * Stomach, Forestomach    |
| * Stomach, Glandular        | * Trachea                | * Urinary Bladder          |                           |

OBSERVATIONS

- |                          |                                |                               |                       |
|--------------------------|--------------------------------|-------------------------------|-----------------------|
| * Heart                  |                                | Cardiomyopathy                | Minimal               |
| * Intestine Large, Colon |                                | Parasite Metazoan             |                       |
| * Kidney                 |                                | Nephropathy                   | Chronicprogr, Minimal |
| * Liver                  |                                | Clear Cell Focus              |                       |
|                          | Hepatocyte                     | Cytoplasmic Alteration        | Minimal               |
|                          | Hepatocyte                     | Hypertrophy                   | Minimal               |
|                          |                                | Pigment                       | Marked                |
| * Nose                   | Olfactory Epi                  | Accumulation, Hyaline Droplet | Mild                  |
| * Pancreas               | Acinus                         | Adenoma                       | Multiple              |
|                          | Acinus                         | Atrophy                       | Minimal               |
|                          | Acinus                         | Hyperplasia                   | Mild                  |
|                          | [ Adenoma TGLs = 1,3 - 15+16 ] |                               |                       |
| * Spleen                 |                                | Extramedullary Hematopoiesis  | Minimal               |
|                          |                                | Pigment                       | Minimal               |
| * Testes                 | Bilateral, Germinal Epith      | Degeneration                  | Marked                |
|                          | [ Degeneration TGLs = 2 - 12 ] |                               |                       |
| * Thymus                 |                                | Atrophy                       | Mild                  |
| * Thyroid Gland          | C Cell                         | Hyperplasia                   | Minimal               |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 377

TRT#: 7

SEX: Male

DAY ON TEST: 456

DOSE: 0/80 ppm

DISP: Natural Death

HISTO: 1101677

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Blood Vessel
- \* Bone
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Cecum
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Lung
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Pancreas
- \* Pituitary Gland
- \* Preputial Gland
- \* Prostate
- \* Seminal Vesicle
- \* Skin
- \* Spleen
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Testes
- \* Trachea
- \* Urinary Bladder

MISSING

- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Salivary Glands
- \* Thymus
- \* Thyroid Gland

OBSERVATIONS

- \* Bone Marrow
- Hyperplasia
- Mild
- \* Brain
- Inflammation
- Minimal
- \* Heart
- Myocardium
- Inflammation
- Moderate
- Valve
- Thrombus
- Mild
- Note: Septic valvular endocarditis.
- \* Intestine Large, Colon
- Parasite Metazoan
- \* Kidney
- Cortex
- Inflammation
- Mild
- \* Liver
- Hepatocyte
- Cytoplasmic Alteration
- Minimal
- Hepatocyte
- Single Cell Death
- Mild
- \* Nose
- Olfactory Epi
- Accumulation, Hyaline Droplet
- Mild

PRIMARY CAUSE OF DEATH - UNCERTAIN

Animal Note: In all organs with diagnosed inflammation, inflammation is associated with bacterial colonies.

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 378

TRT#: 7

SEX: Male

DAY ON TEST: 743

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101678

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Islets, Pancreatic
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Preputial Gland
- \* Skin
- \* Stomach, Forestomach
- \* Trachea
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Intestine Large, Colon
- \* Kidney
- \* Liver
- Hepatocyte
- Hepatocyte
- Hepatocyte
- [ Hepatocellular Adenoma TGLs = 2 - 16 ]
- \* Lung
- \* Lymph Node, Mandibular
- \* Nose
- \* Pancreas
- [ Adenoma TGLs = 1 - 15 ]
- \* Prostate
- \* Spleen
- Parasite Metazoan
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Degeneration
- Hepatocellular Adenoma
- Hypertrophy
- Inflammation
- Pigment
- Single Cell Death
- Inflammation
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Adenoma
- Atrophy
- Hyperplasia
- Adenoma
- Hyperplasia
- Extramedullary Hematopoiesis
- Chronicprogr, Mild
- Mild
- Cystic, Minimal
- Mild
- Focal, Minimal
- Minimal
- Minimal
- Multifocal, Granulomatous, Minimal
- Plasma Cell, Mild
- Mild
- Multiple
- Minimal
- Marked
- Mild
- Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 378

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 0/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101678

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

* Thymus		Pigment	Minimal
		Atrophy	Moderate
* Thyroid Gland	Follicular Cel	Hypertrophy	Minimal

---



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 379

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 746

**DOSE:** 0/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101679

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Pancreas

Acinus

Hyperplasia

Minimal

\* Thymus

Atrophy

Marked

---





Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 381

TRT#: 7

SEX: Male

DAY ON TEST: 726

DOSE: 0/80 ppm

DISP: Natural Death

HISTO: 1101681

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Islets, Pancreatic
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Skin
- \* Testes
- \* Trachea
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular

OBSERVATIONS

- \* Heart
- \* Kidney
- \* Liver
- Hepatocyte
- Hepatocyte
- [ Carcinoma TGLs = 2,3,4 - 3+16+17 ]
- \* Lung
- [ Infiltration Cellular TGLs = 5 - 4+5 ]
- \* Nose
- \* Pancreas
- [ Carcinoma TGLs = 1 - 15 ]
- \* Prostate
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Cardiomyopathy
- Nephropathy
- Carcinoma
- Cytoplasmic Alteration
- Degeneration
- Hypertrophy
- Mixed Cell Focus
- Pigment
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Adenoma
- Carcinoma
- Hyperplasia
- Atrophy
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Adenoma
- Minimal
- Chronicprogr, Minimal
- Metastatic (Pancreas)
- Mild
- Cystic, Minimal
- Mild
- Mild
- Histiocyte, Minimal
- Minimal
- Multiple
- Minimal
- Minimal
- Minimal
- Minimal
- Moderate

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20614 - 02

**Test Type:** CHRONIC

**Route:** DOSED FEED

**Species/Strain:** RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

**CAS Number:** 335-67-1

**Date Report Requested:** 07/24/2018

**Time Report Requested:** 12:59:13

**First Dose M/F:** 07/27/09 / NA

**Lab:** BAT

---

**ANIMAL ID:** 381

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 726

**DOSE:** 0/80 ppm

**DISP:** Natural Death

**HISTO:** 1101681

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

PRIMARY CAUSE OF DEATH

- Pancreas Acinus Carcinoma

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 382

TRT#: 7

SEX: Male

DAY ON TEST: 746

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101682

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Blood Vessel
- \* Bone
- \* Bone Marrow
- \* Brain
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Heart
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Parathyroid Gland
- \* Pituitary Gland
- \* Preputial Gland
- \* Prostate
- \* Salivary Glands
- \* Seminal Vesicle
- \* Skin
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Testes
- \* Trachea
- \* Urinary Bladder

OBSERVATIONS

- \* Harderian Gland
- \* Kidney
- \* Liver
- Hepatocyte
- Hepatocyte
- Hepatocyte
- [ Basophilic Focus TGLs = 2 - 17 ]
- \* Lung
- [ Infiltration Cellular TGLs = 3 - 4+5 ]
- \* Nose
- \* Pancreas
- [ Adenoma TGLs = 1 - 15 ]
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Hyperplasia
- Nephropathy
- Basophilic Focus
- Clear Cell Focus
- Cytoplasmic Alteration
- Hypertrophy
- Inflammation
- Pigment
- Single Cell Death
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Pigment
- Atrophy
- Adenoma
- Minimal
- Chronicprogr, Minimal
- Mild
- Mild
- Focal, Minimal
- Moderate
- Minimal
- Histiocyte, Moderate
- Minimal
- Minimal
- Minimal
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 383

TRT#: 7

SEX: Male

DAY ON TEST: 745

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101683

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Harderian Gland
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Parathyroid Gland	* Preputial Gland	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Trachea	* Urinary Bladder		

OBSERVATIONS

* Adrenal Medulla		Hyperplasia	Minimal
* Eye	Retina	Degeneration	Minimal
* Kidney		Nephropathy	Chronicprogr, Minimal
* Liver		Clear Cell Focus	
		Inflammation	Focal, Minimal
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Minimal
* Pancreas	Acinus	Hyperplasia	Marked
* Pituitary Gland	Pars Distalis	Adenoma	
	[ Adenoma TGLs = 1 - 9 ]		
* Prostate	Lateral	Inflammation	Chronic Active, Minimal
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	Follicular Cel	Hypertrophy	Mild

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 384

TRT#: 7

SEX: Male

DAY ON TEST: 745

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101684

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Nose
- \* Preputial Gland
- \* Prostate
- \* Skin
- \* Stomach, Forestomach
- \* Trachea
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone
- \* Esophagus
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Testes

MISSING

- \* Harderian Gland

OBSERVATIONS

- \* Heart
- \* Intestine Large, Colon
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
- \* Lung
- \* Pancreas
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Cardiomyopathy
- Parasite Metazoan
- Adenoma
- Nephropathy
- Clear Cell Focus
- Hepatocyte
- Hepatocyte
- Hepatocyte
- Cytoplasmic Alteration
- Hypertrophy
- Inflammation
- Pigment
- Single Cell Death
- Infiltration Cellular
- Adenoma
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Hyperplasia
- Mild
- Chronicprogr, Minimal
- Mild
- Minimal
- Focal, Minimal
- Mild
- Minimal
- Histiocyte, Moderate
- Multiple
- Mild
- Minimal
- Minimal
- Marked
- Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 385

TRT#: 7

SEX: Male

DAY ON TEST: 744

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101685

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

MISSING

- \* Parathyroid Gland

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Kidney		Nephropathy	Chronicprogr, Minimal
* Liver		Clear Cell Focus	
	Hepatocyte	Cytoplasmic Alteration	Mild
	Hepatocyte	Eosinophilic Focus	
		Hypertrophy	Minimal
		Inflammation	Focal, Minimal
		Pigment	Marked
* Nose	Hepatocyte	Single Cell Death	Minimal
* Pancreas	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
	Acinus	Adenoma	Multiple
	Acinus	Hyperplasia	Marked
	[ Adenoma TGLs = 2,3 - 15+16 ]		
* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal
* Thymus		Atrophy	Minimal
* Thyroid Gland	C Cell	Adenoma	
	Follicular Cel	Hypertrophy	Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 386

TRT#: 7

SEX: Male

DAY ON TEST: 744

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101686

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone
- \* Bone Marrow
- \* Brain
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Lung
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Parathyroid Gland
- \* Preputial Gland
- \* Prostate
- \* Salivary Glands
- \* Seminal Vesicle
- \* Skin
- \* Stomach, Forestomach
- \* Testes
- \* Thyroid Gland
- \* Trachea
- \* Urinary Bladder

OBSERVATIONS

- Blood Vessel Inflammation Mild
  - Note: Vascular inflammation affects a large artery that was near the adrenal, in B09 (possible renal artery).
- \* Heart Cardiomyopathy Mild
- \* Kidney Nephropathy Chronicprogr, Mild
- \* Liver
  - Clear Cell Focus
  - Hepatocyte Cytoplasmic Alteration Mild
  - Hepatocyte Hypertrophy Mild
  - Pigment Moderate
  - Hepatocyte Single Cell Death Minimal
  - \* Nose Olfactory Epi Accumulation, Hyaline Droplet Mild
  - \* Pancreas
    - Acinus Adenoma
    - Acinus Atrophy Moderate
    - Acinus Carcinoma
    - Inflammation Chronic Active, Moderate
- [ Carcinoma TGLs = 1 - 15 ]
- \* Pituitary Gland Pars Distalis Hyperplasia Moderate
- \* Spleen Extramedullary Hematopoiesis Minimal
- \* Stomach, Glandular Inflammation Minimal
- \* Thymus Atrophy Marked

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 387

TRT#: 7

SEX: Male

DAY ON TEST: 744

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101687

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Islets, Pancreatic
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Preputial Gland
- \* Skin
- \* Stomach, Glandular
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Salivary Glands
- \* Testes
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Seminal Vesicle
- \* Trachea

OBSERVATIONS

- \* Heart
  - Cardiomyopathy Minimal
  - Valve Degeneration Minimal
- \* Kidney
  - Nephropathy Chronicprogr, Moderate
  - [ Nephropathy TGLs = 5 - 6 ]
- \* Liver
  - Hepatocyte
    - Clear Cell Focus
    - Cytoplasmic Alteration Mild
    - Hepatocellular Adenoma
    - Hepatocyte
      - Hypertrophy Minimal
      - Inflammation Focal, Minimal
      - Pigment Minimal
      - Single Cell Death Minimal
  - Hepatocyte
    - [ Hepatocellular Adenoma TGLs = 4 - 17 ]
- \* Lung
  - Infiltration Cellular
    - Histiocyte, Mild
    - Inflammation Chronic Active, Minimal
  - [ Infiltration Cellular TGLs = 6 - 4+5 ]
- \* Nose
  - Olfactory Epi
    - Accumulation, Hyaline Droplet Mild
- \* Pancreas
  - Acinus
    - Adenoma Multiple
    - Acinus
      - Hyperplasia Marked
  - [ Adenoma TGLs = 1,2,3 - 15+16 ]
- \* Pituitary Gland
  - Pars Distalis
    - Hyperplasia Marked
- \* Prostate
  - Ventral
    - Inflammation Chronic Active, Minimal

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 387

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 744

**DOSE:** 0/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101687

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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* Spleen		Extramedullary Hematopoiesis	Minimal
* Stomach, Forestomach	Epithelium	Hyperplasia	Squamous, Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Hyperplasia	Minimal

---



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 389

TRT#: 7

SEX: Male

DAY ON TEST: 478

DOSE: 0/80 ppm

DISP: Natural Death

HISTO: 1101689

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla         | Blood Vessel                | * Bone                   | * Bone Marrow              |
| * Brain                   | * Epididymis                | * Esophagus              | * Eye                      |
| * Harderian Gland         | * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            |
| * Pituitary Gland         | * Preputial Gland           | * Prostate               | * Salivary Glands          |
| * Seminal Vesicle         | * Skin                      | * Stomach, Glandular     | * Testes                   |
| * Thyroid Gland           | * Trachea                   | * Urinary Bladder        |                            |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                        |               |                               |                       |
|------------------------|---------------|-------------------------------|-----------------------|
| * Adrenal Cortex       |               | Hypertrophy                   | Minimal               |
| * Kidney               |               | Nephropathy                   | Chronicprogr, Minimal |
| * Liver                | Hepatocyte    | Cytoplasmic Alteration        | Minimal               |
|                        |               | Necrosis                      | Mild                  |
| * Lung                 |               | Infiltration Cellular         | Histiocyte, Mild      |
| * Nose                 | Olfactory Epi | Accumulation, Hyaline Droplet | Minimal               |
| * Pancreas             | Acinus        | Hyperplasia                   | Minimal               |
| * Spleen               |               | Pigment                       | Minimal               |
| * Stomach, Forestomach |               | Inflammation                  | Minimal               |
| * Thymus               |               | Atrophy                       | Mild                  |

