

Experiment Number: 20614 - 01
Test Type: CHRONIC
Route: DOSED FEED
Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
Perfluorooctanoic Acid
CAS Number: 335-67-1

Date Report Requested: 07/25/2018
Time Report Requested: 12:58:26
First Dose M/F: 10/27/08 / 10/28/08
Lab: BAT

Final 1_Core Only

NTP Study Number:	C20614		
Lock Date:	01/10/2012		
Cage Range:	ALL		
Date Range:	ALL		
Reasons For Removal:	25021 TSAC	25020 NATD	25019 MSAC
Removal Date Range:	ALL		
Treatment Groups:	Include ALL		
Study Gender:	Both		
TDMSE Version:	3.0.2.3_002		
PWG Approval Date:	07/25/2018		

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HARLAN SPRAGUE DAWLEY RATS FEMALE 0/0 ppm	DAY ON TEST	0746	0673	0474	0774	0774	0577	0775	0777	0777	0676	0777	0575	0575	0777	0777	0575	0777	0575	0776	0575	0474	0574	females (cont...)
	ANIMAL ID	0030	0033	0033	0033	0033	0033	0033	0033	0033	0033	0033	0033	0033	0033	0033	0033	0033	0033	0033	0033	0033	0033	

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Large, Colon Parasite Metazoan	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Angiectasis						1									1								
Basophilic Focus				X							X	X							X				X
Clear Cell Focus	X	X		X	X	X						X							X				X
Degeneration, Cystic															1								
Eosinophilic Focus			X																X				
Extramedullary Hematopoiesis		1			1							1		1				1					
Hepatodiaphragmatic Nodule							X					X											
Infiltration Cellular, Mixed Cell																							
Inflammation, Focal						1												1			1		
Mixed Cell Focus																							
Pigment					1																		2
Bile Duct, Cyst										X		X	X				X	X					

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
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HARLAN SPRAGUE DAWLEY RATS FEMALE 0/0 ppm	DAY ON TEST																								ANIMAL ID	females (cont...)
	0 7 4 6	0 6 7 6	0 4 3 5	0 7 4 5	0 7 4 6	0 7 4 4	0 7 4 6	0 5 3 4	0 7 2 6	0 7 4 2	0 6 4 5	0 7 4 6	0 5 4 3	0 5 7 4	0 7 4 6	0 7 4 2	0 5 9 2	0 7 8 9	0 5 4 5	0 6 4 7	0 5 4 7	0 6 4 7	0 5 4 2			
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0 3 0 1	0 0 3 0 3	

Bile Duct, Hyperplasia
Hepatocyte, Increased Mitoses
Oval Cell, Hyperplasia

1 1 1 2 2 1 1 2 1 2 1 1 1
1 1
1

Mesentery

+ +

Pancreas

+ +

Salivary Glands

+ +

Stomach, Forestomach

+ +

Ulcer
Epithelium, Hyperplasia
Submucosa, Inflammation, Chronic Active

1 2
3 3
3 3

Stomach, Glandular

+ +

CARDIOVASCULAR SYSTEM

Blood Vessel

+ +

Aorta, Mineral

1

Heart

+ +

Cardiomyopathy
Schwann Cell, Hyperplasia

1 1 1 1

ENDOCRINE SYSTEM

Adrenal Cortex

+ +

Degeneration, Cystic
Hypertrophy

1 2 1 3 1 2

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

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FEMALE
0/0 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | ANIMAL ID | females
(cont...) |
|---|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|---|-----------|----------------------|
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| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | | |
| | 1 | 3 | 4 | 6 | 7 | 9 | 0 | 1 | 3 | 4 | 5 | 6 | 7 | 8 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |

Vacuolization Cytoplasmic

Adrenal Medulla
Hyperplasia

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| | | | | 1 | | | | | | | | 3 | | | | | | | | | 1 | | | 2 |

Islets, Pancreatic
Hyperplasia

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| | | | | | | | | | | | | | | 1 | | | | | | | | | | 1 |

Parathyroid Gland
Hyperplasia, Focal

| | | | | | | | | | | | | | | | | | | | | | | | | |
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Pituitary Gland
Pars Distalis, Hyperplasia

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| + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| | | 2 | | | | | | | | | | 1 | 1 | 2 | | | | 3 | | | 2 | | | |

Thyroid Gland
C-cell, Hyperplasia
Follicular Cell, Hypertrophy

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
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| | | | | | | | | | | | | | | | | | | | | | | 2 | | |