PRIMARY CAUSE OF DEATH - Liver Necrosis

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 390

TRT#: 7

SEX: Male

DAY ON TEST: 161

DOSE: 0/80 ppm

DISP: Natural Death

HISTO: 1101690

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Epididymis                | * Esophagus              | * Eye                      |
| * Harderian Gland         | * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   |
| * Mammary Gland           | * Nose                      | * Pancreas               | * Parathyroid Gland        |
| * Pituitary Gland         | * Preputial Gland           | * Prostate               | * Salivary Glands          |
| * Seminal Vesicle         | * Skin                      | * Stomach, Forestomach   | * Stomach, Glandular       |
| * Testes                  | * Thyroid Gland             | * Trachea                | * Urinary Bladder          |

OBSERVATIONS

- |          |              |                        |                       |
|----------|--------------|------------------------|-----------------------|
| * Brain  |              | Necrosis               | Moderate              |
| * Kidney |              | Nephropathy            | Chronicprogr, Minimal |
| * Liver  | Hepatocyte   | Cytoplasmic Alteration | Minimal               |
|          | Hepatocyte   | Single Cell Death      | Moderate              |
| * Spleen | Lymph Follic | Atrophy                | Mild                  |
| * Thymus |              | Atrophy                | Minimal               |

PRIMARY CAUSE OF DEATH - Liver Hepatocyte Single Cell Death

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 391

TRT#: 7

SEX: Male

DAY ON TEST: 743

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101691

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Lung
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Nose
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Heart		Cardiomyopathy	Minimal
* Islets, Pancreatic		Hyperplasia	Moderate
* Kidney		Infarct	Minimal
		Nephropathy	Chronicprogr, Mild
* Liver	Hepatocyte	Cytoplasmic Alteration	Mild
	Hepatocyte	Hypertrophy	Minimal
		Inflammation	Focal, Minimal
		Pigment	Minimal
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Hyperplasia	Marked
	[ Adenoma TGLs = 1 - 15 ]		
* Salivary Glands		Atrophy	Mild
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Thymus		Atrophy	Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 392

TRT#: 7

SEX: Male

DAY ON TEST: 478

DOSE: 0/80 ppm

DISP: Moribund Sacrifice

HISTO: 1101692

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Brain                   | * Epididymis                | * Esophagus              | * Eye                      |
| * Harderian Gland         | * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lung                      | * Mammary Gland          | * Pancreas                 |
| * Parathyroid Gland       | * Pituitary Gland           | * Prostate               | * Salivary Glands          |
| * Seminal Vesicle         | * Skin                      | * Stomach, Forestomach   | * Stomach, Glandular       |
| * Testes                  | * Thyroid Gland             | * Trachea                | * Urinary Bladder          |

OBSERVATIONS

- |                          |                              |                               |                       |
|--------------------------|------------------------------|-------------------------------|-----------------------|
| * Bone Marrow            |                              | Hyperplasia                   | Marked                |
| * Kidney                 |                              | Nephropathy                   | Chronicprogr, Minimal |
| * Liver                  | Hepatocyte                   | Cytoplasmic Alteration        | Mild                  |
|                          | Hepatocyte                   | Hypertrophy                   | Mild                  |
|                          |                              | Leukemia Mononuclear          |                       |
| * Lymph Node, Mandibular |                              | Leukemia Mononuclear          |                       |
| * Lymph Node, Mesenteric |                              | Leukemia Mononuclear          |                       |
| * Nose                   | Olfactory Epi                | Accumulation, Hyaline Droplet | Moderate              |
| * Preputial Gland        |                              | Inflammation                  | Moderate              |
| * Spleen                 |                              | Hemorrhage                    | Marked                |
|                          |                              | Leukemia Mononuclear          |                       |
|                          | [ Hemorrhage TGLs = 1 - 15 ] |                               |                       |
| * Thymus                 |                              | Atrophy                       | Moderate              |

PRIMARY CAUSE OF DEATH - Spleen Leukemia Mononuclear

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 393

TRT#: 7

SEX: Male

DAY ON TEST: 743

DOSE: 0/80 ppm

DISP: Natural Death

HISTO: 1101693

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            |
| * Parathyroid Gland       | * Preputial Gland           | * Salivary Glands        | * Seminal Vesicle          |
| * Skin                    | * Stomach, Forestomach      | * Stomach, Glandular     | * Testes                   |
| * Thyroid Gland           | * Trachea                   | * Urinary Bladder        |                            |

OBSERVATIONS

- |                   |  |                               |                        |
|-------------------|--|-------------------------------|------------------------|
| * Heart           |  | Cardiomyopathy                | Mild                   |
| * Kidney          |  | Nephropathy                   | Chronicprogr, Minimal  |
| * Liver           | Hepatocyte                               | Cytoplasmic Alteration        | Mild                   |
|                   | Hepatocyte                               | Hypertrophy                   | Mild                   |
|                   |  | Inflammation                  | Focal, Minimal         |
|                   |  | Necrosis                      | Minimal                |
|                   |  | Pigment                       | Minimal                |
| * Lung            |  | Infiltration Cellular         | Histiocyte, Minimal    |
|                   | [ Infiltration Cellular TGLs = 1 - 4+5 ] |                               |                        |
| * Nose            | Olfactory Epi                            | Accumulation, Hyaline Droplet | Mild                   |
| * Pancreas        | Acinus                                   | Adenoma                       |                        |
|                   | [ Adenoma TGLs = 2 - 15 ]                |                               |                        |
| * Pituitary Gland | Pars Distalis                            | Hyperplasia                   | Mild                   |
| * Prostate        | Dorsal, Lateral                          | Inflammation                  | Chronic Active, Marked |
|                   | Ventral                                  | Inflammation                  | Chronic Active, Marked |
| * Spleen          |  | Extramedullary Hematopoiesis  | Mild                   |
|                   |  | Pigment                       | Minimal                |
| * Thymus          |  | Atrophy                       | Mild                   |

PRIMARY CAUSE OF DEATH - Prostate Dorsal Lateral Inflammation

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 394

TRT#: 7

SEX: Male

DAY ON TEST: 746

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101694

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Mammary Gland
- \* Preputial Gland
- \* Skin
- \* Trachea
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lung
- \* Nose
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Adrenal Cortex
- \* Kidney
- \* Liver
- \* Pancreas
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Adenoma
- Infarct
- Nephropathy
- Clear Cell Focus
- Hepatocyte
- Bile Duct
- Hepatocyte
- [ Hepatocellular Adenoma TGLs = 2 - 3 ]
- Acinus
- Acinus
- [ Adenoma TGLs = 1,3 - 15+16 ]
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Follicular Cel
- Adenoma
- Hyperplasia
- Hyperplasia
- Hypertrophy
- Pigment
- Minimal
- Chronicprogr, Minimal
- Mild
- Minimal
- Mild
- Moderate
- Multiple
- Marked
- Minimal
- Minimal
- Mild
- Minimal

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 395

TRT#: 7

SEX: Male

DAY ON TEST: 743

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101695

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Mammary Gland
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lung
- \* Nose
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Skin
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
- \* Kidney
- \* Liver
- Hepatocyte
- Hepatocyte
- Hepatocyte
- [ Hepatocellular Adenoma TGLs = 1 - 3 ]
- \* Pancreas
- \* Prostate
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- [ Adenoma TGLs = 2 - 9 ]
- Hypertrophy
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Hepatocellular Adenoma
- Hypertrophy
- Necrosis
- Pigment
- Single Cell Death
- Hyperplasia
- Inflammation
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Adenoma
- Minimal
- Chronicprogr, Minimal
- Mild
- Minimal
- Minimal
- Moderate
- Minimal
- Minimal
- Chronic Active, Minimal
- Minimal
- Mild
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 396

TRT#: 7

SEX: Male

DAY ON TEST: 743

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101696

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone
- \* Bone Marrow
- \* Brain
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Parathyroid Gland
- \* Preputial Gland
- \* Salivary Glands
- \* Seminal Vesicle
- \* Skin
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Testes
- \* Trachea
- \* Urinary Bladder

OBSERVATIONS

- Blood Vessel Mineral Minimal  
Note: Mineral involves a mesenteric artery.
- \* Heart Schwannoma Malignant
- \* Kidney Nephropathy Chronicprogr, Minimal
- \* Liver Clear Cell Focus
- Hepatocyte Cytoplasmic Alteration Mild
- Hepatocyte Eosinophilic Focus
- Hepatocyte Hypertrophy Minimal
- Hepatocyte Inflammation Focal, Minimal
- Hepatocyte Pigment Marked
- \* Lung Single Cell Death Minimal  
Infiltration Cellular Histocyte, Mild
- [ Infiltration Cellular TGLs = 1 - 4+5 ]
- \* Nose Olfactory Epi Accumulation, Hyaline Droplet Minimal
- \* Pancreas Acinus Adenoma Multiple
- Acinus Hyperplasia Marked
- [ Adenoma TGLs = 2 - 15 ]
- \* Pituitary Gland Pars Distalis Hyperplasia Minimal
- \* Prostate Ventral Inflammation Chronic Active, Minimal
- \* Spleen Extramedullary Hematopoiesis Mild
- \* Thymus Atrophy Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 396

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 0/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101696

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

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\* Thyroid Gland

C Cell

Adenoma

C Cell

Hyperplasia

Mild

---



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 398

TRT#: 7

SEX: Male

DAY ON TEST: 747

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101698

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Lung	* Lymph Node, Mesenteric	* Mammary Gland
* Parathyroid Gland	* Pituitary Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Kidney		Nephropathy	Chronicprogr, Marked
* Liver		Clear Cell Focus	
	Hepatocyte	Cytoplasmic Alteration	Minimal
	Hepatocyte	Hypertrophy	Minimal
* Lymph Node, Mandibular		Infiltration Cellular	Plasma Cell, Mild
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Moderate
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Atrophy	Mild
	Acinus	Hyperplasia	Marked
	[ Adenoma TGLs = 1,2 - 15 ]		
* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal
* Thymus		Atrophy	Mild
* Thyroid Gland	C Cell	Hyperplasia	Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 399

TRT#: 7

SEX: Male

DAY ON TEST: 746

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101699

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Mammary Gland
- \* Nose
- \* Preputial Gland
- \* Prostate
- \* Skin
- \* Stomach, Forestomach
- \* Trachea
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Thyroid Gland

OBSERVATIONS

- \* Kidney
- \* Liver
- \* Lung
- \* Pancreas
- \* Spleen
- \* Testes
- \* Thymus
- Hepatocyte
- Hepatocyte
- Acinus
- Acinus
- Acinus
- [ Adenoma TGLs = 1,3 - 15+17 ]
- [ Inflammation TGLs = 2 - 16 ]
- Germinal Epith
- Nephropathy
- Basophilic Focus
- Clear Cell Focus
- Cytoplasmic Alteration
- Hypertrophy
- Inflammation
- Pigment
- Infiltration Cellular
- Adenoma
- Atrophy
- Hyperplasia
- Inflammation
- Extramedullary Hematopoiesis
- Degeneration
- Atrophy
- Chronicprogr, Minimal
- Mild
- Mild
- Focal, Minimal
- Minimal
- Histiocyte, Minimal
- Multiple
- Minimal
- Marked
- Chronic Active, Marked
- Minimal
- Minimal
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 400

TRT#: 7

SEX: Male

DAY ON TEST: 746

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101700

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Glandular
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Testes
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
- \* Heart
- \* Kidney
- \* Liver
- \* Lung
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Spleen
- \* Stomach, Forestomach
- Zona Fascult
- Hepatocyte
- Hepatocyte
- [ Eosinophilic Focus TGLs = 7 - 3+17 ]
- [ Infiltration Cellular TGLs = 8 - 4+5 ]
- Olfactory Epi
- Acinus
- Acinus
- [ Adenoma TGLs = 1,2,3,4,5 - 15+16 ]
- Pars Distalis
- Epithelium
- Hyperplasia
- Cardiomyopathy
- Nephropathy
- Cytoplasmic Alteration
- Degeneration
- Eosinophilic Focus
- Hypertrophy
- Necrosis
- Pigment
- Infiltration Cellular
- Inflammation
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Hyperplasia
- Mild
- Minimal
- Chronicprogr, Mild
- Mild
- Cystic, Minimal
- Minimal
- Minimal
- Marked
- Histiocyte, Moderate
- Multifocal, Granulomatous, Minimal
- Marked
- Multiple
- Marked
- Minimal
- Minimal
- Minimal
- Squamous, Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 400

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 746

**DOSE:** 0/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101700

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thymus

Atrophy

Moderate

\* Thyroid Gland

C Cell

Adenoma

Follicular Cel

Hypertrophy

Moderate

[ Adenoma TGLs = 9 - 9 ]

---





Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 401

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 745

**DOSE:** 0/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101701

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thymus

Atrophy

Mild

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 402

TRT#: 7

SEX: Male

DAY ON TEST: 609

DOSE: 0/80 ppm

DISP: Natural Death

HISTO: 1101702

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   |
| * Mammary Gland           | * Nose                      | * Preputial Gland        | * Salivary Glands          |
| * Seminal Vesicle         | * Skin                      | * Stomach, Forestomach   | * Stomach, Glandular       |
| * Testes                  | * Trachea                   | * Urinary Bladder        |                            |

OBSERVATIONS

- |                     |                           |                              |                      |
|---------------------|---------------------------|------------------------------|----------------------|
| * Heart             |                           | Cardiomyopathy               | Minimal              |
| * Kidney            |                           | Nephropathy                  | Chronicprogr, Mild   |
| * Liver             |                           | Clear Cell Focus             |                      |
|                     |                           | Necrosis                     | Minimal              |
| * Pancreas          | Acinus                    | Hyperplasia                  | Marked               |
| * Parathyroid Gland |                           | Hyperplasia                  | Minimal              |
| * Pituitary Gland   | Pars Distalis             | Adenoma                      |                      |
|                     | [ Adenoma TGLs = 1 - 15 ] |                              |                      |
| * Prostate          | Ventral                   | Inflammation                 | Chronic Active, Mild |
| * Spleen            | Lymph Follic              | Atrophy                      | Moderate             |
|                     |                           | Extramedullary Hematopoiesis | Mild                 |
| * Thymus            |                           | Atrophy                      | Marked               |
| * Thyroid Gland     | C Cell                    | Adenoma                      |                      |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 403

TRT#: 7

SEX: Male

DAY ON TEST: 744

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101703

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Skin
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone Marrow
- \* Eye
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Salivary Glands
- \* Stomach, Glandular
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Adrenal Cortex
  - Blood Vessel
    - Note: Vascular mineral involves aorta, pulmonary artery, and renal artery.
- \* Heart
- \* Intestine Large, Colon
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
  - Hepatocyte
    - Hypertrophy
    - Mineral
  - Hepatocyte
    - Cardiomyopathy
    - Parasite Metazoan
    - Adenoma
    - Nephropathy
    - Clear Cell Focus
    - Cytoplasmic Alteration
    - Degeneration
    - Hepatocellular Adenoma
    - Hypertrophy
    - Inflammation
    - Mixed Cell Focus
    - Necrosis
    - Pigment
    - Single Cell Death
  - Hepatocyte
    - [ Mixed Cell Focus TGLs = 2 - 16 ]
- \* Lung
  - [ Infiltration Cellular TGLs = 3 - 4+5 ]
- \* Nose
  - Olfactory Epi
- \* Pancreas
  - Acinus

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 403

TRT#: 7

SEX: Male

DAY ON TEST: 744

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101703

ORGAN AND ACCOUNTABLE SITE STATUS

[ Adenoma TGLs = 1 - 15 ]	Acinus	Hyperplasia	Marked
* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Prostate	Dorsal	Inflammation	Chronic Active, Minimal
* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Hyperplasia	Mild

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 404

TRT#: 7

SEX: Male

DAY ON TEST: 744

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101704

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla        | * Bone                     | * Bone Marrow             | * Brain                     |
| * Epididymis             | * Esophagus                | * Eye                     | * Harderian Gland           |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    |
| * Lymph Node, Mesenteric | * Mammary Gland            | * Parathyroid Gland       | * Pituitary Gland           |
| * Preputial Gland        | * Prostate                 | * Salivary Glands         | * Seminal Vesicle           |
| * Stomach, Glandular     | * Thyroid Gland            | * Trachea                 | * Urinary Bladder           |

OBSERVATIONS

- |   |               |  |                         |
|---|---------------|--|-------------------------|
| * Adrenal Cortex  |               | Hypertrophy                              | Mild                    |
| Blood Vessel  |               | Inflammation                             | Chronic, Mild           |
| Note: Vascular inflammation involves testicular arterioles. |               |  |                         |
| * Heart   |               | Cardiomyopathy                           | Minimal                 |
| * Kidney  | Cortex        | Cyst                                     |                         |
|   |               | Nephropathy                              | Chronicprogr, Mild      |
|   |               | [ Cyst TGLs = 3 - 16 ]                   |                         |
|   |               | [ Nephropathy TGLs = 4 - 6 ]             |                         |
| * Liver   | Hepatocyte    | Clear Cell Focus                         |                         |
|   | Hepatocyte    | Cytoplasmic Alteration                   | Minimal                 |
|   |               | Hypertrophy                              | Minimal                 |
|   |               | Inflammation                             | Focal, Minimal          |
|   |               | Mixed Cell Focus                         |                         |
|   |               | Necrosis                                 | Minimal                 |
| * Lung  |               | Infiltration Cellular                    | Histiocyte, Moderate    |
|   |               | Inflammation                             | Chronic Active, Minimal |
|   |               | [ Infiltration Cellular TGLs = 5 - 4+5 ] |                         |
| * Nose  | Olfactory Epi | Accumulation, Hyaline Droplet            | Mild                    |
| * Pancreas  | Acinus        | Adenoma                                  | Multiple                |
|   | Acinus        | Hyperplasia                              | Marked                  |
|   |               | [ Adenoma TGLs = 6 - 17 ]                |                         |
| * Skin  |               | Hyperkeratosis                           | Moderate                |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

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**ANIMAL ID:** 404

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 744

**DOSE:** 0/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101704

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

		Inflammation	Moderate
	[ Hyperkeratosis TGLs = 2 - 15 ]		
	[ Inflammation TGLs = 1 - 15 ]		
* Spleen		Extramedullary Hematopoiesis	Minimal
* Stomach, Forestomach	Epithelium	Hyperplasia	Squamous, Minimal
* Testes	Bilateral, Germinal Epith	Degeneration	Minimal
* Thymus		Atrophy	Moderate

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 405

TRT#: 7

SEX: Male

DAY ON TEST: 743

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101705

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Lung                    |
| * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            | * Pituitary Gland         |
| * Preputial Gland           | * Prostate               | * Salivary Glands          | * Seminal Vesicle         |
| * Skin                      | * Stomach, Forestomach   | * Stomach, Glandular       | * Testes                  |
| * Trachea                   | * Urinary Bladder        |                            |                           |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                      |                               |                               |                    |
|----------------------|-------------------------------|-------------------------------|--------------------|
| Blood Vessel         | Pulmn Vein                    | Thrombus                      | Minimal            |
| * Heart              | Endocardium                   | Hyperplasia                   | Moderate           |
| * Islets, Pancreatic |                               | Hyperplasia                   | Moderate           |
| * Kidney             |                               | Nephropathy                   | Chronicprogr, Mild |
| * Liver              |                               | Clear Cell Focus              |                    |
|                      | Hepatocyte                    | Cytoplasmic Alteration        | Mild               |
|                      | Hepatocyte                    | Hyperplasia                   | Nodular, Moderate  |
|                      | Hepatocyte                    | Hypertrophy                   | Mild               |
|                      |                               | Inflammation                  | Focal, Minimal     |
|                      |                               | Necrosis                      | Minimal            |
|                      |                               | Pigment                       | Minimal            |
|                      | Hepatocyte                    | Single Cell Death             | Minimal            |
|                      | [ Hyperplasia TGLs = 1 - 16 ] |                               |                    |
| * Nose               | Olfactory Epi                 | Accumulation, Hyaline Droplet | Mild               |
| * Pancreas           | Acinus                        | Hyperplasia                   | Mild               |
| * Spleen             |                               | Extramedullary Hematopoiesis  | Minimal            |
|                      |                               | Pigment                       | Minimal            |
| * Thymus             |                               | Atrophy                       | Moderate           |
| * Thyroid Gland      | C Cell                        | Adenoma                       |                    |

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 406

TRT#: 7

SEX: Male

DAY ON TEST: 743

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101706

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Preputial Gland
- \* Skin
- \* Stomach, Forestomach
- \* Thyroid Gland
- \* Trachea
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Heart
  - Cardiomyopathy
  - Adenoma
  - Infarct
  - Nephropathy
- \* Islets, Pancreatic
  - Clear Cell Focus
  - Cytoplasmic Alteration
- \* Kidney
  - Eosinophilic Focus
  - Hypertrophy
  - Mixed Cell Focus
  - Necrosis
  - Pigment
  - Single Cell Death
- \* Liver
  - Hepatocyte
    - Minimal
  - Hepatocyte
    - Minimal
  - Hepatocyte
    - Minimal
  - [ Mixed Cell Focus TGLs = 2 - 17 ]
    - Minimal
- \* Lung
  - Infiltration Cellular
    - Histiocyte, Moderate
- \* Nose
  - Olfactory Epi
    - Accumulation, Hyaline Droplet
- \* Pancreas
  - Acinus
    - Adenoma
  - Acinus
    - Hyperplasia
  - [ Adenoma TGLs = 1 - 15 ]
    - Minimal
- \* Prostate
  - Ventral
    - Adenoma
  - Ventral
    - Inflammation
    - Chronic Active, Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 406

**TRT#:** 7

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 0/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101706

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Spleen

Lymph Follic

Atrophy

Minimal

Extramedullary Hematopoiesis

Minimal

Pigment

Minimal

\* Thymus

Atrophy

Moderate

---



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 408

TRT#: 7

SEX: Male

DAY ON TEST: 747

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101708

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Harderian Gland
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland
* Nose	* Parathyroid Gland	* Pituitary Gland	* Preputial Gland
* Prostate	* Salivary Glands	* Seminal Vesicle	* Skin
* Stomach, Glandular	* Testes	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Eye	Retina	Degeneration	Minimal
* Kidney		Nephropathy	Chronicprogr, Mild
* Liver	Hepatocyte	Cytoplasmic Alteration	Minimal
	Hepatocyte	Hypertrophy	Minimal
		Pigment	Mild
	Hepatocyte	Single Cell Death	Minimal
Mesentery	Fat	Necrosis	Minimal
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Carcinoma	
		Inflammation	Chronic Active, Marked
	[ Adenoma TGLs = 1,2,3,4 - 15+16 ]		
	[ Carcinoma TGLs = 5-17 ]		
* Spleen		Extramedullary Hematopoiesis	Mild
		Pigment	Minimal
* Stomach, Forestomach	Epithelium	Hyperplasia	Squamous, Minimal
* Thymus		Atrophy	Marked
* Thyroid Gland	Bilateral, C Cell	Carcinoma	

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 409

TRT#: 7

SEX: Male

DAY ON TEST: 720

DOSE: 0/80 ppm

DISP: Natural Death

HISTO: 1101709

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Heart
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Stomach, Glandular
- \* Urinary Bladder
- Blood Vessel
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Prostate
- \* Testes
- \* Bone
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Salivary Glands
- \* Thyroid Gland
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
- \* Bone Marrow
- \* Intestine Large, Colon
- \* Kidney
- \* Liver
- \* Lung
- \* Nose
- \* Pancreas
- \* Skin
- \* Spleen
- \* Stomach, Forestomach
- \* Thymus
- Necrosis
- Hyperplasia
- Parasite Metazoan
- Nephropathy
- Cytoplasmic Alteration
- Hypertrophy
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Adenoma
- Fibrosarcoma
- Atrophy
- Extramedullary Hematopoiesis
- Mineral
- Atrophy
- Minimal
- Marked
- Chronicprogr, Minimal
- Moderate
- Marked
- Histiocyte, Moderate
- Minimal
- Multiple
- Minimal
- Mild
- Minimal
- Mild

PRIMARY CAUSE OF DEATH - Skin Subcut Tiss Fibrosarcoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 410

TRT#: 7

SEX: Male

DAY ON TEST: 743

DOSE: 0/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101710

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mesenteric    | * Mammary Gland          |
| * Pancreas                 | * Parathyroid Gland       | * Preputial Gland           | * Salivary Glands        |
| * Seminal Vesicle          | * Skin                    | * Stomach, Forestomach      | * Stomach, Glandular     |
| * Testes                   | * Thyroid Gland           | * Trachea                   | * Urinary Bladder        |

OBSERVATIONS

- |                          |   |                               |                                    |
|--------------------------|---|-------------------------------|------------------------------------|
| * Kidney                 |   | Infarct                       | Minimal                            |
|                          |   | Nephropathy                   | Chronicprogr, Mild                 |
| * Liver                  |   | Clear Cell Focus              |                                    |
|                          | Hepatocyte                                    | Hepatocellular Adenoma        | Multiple                           |
|                          |   | Hypertrophy                   | Minimal                            |
|                          |   | Inflammation                  | Focal, Minimal                     |
|                          | [ Hepatocellular Adenoma TGLs = 1,2 - 3 +15 ] |                               |                                    |
| * Lung                   |   | Inflammation                  | Multifocal, Granulomatous, Minimal |
| * Lymph Node, Mandibular |   | Hyperplasia                   | Lymphoid, Mild                     |
| * Nose                   | Olfactory Epi                                 | Accumulation, Hyaline Droplet | Moderate                           |
| * Pituitary Gland        | Pars Distalis                                 | Hyperplasia                   | Minimal                            |
| * Prostate               | Dorsal  | Inflammation                  | Chronic Active, Minimal            |
| * Spleen                 |   | Extramedullary Hematopoiesis  | Minimal                            |
| * Thymus                 |   | Atrophy                       | Mild                               |

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 421

TRT#: 8

SEX: Male

DAY ON TEST: 744

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101721

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Skin
- \* Thyroid Gland
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Trachea
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Lung
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Adrenal Cortex
- Blood Vessel
- Aorta
- Note: Vascular mineral involves the aorta and renal artery.
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
- Hepatocyte
- Hepatocyte
- Bile Duct
- Hepatocyte
- Hepatocyte
- [ Eosinophilic Focus TGLs = 5 - 18 ]
- [ Hepatocellular Adenoma TGLs = 2,6 - 16+17+19 ]
- [ Hepatocellular Carcinoma TGLs = 4 - 3 ]
- \* Nose
- \* Pancreas
- Olfactory Epi
- Acinus
- Hypertrophy
- Mineral
- Hyperplasia
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Eosinophilic Focus
- Hepatocellular Adenoma
- Hepatocellular Carcinoma
- Hyperplasia
- Hypertrophy
- Inflammation
- Necrosis
- Pigment
- Single Cell Death
- Accumulation, Hyaline Droplet
- Adenoma
- Minimal
- Minimal
- Minimal
- Chronicprogr, Minimal
- Mild
- Multiple
- Minimal
- Mild
- Focal, Minimal
- Minimal
- Minimal
- Minimal
- Minimal
- Multiple

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 421

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 744

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101721

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

	Acinus	Hyperplasia	Marked
		Inflammation	Chronic Active, Minimal
[ Adenoma TGLs = 1,3 - 15+20 ]			
* Prostate	Dorsal	Inflammation	Chronic Active, Minimal
* Spleen		Extramedullary Hematopoiesis	Mild
* Thymus		Atrophy	Mild

---



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 422

TRT#: 8

SEX: Male

DAY ON TEST: 744

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101722

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla           | Blood Vessel             | * Bone                     | * Bone Marrow             |
| * Brain                     | * Epididymis             | * Esophagus                | * Eye                     |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Kidney                  |
| * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           |
| * Parathyroid Gland         | * Preputial Gland        | * Prostate                 | * Salivary Glands         |
| * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      |
| * Testes                    | * Trachea                | * Urinary Bladder          |                           |