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Clitoral Gland
Hyperplasia, Squamous
Inflammation
Duct, Metaplasia, Squamous

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
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Ovary
Atrophy

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(cont...) |
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| Cyst | X | | | X | X | | | | | X | X | X | | | | | X | X | | | | | | | | |
| Uterus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Adenomyosis | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dilation | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Chronic Active | | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| Endometrium, Hyperplasia, Cystic | 2 | | | | | | | 4 | | 2 | 2 | | | | | | 1 | 1 | | | 1 | 2 | 3 | | 1 | |
| Endometrium, Metaplasia, Squamous | 2 | | | | | | 2 | | | 1 | 2 | | | | | 1 | 1 | 2 | 1 | 1 | 3 | | | | | |

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bone Marrow | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Atrophy | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| Hyperplasia | | | 3 | | | | | 1 | 4 | | | | 3 | 1 | 2 | | | 2 | 1 | | | | | 2 | |
| Lymph Node | | | | | | | | | + | | | | | | | | | | | | | | | | |
| Lymph Node, Mandibular | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + |
| Atrophy, Lymphoid | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Hyperplasia, Lymphoid | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lymph Node, Mesenteric | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Atrophy, Lymphoid | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
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| Spleen | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Extramedullary Hematopoiesis | 2 | 2 | 1 | 2 | 1 | 1 | 2 | | 1 | | 2 | 3 | 1 | 1 | 2 | 1 | | | | 1 | | | | | 1 |
| Pigment | 1 | 1 | | 1 | 2 | 2 | 1 | | | 1 | | | 2 | | 2 | 2 | 1 | | | 2 | 1 | 1 | 2 | | 2 |
| Lymphoid Follicle, Atrophy | | | | | | | | | | 2 | | | | | | | | | | | | | | | 1 |
| | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| Thymus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |

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(cont...) |
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| Atrophy | 2 | 3 | | 2 | 1 | 2 | 4 | | 3 | 1 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 4 | 3 | 3 |
|---------|---|---|--|---|---|---|---|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

INTEGUMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mammary Gland
Hyperplasia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| | | 3 | | 3 | | 3 | | | | | | | 2 | | | | 1 | | | 1 | | 1 | | 2 | |
| Skin
Ulcer
Epidermis, Sebaceous Gland, Hyperplasia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| | | | | | | | | | | | | | 1 | | | | | | | | | | | | |
| | | | | | | | | | | | | | 2 | | | | | | | | | | | | |

MUSCULOSKELETAL SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bone | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
|------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

NERVOUS SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Brain
Gliosis, Diffuse
Hemorrhage
Necrosis | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| Spinal Cord | | | | | | | | | | | | | | | | | | | | | | | | | + |

RESPIRATORY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lung
Inflammation, Granulomatous, Multifocal
Inflammation, Chronic Active
Alveolus, Infiltration Cellular, Histiocyte | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | 2 | 2 | 1 | 1 | 1 | 1 | 2 | | 2 | | | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | | | 1 | 2 | |