OBSERVATIONS

- |                      |                |                               |                      |
|----------------------|----------------|-------------------------------|----------------------|
| * Adrenal Cortex     |                | Hypertrophy                   | Mild                 |
| * Heart              |                | Cardiomyopathy                | Minimal              |
| * Islets, Pancreatic |                | Hyperplasia                   | Mild                 |
| * Liver              |                | Clear Cell Focus              |                      |
|                      | Hepatocyte     | Cytoplasmic Alteration        | Minimal              |
|                      |                | Degeneration                  | Cystic, Minimal      |
|                      |                | Eosinophilic Focus            |                      |
|                      | Hepatocyte     | Extramedullary Hematopoiesis  | Minimal              |
|                      |                | Hypertrophy                   | Mild                 |
|                      |                | Necrosis                      | Minimal              |
|                      | Hepatocyte     | Single Cell Death             | Minimal              |
| * Nose               | Olfactory Epi  | Accumulation, Hyaline Droplet | Mild                 |
|                      | Respirat Epith | Inflammation                  | Minimal              |
| * Pancreas           | Acinus         | Adenoma                       | Multiple             |
|                      | Acinus         | Atrophy                       | Mild                 |
|                      | Acinus         | Hyperplasia                   | Marked               |
|                      |                | Inflammation                  | Chronic Active, Mild |
|                      |                | [ Adenoma TGLs = 2 - 17 ]     |                      |
|                      |                | [ Hyperplasia TGLs = 1 - 15 ] |                      |
| * Pituitary Gland    | Pars Distalis  | Hyperplasia                   | Minimal              |
| * Spleen             |                | Extramedullary Hematopoiesis  | Minimal              |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 422

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 744

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101722

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thymus

Atrophy

Mild

\* Thyroid Gland

C Cell

Adenoma

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 423

TRT#: 8

SEX: Male

DAY ON TEST: 747

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101723

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Salivary Glands
- \* Testes
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Seminal Vesicle
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Stomach, Glandular

OBSERVATIONS

- \* Adrenal Cortex
- \* Heart
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
- Hepatocyte
- Hepatocyte
- Hepatocyte
- [ Clear Cell Focus TGLs = 5 - 3 ]
- \* Lung
- [ Infiltration Cellular TGLs = 4 - 18 ]
- \* Nose
- \* Pancreas
- [ Adenoma TGLs = 1,2 - 15+16 ]
- \* Pituitary Gland
- \* Prostate
- \* Skin
- [ Keratoacanthoma TGLs = 3 - 17 ]
- \* Spleen
- Hypertrophy
- Cardiomyopathy
- Adenoma
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Degeneration
- Hypertrophy
- Pigment
- Single Cell Death
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Inflammation
- Adenoma
- Adenoma
- Inflammation
- Keratoacanthoma
- Extramedullary Hematopoiesis
- Marked
- Minimal
- Chronicprogr, Mild
- Mild
- Cystic, Minimal
- Mild
- Minimal
- Minimal
- Histiocyte, Mild
- Mild
- Minimal
- Multiple
- Chronic, Mild
- Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 423

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 747

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101723

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

* Thymus		Pigment	Minimal
		Atrophy	Mild
		Hyperplasia	Lymphoid, Mild
* Thyroid Gland	C Cell	Hyperplasia	Minimal

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 424

TRT#: 8

SEX: Male

DAY ON TEST: 747

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101724

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Mesenteric
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Mammary Gland
- \* Seminal Vesicle
- \* Testes
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lung
- \* Preputial Gland
- \* Skin
- \* Trachea

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                   |                                    |                               |                    |
|-------------------|------------------------------------|-------------------------------|--------------------|
| * Adrenal Cortex  |                                    | Hypertrophy                   | Minimal            |
| Blood Vessel      | Aorta                              | Mineral                       | Minimal            |
| * Heart           |                                    | Cardiomyopathy                | Minimal            |
| * Kidney          |                                    | Nephropathy                   | Chronicprogr, Mild |
| * Liver           |                                    | Clear Cell Focus              |                    |
|                   | Hepatocyte                         | Cytoplasmic Alteration        | Minimal            |
|                   | Bile Duct                          | Hyperplasia                   | Minimal            |
|                   | Hepatocyte                         | Hypertrophy                   | Minimal            |
|                   |                                    | Inflammation                  | Focal, Minimal     |
|                   |                                    | Necrosis                      | Minimal            |
|                   |                                    | Pigment                       | Minimal            |
|                   | Hepatocyte                         | Single Cell Death             | Minimal            |
|                   | [ Clear Cell Focus TGLs = 1 - 16 ] |                               |                    |
| * Nose            | Olfactory Epi                      | Accumulation, Hyaline Droplet | Mild               |
| * Pancreas        | Acinus                             | Atrophy                       | Minimal            |
|                   | Acinus                             | Hyperplasia                   | Minimal            |
| * Pituitary Gland | Pars Distalis, Pars Intermed       | Hyperplasia                   | Minimal            |
| * Spleen          |                                    | Pigment                       | Minimal            |
| * Thymus          |                                    | Atrophy                       | Mild               |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 424

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 747

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101724

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thyroid Gland

C Cell

Adenoma

Marked

Follicular Cel

Hypertrophy

[ Adenoma TGLs = 2 - 9 ]

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 425

TRT#: 8

SEX: Male

DAY ON TEST: 298

DOSE: 300/80 ppm

DISP: Natural Death

HISTO: 1101725

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Liver                     | * Lung                   |
| * Lymph Node, Mandibular   | * Lymph Node, Mesenteric  | * Mammary Gland             | * Pancreas               |
| * Parathyroid Gland        | * Pituitary Gland         | * Preputial Gland           | * Prostate               |
| * Salivary Glands          | * Seminal Vesicle         | * Skin                      | * Spleen                 |
| * Stomach, Forestomach     | * Stomach, Glandular      | * Testes                    | * Thyroid Gland          |
| * Trachea                  | * Urinary Bladder         |                             |                          |

OBSERVATIONS

- |          |               |                               |                       |
|----------|---------------|-------------------------------|-----------------------|
| * Kidney |               | Nephropathy                   | Chronicprogr, Minimal |
| * Nose   | Olfactory Epi | Accumulation, Hyaline Droplet | Mild                  |
| * Thymus |               | Atrophy                       | Mild                  |

PRIMARY CAUSE OF DEATH - UNCERTAIN

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 426

TRT#: 8

SEX: Male

DAY ON TEST: 747

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101726

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Lung	* Lymph Node, Mandibular	* Lymph Node, Mesenteric
* Mammary Gland	* Parathyroid Gland	* Preputial Gland	* Prostate
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Cortex		Degeneration	Cystic, Minimal
		Hypertrophy	Moderate
* Kidney		Nephropathy	Chronicprogr, Mild
* Liver		Clear Cell Focus	
	Hepatocyte	Cytoplasmic Alteration	Minimal
	Hepatocyte	Hypertrophy	Minimal
		Inflammation	Focal, Minimal
		Necrosis	Mild
		Pigment	Mild
	Hepatocyte	Single Cell Death	Minimal
	[ Necrosis TGLs = 3 - 3 ]		
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Adenoma	Multiple
	[ Adenoma TGLs = 1 - 15 ]		
* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal
* Testes	Bilateral, Germinal Epith	Degeneration	Moderate
	[ Degeneration TGLs = 2 - 12 ]		
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Hyperplasia	Marked

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 20614 - 02

**Test Type:** CHRONIC

**Route:** DOSED FEED

**Species/Strain:** RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

**CAS Number:** 335-67-1

**Date Report Requested:** 07/24/2018

**Time Report Requested:** 12:59:13

**First Dose M/F:** 07/27/09 / NA

**Lab:** BAT

---

**ANIMAL ID:** 426

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 747

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101726

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

Follicular Cel

Hypertrophy

Mild

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 427

TRT#: 8

SEX: Male

DAY ON TEST: 744

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101727

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone
- \* Bone Marrow
- \* Brain
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Lung
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Preputial Gland
- \* Salivary Glands
- \* Seminal Vesicle
- \* Skin
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Testes
- \* Trachea
- \* Urinary Bladder

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- Blood Vessel
- Mineral
- Minimal
- Note: Vascular mineral involves the mesenteric artery.
- \* Heart
- Cardiomyopathy
- Minimal
- \* Kidney
- Nephropathy
- Chronicprogr, Mild
- \* Liver
- Basophilic Focus
- Clear Cell Focus
- Hepatocyte
- Cytoplasmic Alteration
- Mild
- Bile Duct
- Hyperplasia
- Minimal
- Hepatocyte
- Hypertrophy
- Mild
- Inflammation
- Focal, Minimal
- Pigment
- Minimal
- Hepatocyte
- Single Cell Death
- Minimal
- \* Nose
- Olfactory Epi
- Accumulation, Hyaline Droplet
- Mild
- \* Pancreas
- Acinus
- Adenoma
- Multiple
- Acinus
- Hyperplasia
- Marked
- [ Adenoma TGLs = 1,2 - 15+16 ]
- \* Pituitary Gland
- Pars Distalis
- Hyperplasia
- Minimal
- \* Prostate
- Ventral
- Inflammation
- Chronic Active, Minimal
- \* Spleen
- Extramedullary Hematopoiesis
- Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 427

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 744

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101727

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thymus

Atrophy

Moderate

\* Thyroid Gland

Follicular Cel

Hypertrophy

Marked

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 428

TRT#: 8

SEX: Male

DAY ON TEST: 744

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101728

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Lung
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Parathyroid Gland
* Pituitary Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Heart		Cardiomyopathy	Minimal
* Islets, Pancreatic		Adenoma	
* Kidney		Nephropathy	Chronicprogr, Mild
* Liver		Clear Cell Focus	
	Hepatocyte	Cytoplasmic Alteration	Minimal
	Hepatocyte	Hepatocellular Adenoma	Multiple
	Hepatocyte	Hypertrophy	Minimal
	Hepatocyte	Inflammation	Focal, Minimal
	Hepatocyte	Single Cell Death	Minimal
[ Hepatocellular Adenoma	TGLs = 6, 7, 8, 9 - 20+21+22 ]		
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Moderate
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Atrophy	Minimal
	Acinus	Hyperplasia	Marked
		Inflammation	Chronic Active, Minimal
[ Adenoma	TGLs = 1,2,3,4,5 - 15+16+17+18+19 ]		
* Spleen		Extramedullary Hematopoiesis	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	Follicular Cel	Hypertrophy	Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 429

TRT#: 8

SEX: Male

DAY ON TEST: 746

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101729

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | Blood Vessel               | * Bone                    |
| * Bone Marrow               | * Brain                  | * Epididymis               | * Esophagus               |
| * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            | * Parathyroid Gland       |
| * Pituitary Gland           | * Preputial Gland        | * Prostate                 | * Salivary Glands         |
| * Seminal Vesicle           | * Skin                   | * Stomach, Forestomach     | * Stomach, Glandular      |
| * Trachea                   | * Urinary Bladder        |                            |                           |

OBSERVATIONS

- |                 |  |                               |                        |
|-----------------|--|-------------------------------|------------------------|
| * Eye           | Cornea                                   | Inflammation                  | Minimal                |
| * Heart         |  | Cardiomyopathy                | Minimal                |
| * Kidney        | Papilla, Urothelium                      | Hyperplasia                   | Minimal                |
|                 |  | Nephropathy                   | Chronicprogr, Moderate |
| * Liver         |  | Clear Cell Focus              |                        |
|                 | Hepatocyte                               | Cytoplasmic Alteration        | Mild                   |
|                 | Hepatocyte                               | Hypertrophy                   | Mild                   |
|                 |  | Pigment                       | Minimal                |
|                 | [ Clear Cell Focus TGLs = 3 - 3+17 ]     |                               |                        |
| * Lung          |  | Infiltration Cellular         | Histiocyte, Mild       |
|                 | [ Infiltration Cellular TGLs = 4 - 4+5 ] |                               |                        |
| * Nose          | Olfactory Epi                            | Accumulation, Hyaline Droplet | Moderate               |
| * Pancreas      | Acinus                                   | Adenoma                       | Multiple               |
|                 | [ Adenoma TGLs = 1,2 - 15+16 ]           |                               |                        |
| * Spleen        |  | Extramedullary Hematopoiesis  | Mild                   |
|                 |  | Pigment                       | Mild                   |
| * Testes        | Germinal Epith                           | Degeneration                  | Minimal                |
| * Thymus        |  | Atrophy                       | Mild                   |
| * Thyroid Gland | C Cell                                   | Hyperplasia                   | Moderate               |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 430

TRT#: 8

SEX: Male

DAY ON TEST: 715

DOSE: 300/80 ppm

DISP: Moribund Sacrifice

HISTO: 1101730

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Blood Vessel
- \* Bone
- \* Bone Marrow
- \* Brain
- \* Epididymis
- \* Esophagus
- \* Harderian Gland
- \* Heart
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Parathyroid Gland
- \* Pituitary Gland
- \* Preputial Gland
- \* Prostate
- \* Salivary Glands
- \* Seminal Vesicle
- \* Skin
- \* Stomach, Glandular
- \* Testes
- \* Trachea
- \* Urinary Bladder

OBSERVATIONS

- \* Brain
  - Note: Zymbals gland carcinoma also visible in B10 compressing brain.
- \* Eye
  - Antr Chamber, Cornea
  - Inflammation
  - Moderate
  - [ Inflammation TGLs = 2 - 11 ]
- \* Kidney
  - Nephropathy
  - Chronicprogr, Mild
- \* Liver
  - Clear Cell Focus
  - Degeneration
  - Cystic, Moderate
- \* Lung
  - Carcinoma
  - Metastatic (Zymbal'S Gland)
  - Infiltration Cellular
  - Histiocyte, Mild
  - [ Infiltration Cellular TGLs = 4 - 4+5 ]
- Mesentery
  - Fat
  - Necrosis
  - Minimal
  - [ Necrosis TGLs = 3 - 15 ]
- \* Nose
  - Olfactory Epi
  - Accumulation, Hyaline Droplet
  - Mild
  - Nasolacrim Dct
  - Inflammation
  - Minimal
- \* Pancreas
  - Acinus
  - Atrophy
  - Minimal
  - Acinus
  - Hyperplasia
  - Moderate
- \* Spleen
  - Pigment
  - Minimal
- \* Stomach, Forestomach
  - Epithelium
  - Hyperplasia
  - Squamous, Mild
- \* Thymus
  - Atrophy
  - Moderate
- \* Thyroid Gland
  - Follicular Cel
  - Hypertrophy
  - Mild
  - Zymbal's Gland
  - Carcinoma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 430

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 715

**DOSE:** 300/80 ppm

**DISP:** Moribund Sacrifice

**HISTO:** 1101730

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

[ Carcinoma TGLs = 1 - 16 ]