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| DAY ON TEST | HARLAN SPRAGUE DAWLEY RATS FEMALE | | | | | | | | | | | | | | | | | | | | | | | | ANIMAL ID | females (cont...) | | | |
|--|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------|-------------------|-------------------|-------------------|-------------------|
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | |
| 7 | 6 | 4 | 7 | 7 | 7 | 7 | 5 | 7 | 7 | 7 | 6 | 7 | 5 | 5 | 7 | 7 | 5 | 7 | 5 | 7 | 6 | 5 | 7 | 4 | 0 | 0 | females (cont...) | | |
| 4 | 7 | 3 | 4 | 4 | 4 | 4 | 3 | 4 | 2 | 4 | 4 | 4 | 4 | 7 | 4 | 4 | 4 | 9 | 1 | 8 | 4 | 4 | 4 | 5 | 0 | 0 | | females (cont...) | |
| 6 | 6 | 5 | 5 | 6 | 6 | 4 | 3 | 6 | 2 | 4 | 5 | 6 | 3 | 4 | 4 | 6 | 4 | 2 | 2 | 9 | 5 | 7 | 7 | 2 | 0 | 0 | | | females (cont...) |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | females (cont...) | | |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | females (cont...) | |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | | | females (cont...) |
| 1 | 3 | 4 | 6 | 7 | 9 | 0 | 1 | 3 | 4 | 5 | 6 | 7 | 8 | 0 | 1 | 2 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 0 | | | |
| Nose | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | females (cont...) | | |
| Inflammation | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 2 | | females (cont...) | |
| Olfactory Epithelium, Metaplasia | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | females (cont...) |
| Respiratory Epithelium, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | |
| Respiratory Epithelium, Metaplasia, Squamous | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | females (cont...) | | |
| Trachea | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | females (cont...) | |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | females (cont...) |
| Eye | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| Retina, Degeneration | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | females (cont...) | | |
| Harderian Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | females (cont...) | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | females (cont...) |
| URINARY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kidney | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | females (cont...) | | |
| Accumulation, Hyaline Droplet | | | | | | | 1 | | 1 | | | | | | | | | | | | | | | | | 1 | | females (cont...) | |
| Calculus Micro Observation Only | | | | | | | 2 | | 1 | | | | | | | | | | | | | | | | | | | | females (cont...) |
| Nephropathy, Chronic Progressive | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 1 | | 1 | | 1 | 1 | 1 | 1 | 1 | | | 3 | 2 | 1 | 1 | | | 4 | females (cont...) | | | |
| Papilla, Urothelium, Hyperplasia | | | | | | | 1 | | | | | | | | | | | | | | | | 1 | | 1 | | females (cont...) | | |
| Pelvis, Inflammation, Chronic | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Renal Tubule, Mineral | 1 | | | | | | | 2 | 1 | | | | | | | | | | | | | | | | | | | | females (cont...) |
| Urinary Bladder | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | females (cont...) | |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 20614 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/25/2018

Time Report Requested: 12:58:26

First Dose M/F: 10/27/08 / 10/28/08

Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0/0 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|---|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| | 0621 | 0625 | 0624 | 0625 | 0624 | 0624 | 0622 | 0625 | 0626 | 0623 | 0626 | 0623 | 0622 | 0623 | 0627 | 0627 | 0626 | 0627 | 0627 | 0626 | 0626 | 0627 | 0627 | 0627 | |
| ANIMAL ID | 00331 | 00333 | 00335 | 00336 | 00337 | 00338 | 00330 | 00330 | 00330 | 00330 | 00330 | 00330 | 00330 | 00330 | 00330 | 00330 | 00330 | 00330 | 00330 | 00330 | 00330 | 00330 | 00330 | 00330 | 00330 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| Esophagus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Large, Colon
Parasite Metazoan | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50
1 |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Liver | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Angiectasis | | | | | | | | | | | | | | | | | | | | | | | | | 2 1.0 |
| Basophilic Focus | X | | | X | X | X | X | | | | | | | | | | | | | X | X | | | | 11 |
| Clear Cell Focus | | | | X | | | | | | | | | | | | X | | | | | | | X | | 11 |
| Degeneration, Cystic | | | | | | | | | | | | | | | | | | | | | | | | | 1 1.0 |
| Eosinophilic Focus | | | | X | X | X | X | | | | | | | | | | | | | X | X | | | | 8 |
| Extramedullary Hematopoiesis | | | | | | 1 | | 1 | | 1 | | | 1 | | 1 | 1 | | | 1 | 1 | | | 1 | | 13 1.0 |
| Hepatodiaphragmatic Nodule | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| Infiltration Cellular, Mixed Cell | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 1.0 |
| Inflammation, Focal | | | 1 | 1 | | | | | | | | | | | | | | | | 1 | | | | | 6 1.0 |
| Mixed Cell Focus | | | X | | | | | | | | | | | | | | | | | | | | | | 1 |
| Pigment | | 1 | | | | | | | | | | | | | | | | | | | | | | | 3 1.3 |
| Bile Duct, Cyst | | | | X | | | | | | | | | | | X | X | | | | | | X | | | 9 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue
 M .. Missing tissue
 A .. Autolysis precludes evaluation
 BLANK .. Not examined microscopically
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Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0/0 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|
| | 0
6
2
1 | 0
6
2
5 | 0
7
4
5 | 0
7
4
4 | 0
7
4
4 | 0
6
9
2 | 0
7
0
5 | 0
7
4
6 | 0
3
2
3 | 0
6
6
7 | 0
3
1
2 | 0
2
7
4 | 0
3
8
2 | 0
7
4
5 | 0
7
4
6 | 0
6
4
3 | 0
7
4
4 | 0
6
3
6 | 0
6
4
1 | 0
7
4
4 | 0
7
4
4 | 0
4
1
6 | 0
6
8
1 | | |
| ANIMAL ID | 0
0
3
3
1 | 0
0
3
3
3 | 0
0
3
3
5 | 0
0
3
3
6 | 0
0
3
3
7 | 0
0
3
3
8 | 0
0
3
3
0 | 0
0
3
3
4 | 0
0
3
3
2 | 0
0
3
3
4 | 0
0
3
3
4 | 0
0
3
3
5 | 0
0
3
3
7 | 0
0
3
3
8 | 0
0
3
3
9 | 0
0
3
3
0 | 0
0
3
3
1 | 0
0
3
3
2 | 0
0
3
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3 | 0
0
3
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4 | 0
0
3
3
5 | 0
0
3
3
6 | 0
0
3
3
7 | 0
0
3
3
8 | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|-----|
| Bile Duct, Hyperplasia | 1 | | | | | | | | | | | | | | | | | | | | | | | | 16 | 1.3 |
| Hepatocyte, Increased Mitoses | 1 | | | | | | | | | | | | | | | | | | | | | | | | 2 | 1.0 |
| Oval Cell, Hyperplasia | 1 | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 |
| Mesentery | | | | | | | | | | | | | | | | | | | | | | | | | 2 | |
| Pancreas | + | | | | | | | | | | | | | | | | | | | | | | | | 50 | |
| Salivary Glands | + | | | | | | | | | | | | | | | | | | | | | | | | 49 | |
| Stomach, Forestomach | + | | | | | | | | | | | | | | | | | | | | | | | | 50 | |
| Ulcer | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 1.5 |
| Epithelium, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | 4 | 2.3 |
| Submucosa, Inflammation, Chronic Active | | | | | | | | | | | | | | | | | | | | | | | | | 3 | 2.3 |
| Stomach, Glandular | + | | | | | | | | | | | | | | | | | | | | | | | | 50 | |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|-----|
| Blood Vessel | + | | | | | | | | | | | | | | | | | | | | | | | | 50 | |
| Aorta, Mineral | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 |
| Heart | + | | | | | | | | | | | | | | | | | | | | | | | | 50 | |
| Cardiomyopathy | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 1 |
| Schwann Cell, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 |
| | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 2.0 |