PRIMARY CAUSE OF DEATH

- Zymbal's Gland Carcinoma

---





Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 431

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 629

**DOSE:** 300/80 ppm

**DISP:** Natural Death

**HISTO:** 1101731

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thyroid Gland

Follicular Cel

Hypertrophy

Mild

\* Trachea

Lymphoma Malignant

Lymphoma Malignant

---

PRIMARY CAUSE OF DEATH

- Thymus Lymphoma Malignant

---



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

ANIMAL ID: 432

TRT#: 8

SEX: Male

DAY ON TEST: 744

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101732

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

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* Testes	Bilateral, Germinal Epith	Degeneration	Moderate
[ Degeneration TGLs = 4 - 12 ]			
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Adenoma	

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 433

TRT#: 8

SEX: Male

DAY ON TEST: 744

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101733

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Lung
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Skin
- \* Trachea
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular

OBSERVATIONS

- \* Heart
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
- Hepatocyte
- [ Degeneration TGLs = 2 - 16 ]
- \* Nose
- \* Pancreas
- [ Adenoma TGLs = 1 - 15 ]
- \* Prostate
- \* Spleen
- \* Testes
- \* Thymus
- \* Thyroid Gland
- Hepatocyte
- Olfactory Epi
- Acinus
- Acinus
- Ventral
- Germinal Epith
- C Cell
- Cardiomyopathy
- Hyperplasia
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Degeneration
- Eosinophilic Focus
- Hypertrophy
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Inflammation
- Extramedullary Hematopoiesis
- Degeneration
- Atrophy
- Adenoma
- Minimal
- Moderate
- Chronicprogr, Mild
- Moderate
- Cystic, Mild
- Mild
- Mild
- Multiple
- Marked
- Chronic Active, Minimal
- Minimal
- Minimal
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 434

TRT#: 8

SEX: Male

DAY ON TEST: 744

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101734

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Cecum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Preputial Gland
- \* Seminal Vesicle
- \* Skin
- \* Trachea
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Prostate
- \* Stomach, Forestomach
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Salivary Glands
- \* Testes

MISSING

- \* Thymus

OBSERVATIONS

- \* Eye
  - Cornea
  - Inflammation
  - Minimal
- [ Inflammation TGLs = 1 - 11 ]
- \* Heart
  - Cardiomyopathy
  - Minimal
- \* Kidney
  - Nephropathy
  - Chronicprogr, Mild
- \* Liver
  - Clear Cell Focus
  - Hepatocyte
  - Cytoplasmic Alteration
  - Mild
  - Hepatocellular Adenoma
  - Hepatocyte
  - Hypertrophy
  - Mild
  - Inflammation
  - Focal, Minimal
  - Necrosis
  - Minimal
  - Hepatocyte
  - Single Cell Death
  - Minimal
- Note: PWG held 03/31/16
  - [ Hepatocellular Adenoma TGLs = 3 - 16 ]
- \* Lung
  - Inflammation
  - Multifocal, Granulomatous, Minimal
- \* Nose
  - Olfactory Epi
  - Accumulation, Hyaline Droplet
  - Mild
- \* Pancreas
  - Acinus
  - Adenoma
  - Multiple
  - Acinus
  - Atrophy
  - Minimal
  - Acinus
  - Hyperplasia
  - Marked
- [ Adenoma TGLs = 2 - 15 ]

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 434

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 744

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101734

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Mild
* Stomach, Glandular		Erosion	Minimal
* Thyroid Gland	Follicular Cel	Hypertrophy	Mild

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 435

TRT#: 8

SEX: Male

DAY ON TEST: 745

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101735

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                            |                           |                             |                          |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex           | * Adrenal Medulla         | Blood Vessel                | * Bone                   |
| * Bone Marrow              | * Brain                   | * Epididymis                | * Esophagus              |
| * Eye                      | * Harderian Gland         | * Heart                     | * Intestine Large, Cecum |
| * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric |
| * Mammary Gland            | * Parathyroid Gland       | * Preputial Gland           | * Prostate               |
| * Salivary Glands          | * Seminal Vesicle         | * Skin                      | * Stomach, Forestomach   |
| * Stomach, Glandular       | * Testes                  | * Trachea                   | * Urinary Bladder        |

OBSERVATIONS

- |                   |  |                               |                     |
|-------------------|--|-------------------------------|---------------------|
| * Kidney          |  | Nephropathy                   | Chronicprogr, Mild  |
| * Liver           |  | Clear Cell Focus              |                     |
|                   | Hepatocyte                               | Cytoplasmic Alteration        | Minimal             |
|                   |  | Hepatocellular Adenoma        | Multiple            |
|                   | Hepatocyte                               | Hypertrophy                   | Minimal             |
|                   |  | Necrosis                      | Minimal             |
|                   | Hepatocyte                               | Single Cell Death             | Minimal             |
|                   | [ Hepatocellular Adenoma TGLs = 2 - 16 ] |                               |                     |
| * Lung            |  | Infiltration Cellular         | Histiocyte, Minimal |
|                   | [ Infiltration Cellular TGLs = 3 - 4+5 ] |                               |                     |
| * Nose            | Olfactory Epi                            | Accumulation, Hyaline Droplet | Marked              |
| * Pancreas        | Acinus                                   | Adenoma                       |                     |
|                   | Acinus                                   | Hyperplasia                   | Marked              |
|                   | [ Adenoma TGLs = 1 - 15 ]                |                               |                     |
| * Pituitary Gland | Pars Distalis                            | Hyperplasia                   | Mild                |
| * Spleen          |  | Extramedullary Hematopoiesis  | Minimal             |
| * Thymus          |  | Atrophy                       | Marked              |
| * Thyroid Gland   | Follicular Cel                           | Hypertrophy                   | Moderate            |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 436

TRT#: 8

SEX: Male

DAY ON TEST: 745

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101736

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Pituitary Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
Skeletal Muscle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Trachea	* Urinary Bladder	

OBSERVATIONS

* Adrenal Cortex		Hypertrophy	Minimal
* Intestine Large, Colon		Parasite Metazoan	
* Kidney		Nephropathy	Chronicprogr, Minimal
* Liver		Clear Cell Focus	
	Hepatocyte	Cytoplasmic Alteration	Mild
	Hepatocyte	Hypertrophy	Minimal
		Inflammation	Focal, Minimal
		Necrosis	Mild
		Pigment	Mild
	Hepatocyte	Single Cell Death	Minimal
* Lung		Infiltration Cellular	Histiocyte, Mild
	[ Infiltration Cellular TGLs = 2 - 4+5 ]		
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Hyperplasia	Moderate
	[ Hyperplasia TGLs = 1 - 17 ]		
* Parathyroid Gland		Adenoma	
Skel Muscle			
	Note: Examined as normal tissue from this group.		
* Spleen		Extramedullary Hematopoiesis	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	Follicular Cel	Hypertrophy	Minimal

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 437

TRT#: 8

SEX: Male

DAY ON TEST: 617

DOSE: 300/80 ppm

DISP: Natural Death

HISTO: 1101737

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex         | * Adrenal Medulla          | * Bone                    | * Brain                     |
| * Epididymis             | * Esophagus                | * Eye                     | * Harderian Gland           |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    |
| * Lymph Node, Mesenteric | * Mammary Gland            | * Nose                    | * Pancreas                  |
| * Pituitary Gland        | * Preputial Gland          | * Prostate                | * Salivary Glands           |
| * Seminal Vesicle        | * Skin                     | * Stomach, Forestomach    | * Stomach, Glandular        |
| * Thyroid Gland          | * Trachea                  | * Urinary Bladder         |                             |

OBSERVATIONS

- |  |                |                |                          |
|--|----------------|----------------|--------------------------|
| Blood Vessel                                     |                | Inflammation   | Chronic, Mild            |
|  | Aorta          | Mineral        | Minimal                  |
| Note: Inflammation involves testicular arteries. |                |                |                          |
| * Bone Marrow                                    |                | Hyperplasia    | Mild                     |
| * Heart  |                | Cardiomyopathy | Moderate                 |
| * Kidney   |                | Nephropathy    | Chronicprogr, Marked     |
| * Liver  |                | Inflammation   | Focal, Minimal           |
|  |                | Necrosis       | Minimal                  |
| * Lung   |                | Inflammation   | Chronic Active, Moderate |
| * Parathyroid Gland                              |                | Hyperplasia    | Moderate                 |
| * Spleen   |                | Pigment        | Mild                     |
| * Testes   | Germinal Epith | Degeneration   | Minimal                  |
| * Thymus   |                | Atrophy        | Moderate                 |

PRIMARY CAUSE OF DEATH - Kidney Nephropathy  
 CONTRIBUTORY CAUSE OF DEATH - Heart Cardiomyopathy

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 438

TRT#: 8

SEX: Male

DAY ON TEST: 746

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101738

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Islets, Pancreatic
- \* Lymph Node, Mandibular
- \* Pancreas
- \* Pituitary Gland
- \* Salivary Glands
- \* Seminal Vesicle
- \* Stomach, Glandular
- \* Trachea
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Skin
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Prostate
- \* Stomach, Forestomach

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- \* Heart
  - Cardiomyopathy
  - Minimal
- \* Kidney
  - Nephropathy
  - Chronicprogr, Moderate
- \* Liver
  - Clear Cell Focus
  - Hepatocyte
  - Cytoplasmic Alteration
  - Minimal
  - Hepatocellular Adenoma
  - Hepatocyte
  - Hypertrophy
  - Minimal
  - Inflammation
  - Focal, Minimal
  - Necrosis
  - Minimal
  - Pigment
  - Minimal
  - Hepatocyte
  - Single Cell Death
  - Minimal
- \* Lung
  - [ Clear Cell Focus TGLs = 2,3 - 16 ]
  - [ Infiltration Cellular TGLs = 4 - 4+5 ]
  - Infiltration Cellular
  - Histiocyte, Moderate
- \* Nose
  - Olfactory Epi
  - Accumulation, Hyaline Droplet
  - Minimal
  - Respirat Epith
  - Inflammation
  - Minimal
- \* Spleen
  - Extramedullary Hematopoiesis
  - Minimal
  - Pigment
  - Minimal
- \* Testes
  - Bilateral, Germinal Epith
  - Degeneration
  - Marked
  - [ Degeneration TGLs = 1 - 12 ]

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

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**ANIMAL ID:** 438

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 746

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101738

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thymus

Atrophy

Moderate

\* Thyroid Gland

Follicular Cel

Hypertrophy

Marked

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 439

TRT#: 8

SEX: Male

DAY ON TEST: 746

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101739

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Urinary Bladder
- \* Bone Marrow
- \* Eye
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Glandular

MISSING

- \* Thymus

OBSERVATIONS

- \* Adrenal Cortex
  - Blood Vessel
    - Note: Vascular mineral involves the coronary artery and mesenteric artery.
- \* Heart
- \* Intestine Large, Colon
- \* Kidney
- \* Liver
  - Hepatocyte
    - Degeneration
    - Mineral
  - Hepatocyte
    - Cardiomyopathy
    - Parasite Metazoan
    - Nephropathy
    - Clear Cell Focus
    - Cytoplasmic Alteration
    - Eosinophilic Focus
    - Hypertrophy
    - Mixed Cell Focus
    - Necrosis
    - Single Cell Death
  - Hepatocyte
    - [ Eosinophilic Focus TGLs = 7 - 19 ]
    - [ Mixed Cell Focus TGLs = 6,8 - 19 ]
- \* Lung
  - [ Inflammation TGLs = 9 - 4+5 ]
- \* Nose
- \* Pancreas
  - Olfactory Epi
  - Acinus
  - Acinus

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 439

TRT#: 8

SEX: Male

DAY ON TEST: 746

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101739

ORGAN AND ACCOUNTABLE SITE STATUS

[ Adenoma TGLs = 1,4,5 - 15+17+18 ]

\* Pituitary Gland Pars Distalis

Hyperplasia Minimal

\* Skin Cyst Epithelial Inclusion

[ Cyst Epithelial Inclusion TGLs = 2 - 16 ]

\* Spleen Pigment Minimal

\* Testes Interstit Cell Adenoma Edema Marked

Note: Presence of Leydig Cell Tumor per pre-PWG

[ Edema TGLs = 3 - 12 ]

\* Thyroid Gland C Cell Hyperplasia Minimal

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 440

TRT#: 8

SEX: Male

DAY ON TEST: 670

DOSE: 300/80 ppm

DISP: Natural Death

HISTO: 1101740

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lung
- \* Nose
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- Blood Vessel
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Pancreas
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Mesenteric
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Mammary Gland
- \* Preputial Gland
- \* Skin
- \* Trachea

OBSERVATIONS

- \* Adrenal Medulla [ Pheochromocytoma Malignant ]
- \* Bone Marrow
- \* Kidney
- \* Liver
- \* Pituitary Gland
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Bilateral TGLs = 2, 3-9+15 ]
- Hepatocyte
- Pars Distalis
- C Cell
- Pheochromocytoma Malignant
- Hyperplasia
- Nephropathy
- Hypertrophy
- Pigment
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Adenoma
- Mild
- Chronicprogr, Minimal
- Marked
- Moderate
- Mild
- Minimal
- Minimal
- Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 441

TRT#: 8

SEX: Male

DAY ON TEST: 745

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101741

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Skin
- \* Urinary Bladder
- \* Bone
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lung
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- Skeletal Muscle
- \* Trachea

OBSERVATIONS

- \* Adrenal Medulla
  - Blood Vessel
    - Note: Vascular inflammation involves the thymic arteries.
- \* Bone Marrow
- \* Heart
- \* Kidney
  - [ Nephropathy TGLs = 3 - 6 ]
- \* Liver
  - Cholangiocarcinoma
  - Clear Cell Focus
  - Degeneration
  - Hepatocellular Carcinoma
  - Bile Duct
  - Hepatocyte
    - [ Cholangiocarcinoma TGLs = 2 - 17 ]
    - [ Hepatocellular Carcinoma TGLs = 1 - 15 ]
- \* Nose
  - Olfactory Epi
- \* Pancreas
  - Acinus
- \* Pituitary Gland
  - Pars Distalis
- Skel Muscle

Note: Skeletal muscle sampled as non-tumor tissue for TGL-2, which was grossly identified as muscle but microscopically confirmed as liver.