ENDOCRINE SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|-----|
| Adrenal Cortex | + | | | | | | | | | | | | | | | | | | | | | | | | 50 | |
| Degeneration, Cystic | | | | | | | | | | | | | | | | | | | | | | | | | 11 | 1.7 |
| Hypertrophy | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 2.0 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue
 M .. Missing tissue
 A .. Autolysis precludes evaluation
 BLANK .. Not examined microscopically
 1-4 .. Lesion qualified as:
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0/0 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|---|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|
| | 06
21 | 06
25 | 07
45 | 07
44 | 07
44 | 06
92 | 07
05 | 07
46 | 03
23 | 06
63 | 03
12 | 02
78 | 03
82 | 07
44 | 07
44 | 06
73 | 07
44 | 06
63 | 06
61 | 07
44 | 07
44 | 07
46 | 04
11 | 06
88 | |
| ANIMAL ID | 003331 | 003335 | 003336 | 003337 | 003338 | 003340 | 003342 | 003344 | 003343 | 003344 | 003344 | 003344 | 003344 | 003344 | 003344 | 003344 | 003344 | 003344 | 003344 | 003344 | 003344 | 003344 | 003344 | 003344 | 003344 |
| Vacuolization Cytoplasmic | 1 | | | | | | | | | | | | | | | | | | | | | | | | 1 1.0 |
| Adrenal Medulla
Hyperplasia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50
7 1.9 |
| Islets, Pancreatic
Hyperplasia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50
3 1.3 |
| Parathyroid Gland
Hyperplasia, Focal | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 47
1 1.0 |
| Pituitary Gland
Pars Distalis, Hyperplasia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50
14 2.0 |
| Thyroid Gland
C-cell, Hyperplasia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50
10 2.1 |
| Follicular Cell, Hypertrophy | | | | | | | | | | | | | | | | | | | | | | | | | 4 2.3 |

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------------|
| Clitoral Gland
Hyperplasia, Squamous | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50
1 3.0 |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | 1 2.0 |
| Duct, Metaplasia, Squamous | | | | | | | | | | | | | | | | | | | | | | | | | 1 3.0 |
| Ovary
Atrophy | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50
35 1.6 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