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 441

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 745

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101741

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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* Spleen		Extramedullary Hematopoiesis	Mild
* Stomach, Forestomach	Epithelium	Hyperplasia	Squamous, Mild
		Inflammation	Mild
* Thymus		Atrophy	Mild
* Thyroid Gland	Follicular Cel	Hypertrophy	Minimal

---



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 442

TRT#: 8

SEX: Male

DAY ON TEST: 689

DOSE: 300/80 ppm

DISP: Moribund Sacrifice

HISTO: 1101742

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lung
- \* Pancreas
- \* Prostate
- \* Stomach, Glandular
- \* Bone
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Lymph Node, Mandibular
- \* Parathyroid Gland
- \* Salivary Glands
- \* Testes
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Lymph Node, Mesenteric
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Trachea
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Kidney
- \* Mammary Gland
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Urinary Bladder

OBSERVATIONS

- \* Adrenal Cortex
  - Zona Fascult
  - Hyperplasia
  - Hypertrophy
  - Blood Vessel
    - Mineral
    - Note: Coronary artery mineralized.
- \* Bone Marrow
  - Hyperplasia
- \* Liver
  - Hepatocyte
    - Cytoplasmic Alteration
    - Degeneration
    - Hypertrophy
    - Mixed Cell Focus
    - Necrosis
    - Pigment
  - Hepatocyte
    - Single Cell Death
- \* Nose
  - Olfactory Epi
- \* Skin
  - Subcut Tiss
    - Fibroma
    - [ Fibroma TGLs = 1 - 15 ]
- \* Spleen
  - Extramedullary Hematopoiesis
- \* Thymus
  - Atrophy
- \* Thyroid Gland
  - C Cell
    - Adenoma
  - Follicular Cel
    - Hypertrophy

PRIMARY CAUSE OF DEATH - Skin Subcut Tiss Fibroma

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 443

TRT#: 8

SEX: Male

DAY ON TEST: 743

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101743

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Urinary Bladder
- Blood Vessel
- Esophagus
- Intestine Large, Cecum
- Intestine Small, Ileum
- Mammary Gland
- Salivary Glands
- Stomach, Glandular
- Bone
- Eye
- Intestine Large, Colon
- Intestine Small, Jejunum
- Parathyroid Gland
- Seminal Vesicle
- Testes
- Bone Marrow
- Harderian Gland
- Intestine Large, Rectum
- Lung
- Pituitary Gland
- Skin
- Trachea

OBSERVATIONS

- \* Adrenal Cortex
- \* Brain
  - Note: Foreign material (hair) present within brain abscess.
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
  - Hepatocyte
  - Hepatocyte
- \* Lymph Node, Mandibular
- \* Nose
- \* Pancreas
  - Acinus
  - Acinus
  - Acinus
  - [ Adenoma TGLs = 1,2 - 15+16 ]
- \* Prostate
- \* Spleen
- \* Thymus
- \* Thyroid Gland
  - C Cell
  - Follicular Cel
- Hypertrophy
- Inflammation
- Adenoma
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Hypertrophy
- Pigment
- Hyperplasia
- Accumulation, Hyaline Droplet
- Adenoma
- Atrophy
- Hyperplasia
- Hyperplasia
- Pigment
- Atrophy
- Carcinoma
- Hypertrophy
- Minimal
- Moderate
- Chronicprogr, Mild
- Mild
- Minimal
- Mild
- Lymphoid, Mild
- Mild
- Multiple
- Minimal
- Marked
- Minimal
- Minimal
- Moderate
- Mild

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 444

TRT#: 8

SEX: Male

DAY ON TEST: 743

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101744

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Stomach, Glandular
- \* Urinary Bladder
- Blood Vessel
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Salivary Glands
- \* Testes
- \* Bone
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Thyroid Gland
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Pituitary Gland
- \* Stomach, Forestomach
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
- \* Bone Marrow
- \* Kidney
- \* Liver
- Hepatocyte
- Hepatocyte
- Hepatocyte
- [ Mixed Cell Focus TGLs = 1 - 16 ]
- \* Lung
- \* Lymph Node, Mandibular
- \* Nose
- \* Pancreas
- [ Adenoma TGLs = 4 - 18 ]
- \* Prostate
- \* Skin
- Hypertrophy
- Hyperplasia
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Degeneration
- Hypertrophy
- Inflammation
- Mixed Cell Focus
- Necrosis
- Single Cell Death
- Inflammation
- Hyperplasia
- Accumulation, Hyaline Droplet
- Adenoma
- Atrophy
- Hyperplasia
- Inflammation
- Inflammation
- Minimal
- Moderate
- Chronicprogr, Moderate
- Moderate
- Cystic, Minimal
- Mild
- Focal, Minimal
- Minimal
- Minimal
- Multifocal, Granulomatous, Minimal
- Lymphoid, Moderate
- Mild
- Multiple
- Minimal
- Marked
- Chronic Active, Minimal
- Marked

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

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**ANIMAL ID:** 444

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101744

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

[ Inflammation TGLs = 2 - 17 ]

\* Spleen

Pigment

Minimal

\* Thymus

Atrophy

Moderate

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 445

TRT#: 8

SEX: Male

DAY ON TEST: 743

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101745

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Trachea
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Salivary Glands
- \* Testes
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Thyroid Gland

OBSERVATIONS

- \* Adrenal Cortex
- Blood Vessel
- \* Kidney
- \* Liver
- [ Hepatocellular Adenoma TGLs = 6 - 18 ]
- \* Lung
- [ Infiltration Cellular TGLs = 4 - 4+5 ]
- \* Mammary Gland
- [ Fibroadenoma TGLs = 1 - 15 ]
- \* Nose
- \* Pancreas
- [ Adenoma TGLs = 3, 5 - 17 ]
- [ Carcinoma TGLs = 2 - 16 ]
- \* Spleen
- Aorta
- Hepatocyte
- Hepatocyte
- Hepatocyte
- Olfactory Epi
- Acinus
- Acinus
- Extramedullary Hematopoiesis
- Pigment
- Degeneration
- Mineral
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Degeneration
- Hepatocellular Adenoma
- Hypertrophy
- Single Cell Death
- Infiltration Cellular
- Fibroadenoma
- Accumulation, Hyaline Droplet
- Adenoma
- Carcinoma
- Cystic, Minimal
- Minimal
- Chronicprogr, Mild
- Mild
- Cystic, Minimal
- Multiple
- Minimal
- Minimal
- Histiocyte, Minimal
- Mild
- Multiple
- Mild
- Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 445

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101745

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Stomach, Forestomach

Epithelium

Hyperplasia

Squamous, Minimal

\* Thymus

Atrophy

Moderate

---



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 446

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101746

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**ORGAN AND ACCOUNTABLE SITE STATUS**

---

* Pituitary Gland	Pars Distalis	Hyperplasia	Minimal
* Spleen		Extramedullary Hematopoiesis	Minimal
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Adenoma	

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 448

TRT#: 8

SEX: Male

DAY ON TEST: 134

DOSE: 300/80 ppm

DISP: Moribund Sacrifice

HISTO: 1101748

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla           | Blood Vessel             | * Bone                     | * Brain                   |
| * Epididymis                | * Esophagus              | * Eye                      | * Harderian Gland         |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lung                      | * Lymph Node, Mesenteric | * Mammary Gland            | * Nose                    |
| * Pancreas                  | * Parathyroid Gland      | * Pituitary Gland          | * Preputial Gland         |
| * Prostate                  | * Salivary Glands        | * Seminal Vesicle          | * Skin                    |
| * Stomach, Glandular        | * Testes                 | * Thyroid Gland            | * Trachea                 |
| * Urinary Bladder           |                          |                            |                           |

OBSERVATIONS

- |                          |              |                              |                       |
|--------------------------|--------------|------------------------------|-----------------------|
| * Adrenal Cortex         |              | Necrosis                     | Minimal               |
| * Bone Marrow            |              | Hyperplasia                  | Moderate              |
| * Kidney                 |              | Nephropathy                  | Chronicprogr, Minimal |
| * Liver                  | Hepatocyte   | Cytoplasmic Alteration       | Minimal               |
|                          | Hepatocyte   | Hypertrophy                  | Minimal               |
|                          | Hepatocyte   | Pigment                      | Minimal               |
|                          | Hepatocyte   | Single Cell Death            | Marked                |
| * Lymph Node, Mandibular |              | Atrophy                      | Moderate              |
| * Spleen                 | Lymph Follic | Atrophy                      | Mild                  |
|                          |              | Extramedullary Hematopoiesis | Mild                  |
|                          |              | Pigment                      | Minimal               |
| * Stomach, Forestomach   | Epithelium   | Hyperplasia                  | Squamous, Mild        |
|                          |              | Inflammation                 | Mild                  |
| * Thymus                 |              | Atrophy                      | Marked                |

PRIMARY CAUSE OF DEATH - Liver Hepatocyte Single Cell Death

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 450

TRT#: 8

SEX: Male

DAY ON TEST: 747

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101750

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Lymph Node, Mandibular
* Lymph Node, Mesenteric	* Mammary Gland	* Pituitary Gland	* Preputial Gland
* Salivary Glands	* Seminal Vesicle	* Skin	* Stomach, Forestomach
* Stomach, Glandular	* Thyroid Gland	* Trachea	* Urinary Bladder

MISSING

\* Parathyroid Gland

OBSERVATIONS

* Adrenal Cortex	Zona Fascult	Hyperplasia	Moderate
		Hypertrophy	Minimal
* Intestine Large, Colon		Parasite Metazoan	
* Islets, Pancreatic		Adenoma	
* Kidney		Nephropathy	Chronicprogr, Mild
* Liver		Clear Cell Focus	
	Hepatocyte	Cytoplasmic Alteration	Mild
		Hepatocellular Adenoma	Multiple
		Hepatocellular Carcinoma	
	Hepatocyte	Hypertrophy	Minimal
		Inflammation	Focal, Minimal
		Pigment	Minimal
	Hepatocyte	Single Cell Death	Minimal
	[ Hepatocellular Adenoma TGLs = 2, 5, 3-3+17+18 ]		
	[ Hepatocellular Carcinoma TGLs = 1 - 15 ]		
* Lung		Infiltration Cellular	Lymphocyte, Moderate
	[ Infiltration Cellular TGLs = 6 - 4+5 ]		
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Pancreas	Acinus	Adenoma	Multiple
	Acinus	Hyperplasia	Marked

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 450

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 747

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101750

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

[ Adenoma TGLs = 4 - 7+19 ]

* Prostate	Ventral	Inflammation	Chronic Active, Minimal
* Spleen		Extramedullary Hematopoiesis	Minimal
		Pigment	Minimal
* Testes	Bilateral, Germinal Epith	Degeneration	Moderate
* Thymus		Atrophy	Moderate

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 451

TRT#: 8

SEX: Male

DAY ON TEST: 743

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101751

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex         | * Adrenal Medulla          | * Bone                    | * Bone Marrow               |
| * Brain                  | * Epididymis               | * Esophagus               | * Harderian Gland           |
| * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Lymph Node, Mandibular    |
| * Lymph Node, Mesenteric | * Mammary Gland            | * Preputial Gland         | * Salivary Glands           |
| * Seminal Vesicle        | * Skin                     | * Stomach, Forestomach    | * Stomach, Glandular        |
| * Testes                 | * Thyroid Gland            | * Trachea                 | * Urinary Bladder           |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |              |  |                               |                        |
|--------------|--|-------------------------------|------------------------|
| Blood Vessel | Aorta, Pulmn Artery                      | Mineral                       | Minimal                |
| * Eye        | Retina                                   | Degeneration                  | Minimal                |
| * Heart      |  | Cardiomyopathy                | Minimal                |
| * Kidney     |  | Infarct                       | Minimal                |
|              |  | Nephropathy                   | Chronicprogr, Mild     |
| * Liver      |  | Basophilic Focus              |                        |
|              |  | Clear Cell Focus              |                        |
|              | Hepatocyte                               | Cytoplasmic Alteration        | Minimal                |
|              |  | Degeneration                  | Cystic, Minimal        |
|              | Hepatocyte                               | Hypertrophy                   | Minimal                |
|              |  | Mixed Cell Focus              |                        |
|              |  | Pigment                       | Minimal                |
|              | [ Mixed Cell Focus TGLs = 3 - 3+16 ]     |                               |                        |
| * Lung       |  | Infiltration Cellular         | Histiocyte, Mild       |
|              | [ Infiltration Cellular TGLs = 4 - 4+5 ] |                               |                        |
| * Nose       | Olfactory Epi                            | Accumulation, Hyaline Droplet | Mild                   |
| * Pancreas   | Acinus                                   | Adenoma                       | Multiple               |
|              | Acinus                                   | Atrophy                       | Minimal                |
|              | Acinus                                   | Hyperplasia                   | Marked                 |
|              | Duct                                     | Inflammation                  | Chronic Active, Marked |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 451

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101751

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

[ Adenoma TGLs = 2 - 17 ]

[ Inflammation TGLs = 1 - 15 ]

\* Pituitary Gland

Pars Distalis

Hyperplasia

Minimal

\* Prostate

Ventral

Inflammation

Chronic Active, Minimal

\* Spleen

Extramedullary Hematopoiesis

Minimal

\* Thymus

Atrophy

Moderate

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 452

TRT#: 8

SEX: Male

DAY ON TEST: 743

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101752

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| Blood Vessel                | * Bone                   | * Bone Marrow              | * Brain                   |
| * Epididymis                | * Esophagus              | * Eye                      | * Harderian Gland         |
| * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            | * Parathyroid Gland       |
| * Preputial Gland           | * Prostate               | * Salivary Glands          | * Seminal Vesicle         |
| * Stomach, Forestomach      | * Stomach, Glandular     | * Testes                   | * Trachea                 |
| * Urinary Bladder           |                          |                            |                           |

OBSERVATIONS

- |                   |                                      |                               |                      |
|-------------------|--------------------------------------|-------------------------------|----------------------|
| * Adrenal Cortex  |                                      | Hypertrophy                   | Minimal              |
| * Adrenal Medulla |                                      | Hyperplasia                   | Minimal              |
| * Kidney          |                                      | Nephropathy                   | Chronicprogr, Mild   |
| * Liver           |                                      | Clear Cell Focus              |                      |
|                   | Hepatocyte                           | Cytoplasmic Alteration        | Minimal              |
|                   |                                      | Inflammation                  | Focal, Minimal       |
|                   |                                      | Mixed Cell Focus              |                      |
|                   |                                      | Pigment                       | Minimal              |
|                   | [ Mixed Cell Focus TGLs = 2 - 17 ]   |                               |                      |
| * Lung            |                                      | Infiltration Cellular         | Histiocyte, Moderate |
| * Nose            | Olfactory Epi                        | Accumulation, Hyaline Droplet | Moderate             |
| * Pancreas        | Acinus                               | Adenoma                       |                      |
|                   | Acinus                               | Atrophy                       | Minimal              |
|                   | Acinus                               | Hyperplasia                   | Minimal              |
|                   | [ Adenoma TGLs = 4 - 18 ]            |                               |                      |
| * Pituitary Gland | Pars Distalis                        | Adenoma                       |                      |
|                   | [ Adenoma TGLs = 3 - 9 ]             |                               |                      |
| * Skin            | Pinna                                | Neural Crest Tumor            |                      |
|                   | [ Neural Crest Tumor TGLs = 1 - 16 ] |                               |                      |
| * Spleen          |                                      | Extramedullary Hematopoiesis  | Minimal              |
| * Thymus          |                                      | Atrophy                       | Mild                 |

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 452

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101752

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thyroid Gland

C Cell

Adenoma

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 453

TRT#: 8

SEX: Male

DAY ON TEST: 747

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101753

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                          |                            |                           |                             |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex         | * Adrenal Medulla          | * Bone                    | * Bone Marrow               |
| * Brain                  | * Epididymis               | * Esophagus               | * Eye                       |
| * Harderian Gland        | * Intestine Large, Cecum   | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      | * Kidney                    |
| * Lung                   | * Lymph Node, Mandibular   | * Lymph Node, Mesenteric  | * Mammary Gland             |
| * Parathyroid Gland      | * Pituitary Gland          | * Preputial Gland         | * Salivary Glands           |
| * Seminal Vesicle        | * Skin                     | * Stomach, Glandular      | * Testes                    |
| * Thyroid Gland          | * Trachea                  | * Urinary Bladder         |                             |

OBSERVATIONS

- |  |                             |                               |                         |
|--|-----------------------------|-------------------------------|-------------------------|
| Blood Vessel   |                             | Inflammation                  | Chronic, Minimal        |
| Note: Vascular inflammation affects testicular arterioles. |                             |                               |                         |
| * Heart  |                             | Cardiomyopathy                | Minimal                 |
| * Intestine Large, Colon                                   |                             | Parasite Metazoan             |                         |
| * Liver  |                             | Clear Cell Focus              |                         |
|  | Hepatocyte                  | Cytoplasmic Alteration        | Mild                    |
|  |                             | Degeneration                  | Cystic, Minimal         |
|  | Hepatocyte                  | Hypertrophy                   | Mild                    |
|  |                             | Inflammation                  | Focal, Minimal          |
|  |                             | Pigment                       | Minimal                 |
| * Nose   | Olfactory Epi               | Accumulation, Hyaline Droplet | Mild                    |
| * Pancreas   | Acinus                      | Adenoma                       | Multiple                |
|  | Acinus                      | Atrophy                       | Mild                    |
|  | Acinus                      | Hyperplasia                   | Marked                  |
|  | [ Adenoma TGLs = 1,2 - 16 ] |                               |                         |
| * Prostate   | Ventral                     | Inflammation                  | Chronic Active, Minimal |
| * Spleen   |                             | Extramedullary Hematopoiesis  | Minimal                 |
|  |                             | Pigment                       | Minimal                 |
| * Stomach, Forestomach                                     | Epithelium                  | Hyperplasia                   | Squamous, Minimal       |
| * Thymus   |                             | Atrophy                       | Moderate                |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 454

TRT#: 8

SEX: Male

DAY ON TEST: 747

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101754

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Lung                    | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            |
| * Pituitary Gland         | * Preputial Gland           | * Prostate               | * Salivary Glands          |
| * Seminal Vesicle         | * Skin                      | * Stomach, Forestomach   | * Stomach, Glandular       |
| * Testes                  | * Trachea                   | * Urinary Bladder        |                            |

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- |                      |                             |                               |                       |
|----------------------|-----------------------------|-------------------------------|-----------------------|
| * Heart              |                             | Cardiomyopathy                | Minimal               |
| * Islets, Pancreatic |                             | Adenoma                       |                       |
|                      |                             | Hyperplasia                   | Mild                  |
| * Kidney             |                             | Nephropathy                   | Chronicprogr, Minimal |
| * Liver              |                             | Clear Cell Focus              |                       |
|                      | Hepatocyte                  | Cytoplasmic Alteration        | Mild                  |
|                      |                             | Hemangioma                    |                       |
|                      | Hepatocyte                  | Hypertrophy                   | Mild                  |
|                      |                             | Inflammation                  | Focal, Minimal        |
|                      |                             | Necrosis                      | Mild                  |
|                      |                             | Pigment                       | Minimal               |
|                      | Hepatocyte                  | Single Cell Death             | Minimal               |
| * Nose               | Olfactory Epi               | Accumulation, Hyaline Droplet | Minimal               |
| * Pancreas           | Acinus                      | Adenoma                       | Multiple              |
|                      | Acinus                      | Atrophy                       | Minimal               |
|                      | Acinus                      | Hyperplasia                   | Marked                |
|                      | [ Adenoma TGLs = 1 - 7+15 ] |                               |                       |
| * Spleen             |                             | Extramedullary Hematopoiesis  | Minimal               |
| * Thymus             |                             | Atrophy                       | Marked                |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 454

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 747

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101754

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thyroid Gland

C Cell

Carcinoma

[ Carcinoma TGLs = 2 - 9 ]

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 455

TRT#: 8

SEX: Male

DAY ON TEST: 746

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101755

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Bone Marrow             | * Brain                     | * Epididymis             | * Esophagus                |
| * Eye                     | * Harderian Gland           | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Lymph Node, Mandibular    | * Lymph Node, Mesenteric | * Mammary Gland            |
| * Parathyroid Gland       | * Preputial Gland           | * Prostate               | * Salivary Glands          |
| * Seminal Vesicle         | * Skin                      | * Stomach, Forestomach   | * Stomach, Glandular       |
| * Testes                  | * Thyroid Gland             | * Trachea                | * Urinary Bladder          |

OBSERVATIONS

- |                   |  |                               |                       |
|-------------------|--|-------------------------------|-----------------------|
| * Heart           |  | Cardiomyopathy                | Minimal               |
| * Kidney          |  | Nephropathy                   | Chronicprogr, Minimal |
| * Liver           |  | Clear Cell Focus              |                       |
|                   | Hepatocyte                               | Cytoplasmic Alteration        | Mild                  |
|                   | Hepatocyte                               | Hypertrophy                   | Minimal               |
|                   |  | Inflammation                  | Focal, Minimal        |
|                   |  | Necrosis                      | Mild                  |
|                   |  | Pigment                       | Mild                  |
| * Lung            |  | Infiltration Cellular         | Histiocyte, Minimal   |
|                   | [ Infiltration Cellular TGLs = 3 - 4+5 ] |                               |                       |
| * Nose            | Olfactory Epi                            | Accumulation, Hyaline Droplet | Minimal               |
|                   | Respirat Epith                           | Inflammation                  | Minimal               |
| * Pancreas        | Acinus                                   | Adenoma                       | Multiple              |
|                   | Acinus                                   | Hyperplasia                   | Marked                |
|                   | [ Adenoma TGLs = 1,2 - 15+16 ]           |                               |                       |
| * Pituitary Gland | Pars Distalis                            | Hyperplasia                   | Minimal               |
| * Spleen          |  | Extramedullary Hematopoiesis  | Minimal               |
| * Thymus          |  | Atrophy                       | Moderate              |

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 456

TRT#: 8

SEX: Male

DAY ON TEST: 746

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101756

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone Marrow
- \* Eye
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
- \* Heart
- \* Intestine Large, Colon
- \* Kidney
- \* Liver
- \* Lung
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Spleen
- \* Thymus
- Degeneration
- Cardiomyopathy
- Parasite Metazoan
- Nephropathy
- Clear Cell Focus
- Hepatocyte
- Hepatocyte
- Hepatocyte
- Cytoplasmic Alteration
- Hypertrophy
- Inflammation
- Single Cell Death
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Inflammation
- Adenoma
- Atrophy
- Hyperplasia
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Cystic, Minimal
- Minimal
- Chronicprogr, Mild
- Mild
- Minimal
- Focal, Minimal
- Minimal
- Histiocyte, Minimal
- Moderate
- Minimal
- Multiple
- Minimal
- Marked
- Minimal
- Minimal
- Minimal
- Mild

[ Infiltration Cellular TGLs = 1 - 4+5 ]

[ Adenoma TGLs = 2 - 15 ]

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20614 - 02

**Test Type:** CHRONIC

**Route:** DOSED FEED

**Species/Strain:** RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

**CAS Number:** 335-67-1

**Date Report Requested:** 07/24/2018

**Time Report Requested:** 12:59:13

**First Dose M/F:** 07/27/09 / NA

**Lab:** BAT

---

**ANIMAL ID:** 456

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 746

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101756

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thyroid Gland

C Cell

Hyperplasia

Mild

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 457

TRT#: 8

SEX: Male

DAY ON TEST: 747

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101757

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone
- \* Bone Marrow
- \* Brain
- \* Epididymis
- \* Esophagus
- \* Eye
- \* Harderian Gland
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Large, Rectum
- \* Intestine Small, Duodenum
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Islets, Pancreatic
- \* Lymph Node, Mandibular
- \* Lymph Node, Mesenteric
- \* Mammary Gland
- \* Parathyroid Gland
- \* Pituitary Gland
- \* Preputial Gland
- \* Salivary Glands
- \* Seminal Vesicle
- \* Stomach, Forestomach
- \* Stomach, Glandular
- \* Testes
- \* Thyroid Gland
- \* Trachea
- \* Urinary Bladder

MISSING

- \* Thymus

OBSERVATIONS

- Blood Vessel Inflammation Chronic, Mild
- \* Heart Cardiomyopathy Minimal
- \* Kidney Nephropathy Chronicprogr, Mild
- \* Liver Clear Cell Focus
- Hepatocyte Cytoplasmic Alteration Mild
- Hepatocyte Degeneration Cystic, Minimal
- Hepatocyte Hypertrophy Mild
- Hepatocyte Inflammation Focal, Minimal
- \* Lung Single Cell Death Minimal
- [ Infiltration Cellular TGLs = 3 - 4+5 ] Infiltration Cellular Histiocyte, Moderate
- \* Nose Olfactory Epi Accumulation, Hyaline Droplet Mild
- \* Pancreas Acinus Hyperplasia Marked
- [ Hyperplasia TGLs = 2 - 7+16 ]
- \* Prostate Epithelium, Ventral Hyperplasia Minimal
- \* Skin Inflammation Moderate
- [ Ulcer TGLs = 1 - 15 ] Ulcer Minimal
- \* Spleen Extramedullary Hematopoiesis Minimal

\* PROTOCOL REQUIRED TISSUE



Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 457

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 747

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101757

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

Pigment

Minimal

---





Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 460

TRT#: 8

SEX: Male

DAY ON TEST: 745

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101760

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Pituitary Gland
- \* Skin
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Preputial Gland
- \* Stomach, Forestomach
- \* Bone
- \* Esophagus
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Testes
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
- \* Heart
- \* Kidney
- \* Liver
- \* Lung
- \* Nose
- \* Pancreas
- \* Prostate
- Hypertrophy
- Cardiomyopathy
- Coron Artery
- Mineral
- Nephropathy
- Clear Cell Focus
- Hepatocyte
- Hepatocyte
- Hepatocyte
- [ Hepatocellular Adenoma TGLs = 2 - 16 ]
- Infiltration Cellular
- Inflammation
- Accumulation, Hyaline Droplet
- Inflammation
- Acinus
- Acinus
- [ Adenoma TGLs = 1, 3 - 7+18 ]
- [ Carcinoma TGLs = 4 - 15 ]
- Ventral
- Minimal
- Minimal
- Minimal
- Chronicprogr, Mild
- Mild
- Minimal
- Focal, Minimal
- Minimal
- Minimal
- Histiocyte, Minimal
- Chronic Active, Minimal
- Marked
- Minimal
- Multiple
- Chronic Active, Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 460

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 745

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101760

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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* Spleen		Extramedullary Hematopoiesis	Minimal
* Stomach, Glandular		Carcinoma	Metastatic (Pancreas)
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Hyperplasia	Moderate

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 461

TRT#: 8

SEX: Male

DAY ON TEST: 743

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101761

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Intestine Large, Cecum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Rectum
- \* Islets, Pancreatic
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes
- \* Bone Marrow
- \* Eye
- \* Intestine Small, Duodenum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Thyroid Gland
- \* Brain
- \* Harderian Gland
- \* Intestine Small, Ileum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
  - Blood Vessel
    - Note: Mineral involves a coronary artery.
- \* Heart
- \* Intestine Large, Colon
- \* Kidney
- \* Liver
  - Hepatocyte
  - Hepatocyte
    - [ Mixed Cell Focus TGLs = 2 - 17 ]
- \* Lung
  - Inflammation
- \* Nose
  - Respirat Epith
- \* Pancreas
  - Acinus
- \* Pituitary Gland
  - Pars Distalis
    - [ Adenoma TGLs = 1 - 9 ]
- \* Spleen
  - Extramedullary Hematopoiesis
  - Pigment

- Adenoma
- Mineral
- Cardiomyopathy
- Parasite Metazoan
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Hypertrophy
- Inflammation
- Mixed Cell Focus
- Pigment
- Infiltration Cellular
- Inflammation
- Inflammation
- Hyperplasia
- Adenoma
- Extramedullary Hematopoiesis
- Pigment

- Minimal
- Minimal
- Chronicprogr, Mild
- Minimal
- Minimal
- Focal, Minimal
- Minimal
- Histiocyte, Moderate
- Chronic Active, Minimal
- Minimal
- Mild
- Mild
- Minimal

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20614 - 02

**Test Type:** CHRONIC

**Route:** DOSED FEED

**Species/Strain:** RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

**CAS Number:** 335-67-1

**Date Report Requested:** 07/24/2018

**Time Report Requested:** 12:59:13

**First Dose M/F:** 07/27/09 / NA

**Lab:** BAT

---

**ANIMAL ID:** 461

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 743

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101761

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thymus

Atrophy

Mild

---





Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 463

TRT#: 8

SEX: Male

DAY ON TEST: 550

DOSE: 300/80 ppm

DISP: Natural Death

HISTO: 1101763

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                           |                             |                          |                            |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex          | * Adrenal Medulla           | Blood Vessel             | * Bone                     |
| * Brain                   | * Epididymis                | * Esophagus              | * Eye                      |
| * Harderian Gland         | * Heart                     | * Intestine Large, Cecum | * Intestine Large, Colon   |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic      | * Kidney                    | * Liver                  | * Mammary Gland            |
| * Nose                    | * Parathyroid Gland         | * Pituitary Gland        | * Preputial Gland          |
| * Prostate                | * Salivary Glands           | * Seminal Vesicle        | * Skin                     |
| * Stomach, Forestomach    | * Testes                    | * Trachea                | * Urinary Bladder          |

OBSERVATIONS

- |                          |                 |                              |                                    |
|--------------------------|-----------------|------------------------------|------------------------------------|
| * Bone Marrow            |                 | Hyperplasia                  | Moderate                           |
| * Lung                   |                 | Inflammation                 | Multifocal, Granulomatous, Minimal |
| * Lymph Node, Mandibular |                 | Atrophy                      | Minimal                            |
| * Lymph Node, Mesenteric |                 | Atrophy                      | Moderate                           |
| * Pancreas               | Acinus          | Hyperplasia                  | Minimal                            |
| * Spleen                 |                 | Extramedullary Hematopoiesis | Mild                               |
| * Stomach, Glandular     |                 | Inflammation                 | Minimal                            |
| * Thymus                 |                 | Thymoma Malignant            |                                    |
| [ Thymoma Malignant      | TGLs = 1 - 15 ] |                              |                                    |
| * Thyroid Gland          | C Cell          | Adenoma                      |                                    |
|                          | Follicular Cel  | Hypertrophy                  | Minimal                            |

PRIMARY CAUSE OF DEATH - Thymus Thymoma Malignant

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 464

TRT#: 8

SEX: Male

DAY ON TEST: 745

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101764

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Trachea
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Urinary Bladder
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Testes

OBSERVATIONS

- \* Adrenal Cortex
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
- \* Lung
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Spleen
- \* Thymus
- \* Thyroid Gland
- Hepatocyte
- Hepatocyte
- Hepatocyte
- Respirat Epith
- Acinus
- Acinus
- Acinus
- Pars Distalis
- Bilateral, C Cell
- Hypertrophy
- Hyperplasia
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Hypertrophy
- Inflammation
- Necrosis
- Single Cell Death
- Infiltration Cellular
- Inflammation
- Adenoma
- Atrophy
- Hyperplasia
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Atrophy
- Adenoma
- Mild
- Mild
- Chronicprogr, Mild
- Minimal
- Minimal
- Focal, Minimal
- Minimal
- Minimal
- Histiocyte, Minimal
- Minimal
- Multiple
- Mild
- Marked
- Minimal
- Mild
- Minimal
- Moderate

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

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**ANIMAL ID:** 464

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 745

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101764

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

[ Adenoma TGLs = 6 - 9 ]

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Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 465

TRT#: 8

SEX: Male

DAY ON TEST: 746

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101765

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Urinary Bladder
- Blood Vessel
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Parathyroid Gland
- \* Seminal Vesicle
- \* Trachea

OBSERVATIONS

- \* Adrenal Cortex
- \* Islets, Pancreatic
- \* Kidney
- \* Liver
- \* Lung
- \* Nose
- \* Pancreas
- \* Pituitary Gland
- \* Spleen
- Zona Fascult
- Hepatocyte
- Bile Duct
- Hepatocyte
- [ Hepatocellular Adenoma TGLs = 3 - 17 ]
- [ Infiltration Cellular TGLs = 5 - 4+5 ]
- [ Adenoma TGLs = 1,2 - 7+15+16 ]
- Pars Distalis
- Hyperplasia
- Hyperplasia
- Infarct
- Nephropathy
- Clear Cell Focus
- Cytoplasmic Alteration
- Eosinophilic Focus
- Hepatocellular Adenoma
- Hyperplasia
- Hypertrophy
- Infiltration Cellular
- Accumulation, Hyaline Droplet
- Adenoma
- Hyperplasia
- Hyperplasia
- Extramedullary Hematopoiesis
- Pigment
- Mild
- Mild
- Minimal
- Chronicprogr, Mild
- Mild
- Minimal
- Mild
- Histiocyte, Minimal
- Mild
- Multiple
- Marked
- Minimal
- Minimal
- Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 465

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 746

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101765

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

* Testes		Edema	Minimal
[ Edema TGLs = 4 - 12 ]			
* Thymus		Atrophy	Moderate
* Thyroid Gland	C Cell	Hyperplasia	Mild
	Follicular Cel	Hypertrophy	Mild

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 466

TRT#: 8

SEX: Male

DAY ON TEST: 746

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101766

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Medulla
- \* Epididymis
- \* Heart
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Stomach, Forestomach
- \* Bone
- \* Esophagus
- \* Intestine Large, Cecum
- \* Intestine Small, Ileum
- \* Mammary Gland
- \* Salivary Glands
- \* Stomach, Glandular
- \* Bone Marrow
- \* Eye
- \* Intestine Large, Colon
- \* Intestine Small, Jejunum
- \* Pituitary Gland
- \* Seminal Vesicle
- \* Trachea
- \* Brain
- \* Harderian Gland
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Urinary Bladder

MISSING

- \* Parathyroid Gland

OBSERVATIONS

- \* Adrenal Cortex
    - Blood Vessel
  - \* Islets, Pancreatic
  - \* Kidney
  - \* Liver
    - Hepatocyte
    - Hepatocyte
  - \* Lung
    - Alveolar Epith
  - [ Infiltration Cellular TGLs = 2 - 4+5 ]
  - \* Nose
    - Olfactory Epi
  - \* Pancreas
    - Acinus
    - Acinus
    - Acinus
  - [ Adenoma TGLs = 1 - 7+16 ]
  - \* Spleen
- Hypertrophy
  - Mineral
  - Hyperplasia
  - Nephropathy
  - Clear Cell Focus
  - Cytoplasmic Alteration
  - Eosinophilic Focus
  - Hypertrophy
  - Inflammation
  - Pigment
  - Hyperplasia
  - Infiltration Cellular
  - Inflammation
  - Accumulation, Hyaline Droplet
  - Adenoma
  - Atrophy
  - Hyperplasia
  - Pigment
- Minimal
  - Minimal
  - Mild
  - Chronicprogr, Minimal
  - Mild
  - Minimal
  - Focal, Minimal
  - Marked
  - Minimal
  - Histiocyte, Minimal
  - Chronic Active, Minimal
  - Marked
  - Multiple
  - Minimal
  - Marked
  - Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

---

**ANIMAL ID:** 466

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 746

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101766

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

* Testes	Bilateral, Germinal Epith	Degeneration	Moderate
* Thymus		Atrophy	Mild
* Thyroid Gland	Follicular Cel	Hypertrophy	Moderate

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 467

TRT#: 8

SEX: Male

DAY ON TEST: 745

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101767

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Heart	* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum
* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic
* Lymph Node, Mandibular	* Lymph Node, Mesenteric	* Mammary Gland	* Parathyroid Gland
* Preputial Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Skin	* Stomach, Glandular	* Testes	* Thyroid Gland
* Trachea	* Urinary Bladder		

OBSERVATIONS

* Adrenal Cortex	Zona Fascult	Degeneration Hyperplasia Hypertrophy Necrosis Nephropathy Clear Cell Focus	Cystic, Minimal Moderate Minimal Mild Chronicprogr, Moderate
* Harderian Gland	Hepatocyte	Cytoplasmic Alteration	Minimal
* Kidney	Hepatocyte	Hypertrophy Pigment	Minimal Minimal
* Liver	Hepatocyte	Single Cell Death Infiltration Cellular	Minimal Histiocyte, Mild
* Lung	Olfactory Epi	Accumulation, Hyaline Droplet	Mild
* Nose	Acinus	Adenoma	Multiple
* Pancreas	Acinus	Carcinoma	
	Acinus	Hyperplasia Inflammation	Marked Chronic Active, Minimal
[ Adenoma TGLs = 1 - 7+15 ]			
* Pituitary Gland	Pars Distalis	Hyperplasia	Marked
* Spleen		Extramedullary Hematopoiesis Pigment	Minimal Minimal
* Stomach, Forestomach		Inflammation	Minimal

\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 20614 - 02

**Test Type:** CHRONIC

**Route:** DOSED FEED

**Species/Strain:** RATS/HSD

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

Perfluorooctanoic Acid

**CAS Number:** 335-67-1

**Date Report Requested:** 07/24/2018

**Time Report Requested:** 12:59:13

**First Dose M/F:** 07/27/09 / NA

**Lab:** BAT

---

**ANIMAL ID:** 467

**TRT#:** 8

**SEX:** Male

**DAY ON TEST:** 745

**DOSE:** 300/80 ppm

**DISP:** Terminal Sacrifice

**HISTO:** 1101767

---

**ORGAN AND ACCOUNTABLE SITE STATUS**

---

\* Thymus

Atrophy

Mild

---

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 468

TRT#: 8

SEX: Male

DAY ON TEST: 745

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101768

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- \* Adrenal Cortex
- \* Adrenal Medulla
- \* Bone Marrow
- \* Brain
- \* Intestine Large, Cecum
- \* Intestine Large, Colon
- \* Intestine Small, Ileum
- \* Intestine Small, Jejunum
- \* Mammary Gland
- \* Parathyroid Gland
- \* Salivary Glands
- \* Seminal Vesicle
- \* Stomach, Forestomach
- \* Stomach, Glandular
- Blood Vessel
- \* Esophagus
- \* Intestine Large, Rectum
- \* Lymph Node, Mandibular
- \* Preputial Gland
- \* Skin
- \* Trachea
- \* Bone
- \* Harderian Gland
- \* Intestine Small, Duodenum
- \* Lymph Node, Mesenteric
- \* Prostate
- \* Spleen
- \* Urinary Bladder

OBSERVATIONS

- \* Epididymis [ Mesothelioma Malignant TGLs = 1 - 12 ] Mesothelioma Malignant
- \* Eye Retina Degeneration Moderate
- \* Heart Cardiomyopathy Mild
- \* Islets, Pancreatic Hyperplasia Minimal
- \* Kidney Nephropathy Chronicprogr, Mild
- \* Liver Hepatocyte Cytoplasmic Alteration Minimal
- Hepatocyte Hypertrophy Minimal
- Inflammation Focal, Minimal
- \* Lung Hepatocyte Single Cell Death Minimal
- Alveolar Epith Hyperplasia Minimal
- Infiltration Cellular TGLs = 2 - 4+5 Infiltration Cellular Histocyte, Mild
- Inflammation Chronic Active, Minimal
- \* Nose Olfactory Epi Accumulation, Hyaline Droplet Minimal
- \* Pancreas Acinus Hyperplasia Mild
- \* Pituitary Gland Pars Distalis Hyperplasia Minimal
- \* Testes Germinal Epith Degeneration Mild
- Thymus Mesothelioma Malignant
- \* Thyroid Gland C Cell Atrophy Moderate
- Follicular Cel Adenoma
- Hypertrophy Minimal

\* PROTOCOL REQUIRED TISSUE

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 469

TRT#: 8

SEX: Male

DAY ON TEST: 739

DOSE: 300/80 ppm

DISP: Moribund Sacrifice

HISTO: 1101769

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- |                             |                          |                            |                           |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex            | * Adrenal Medulla        | Blood Vessel               | * Bone                    |
| * Bone Marrow               | * Brain                  | * Epididymis               | * Esophagus               |
| * Eye                       | * Harderian Gland        | * Intestine Large, Cecum   | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic      |
| * Lung                      | * Lymph Node, Mandibular | * Lymph Node, Mesenteric   | * Mammary Gland           |
| * Parathyroid Gland         | * Preputial Gland        | * Salivary Glands          | * Seminal Vesicle         |
| * Skin                      | * Stomach, Forestomach   | * Stomach, Glandular       | * Testes                  |
| * Thyroid Gland             | * Trachea                | * Urinary Bladder          |                           |

OBSERVATIONS

- |                          |                          |                               |                      |
|--------------------------|--------------------------|-------------------------------|----------------------|
| * Heart                  |                          | Cardiomyopathy                | Minimal              |
| * Intestine Large, Colon |                          | Parasite Metazoan             |                      |
| * Kidney                 |                          | Nephropathy                   | Chronicprogr, Mild   |
| * Liver                  | Hepatocyte               | Cytoplasmic Alteration        | Mild                 |
|                          | Hepatocyte               | Hypertrophy                   | Minimal              |
|                          |                          | Pigment                       | Minimal              |
| * Nose                   | Olfactory Epi            | Accumulation, Hyaline Droplet | Mild                 |
| * Pancreas               | Acinus                   | Adenoma                       |                      |
| * Pituitary Gland        | Pars Distalis            | Adenoma                       |                      |
|                          | [ Adenoma TGLs = 1 - 9 ] |                               |                      |
| * Prostate               | Lateral                  | Inflammation                  | Chronic Active, Mild |
| * Spleen                 |                          | Pigment                       | Minimal              |
| * Thymus                 |                          | Atrophy                       | Marked               |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

Experiment Number: 20614 - 02

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

First Dose M/F: 07/27/09 / NA

Lab: BAT

ANIMAL ID: 470

TRT#: 8

SEX: Male

DAY ON TEST: 746

DOSE: 300/80 ppm

DISP: Terminal Sacrifice

HISTO: 1101770

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla	Blood Vessel	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Eye
* Harderian Gland	* Heart	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Islets, Pancreatic	* Lymph Node, Mesenteric	* Mammary Gland	* Pancreas
* Parathyroid Gland	* Preputial Gland	* Prostate	* Salivary Glands
* Seminal Vesicle	* Skin	* Stomach, Forestomach	* Stomach, Glandular
* Testes	* Thyroid Gland	* Trachea	* Urinary Bladder

OBSERVATIONS

* Adrenal Cortex		Degeneration	Cystic, Minimal
* Kidney		Nephropathy	Chronicprogr, Minimal
* Liver	Hepatocyte	Cytoplasmic Alteration	Mild
	Hepatocyte	Hypertrophy	Minimal
		Necrosis	Mild
	Hepatocyte	Single Cell Death	Minimal
* Lung		Infiltration Cellular	Histiocyte, Minimal
	[ Infiltration Cellular TGLs = 1 - 4+5 ]		
* Lymph Node, Mandibular		Atrophy	Mild
* Nose	Olfactory Epi	Accumulation, Hyaline Droplet	Marked
* Pituitary Gland	Pars Distalis	Hyperplasia	Moderate
	[ Hyperplasia TGLs = 2 - 16 ]		
* Spleen		Pigment	Minimal
* Thymus		Atrophy	Moderate

\*\*\* END OF REPORT \*\*\*