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X .. Lesion present

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M .. Missing tissue

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|---|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|-------|-------|-------|-------|--------|-------|
| | 0621 | 0625 | 0627 | 0627 | 0627 | 0626 | 0627 | 0627 | 0627 | 0623 | 0626 | 0623 | 0622 | 0623 | 0627 | 0627 | 0626 | 0627 | 0627 | 0626 | | 0626 | 0627 | 0627 | 0627 | 0624 | 0626 |
| ANIMAL ID | 00331 | 00333 | 00335 | 00336 | 00337 | 00338 | 00339 | 00340 | 00341 | 00342 | 00343 | 00344 | 00345 | 00347 | 00348 | 00349 | 00350 | 00351 | 00352 | 00353 | 00354 | 00355 | 00356 | 00357 | 00358 | 00359 | 00360 |
| Cyst | X | X | | | | | | | | | | | | X | X | | | | X | X | X | X | X | X | X | X | 16 |
| Uterus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Adenomyosis | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | 1 2.0 |
| Dilation | | | 4 | | | 2 | | | | | | | | | | | | | | | | | | | | | 2 3.0 |
| Inflammation, Chronic Active | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | 2 1.5 |
| Endometrium, Hyperplasia, Cystic | 1 | | | | | 1 | | 2 | | | 1 | | | 1 | | | 1 | 1 | 2 | 2 | 2 | | | | | 20 1.7 | |
| Endometrium, Metaplasia, Squamous | | 4 | | 1 | | | 1 | | | | | | | 2 | 1 | | | 1 | 1 | 2 | | | | | | 18 1.6 | |

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|-------|
| Bone Marrow | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Atrophy | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 2.0 |
| Hyperplasia | 1 | 4 | | | 3 | 1 | | 3 | 3 | 3 | 3 | | 3 | | | 2 | | 3 | | | | 3 | | | | 21 2.4 | |
| Lymph Node | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Lymph Node, Mandibular | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 48 |
| Atrophy, Lymphoid | | | | | | | 1 | | | | | | | | | | 1 | | | | | | | | | 3 | 4 1.5 |
| Hyperplasia, Lymphoid | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | 1 3.0 |
| Lymph Node, Mesenteric | + | + | + | + | + | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| Atrophy, Lymphoid | | | | | | | | | | | | | | | | | | | | | | | | | | | 4 1.0 |
| Spleen | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Extramedullary Hematopoiesis | 1 | 3 | 1 | 1 | 1 | 2 | 1 | 2 | 2 | | 1 | | | 2 | 1 | | 2 | 2 | 2 | | 3 | 2 | | | 3 | 34 1.6 | |
| Pigment | 2 | | 1 | | 1 | 1 | 2 | | | | 1 | 1 | 2 | | 1 | 2 | | 1 | | | 1 | | | 2 | 1 | 30 1.4 | |
| Lymphoid Follicle, Atrophy | | | | | | | | | | | | | | | 1 | | | | | 2 | | | | | 2 | | 7 1.7 |
| Thymus | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | 49 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 20614 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/25/2018

Time Report Requested: 12:58:26

First Dose M/F: 10/27/08 / 10/28/08

Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0/0 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|---|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| | 0621 | 0625 | 0629 | 0633 | 0637 | 0641 | 0645 | 0649 | 0653 | 0657 | 0701 | 0705 | 0709 | 0713 | 0717 | 0721 | 0725 | 0729 | 0733 | 0737 | 0741 | 0745 | 0749 | 0753 | |
| ANIMAL ID | 00331 | 00333 | 00335 | 00337 | 00338 | 00340 | 00342 | 00343 | 00344 | 00345 | 00346 | 00347 | 00348 | 00349 | 00350 | 00351 | 00352 | 00353 | 00354 | 00355 | 00356 | 00357 | 00358 | 00359 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 6 | 6 | 7 | 7 | 7 | 6 | 7 | 7 | 3 | 6 | 3 | 2 | 3 | 7 | 7 | 6 | 7 | 7 | 6 | 6 | 7 | 7 | 7 | 4 | 6 |
| | 2 | 2 | 4 | 4 | 4 | 9 | 0 | 4 | 2 | 6 | 1 | 7 | 8 | 4 | 4 | 7 | 4 | 4 | 3 | 6 | 4 | 4 | 4 | 1 | 8 |
| | 1 | 5 | 5 | 4 | 4 | 2 | 5 | 6 | 3 | 7 | 2 | 4 | 2 | 5 | 6 | 3 | 6 | 5 | 8 | 1 | 4 | 4 | 6 | 8 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | |
| | 1 | 3 | 5 | 6 | 7 | 8 | 0 | 2 | 3 | 4 | 4 | 5 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 8 | 0 | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------|------------|
| Atrophy | 2 | 2 | 3 | 2 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 1 | 4 | 1 | 2 | 2 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 42 | 2.5 |
|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------|------------|

INTEGUMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------|-----------|------------|
| Mammary Gland Hyperplasia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | 13 | 1.9 |
| Skin Ulcer | 2 | | | | | 1 | | | | | | | 3 | | | | | | | | 1 | | | 2 | | | |
| Skin Epidermis, Sebaceous Gland, Hyperplasia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | 1 | 1.0 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2.0 |

MUSCULOSKELETAL SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------|--|--|
| Bone | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
|------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------|--|--|

NERVOUS SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------|----------|------------|
| Brain Gliosis, Diffuse | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | 1 | 4.0 |
| Brain Hemorrhage | 3 | | | | | | | | | 3 | | | | | | | | | | | | | | | | 2 | 3.0 |
| Brain Necrosis | | | | | | | | | | | | | | | | | | | | | | 4 | | | | 2 | 3.0 |
| Spinal Cord | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | |

RESPIRATORY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------|-----------|------------|
| Lung Inflammation, Granulomatous, Multifocal | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | 1 | 2.0 |
| Lung Inflammation, Chronic Active | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 1.0 |
| Lung Alveolus, Infiltration Cellular, Histiocyte | 2 | 1 | 1 | | 1 | 3 | 2 | | 1 | 1 | 2 | 2 | 2 | 3 | 1 | | | | 1 | 1 | 2 | 2 | | | | 36 | 1.6 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

Experiment Number: 20614 - 01

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Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0/0 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|
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9 | |
| Nose | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Inflammation | | | | | | | | | | | | | | | | | | | | | 1 | | | 3 1.3 | |
| Olfactory Epithelium, Metaplasia | | | | | | | | | | | | | | | | | | | | | | | | 1 2.0 | |
| Respiratory Epithelium, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | 1 2.0 | |
| Respiratory Epithelium, Metaplasia, Squamous | | | | | | | | | | | | | | | | | | | | | | | | 1 1.0 | |
| Trachea | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eye | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Retina, Degeneration | | | | | | | | | | | | | | | | | | | | | | | | 1 3.0 | |
| Harderian Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | 1 2.0 | |
| URINARY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kidney | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Accumulation, Hyaline Droplet | | | | | | | | | | | | | | | | | | | | | | | | 3 1.0 | |
| Calculus Micro Observation Only | | | 1 | | | 1 | 1 | | | | | | | | 1 | 1 | 1 | 2 | | 1 | | | 1 | 11 1.2 | |
| Nephropathy, Chronic Progressive | 1 | | 1 | 2 | 1 | 1 | 1 | | | 1 | 1 | | 1 | | 1 | 1 | 2 | 1 | 1 | 1 | | 1 | 1 | 37 1.3 | |
| Papilla, Urothelium, Hyperplasia | | | | | 1 | | | | | | | | | | | | | | | | | | | 4 1.0 | |
| Pelvis, Inflammation, Chronic | | | | | | | | | | | | | | | | | | | | | | | | 1 1.0 | |
| Renal Tubule, Mineral | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | 5 1.2 | |
| Urinary Bladder | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

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Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0/300 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | ANIMAL ID | females
(cont...) | | | |
|---|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------|----------------------|---|---|---|
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 | | |
| | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 4 | 7 | 7 | 5 | 6 | 4 | 6 | 7 | 4 | 5 | 7 | 7 | 7 | 2 | 7 | 6 | |
| | 9 | 4 | 4 | 4 | 4 | 4 | 4 | 0 | 7 | 4 | 4 | 7 | 9 | 8 | 7 | 4 | 7 | 7 | 4 | 4 | 4 | 4 | 5 | 4 | 9 |
| | 5 | 3 | 5 | 5 | 6 | 6 | 4 | 7 | 0 | 5 | 5 | 4 | 5 | 4 | 6 | 4 | 0 | 4 | 5 | 6 | 4 | 5 | 0 | 4 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| | 2 | 3 | 4 | 8 | 9 | 0 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 3 | 4 | 6 | 7 | 8 | 9 | 0 | 1 | 2 |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|---|--|---|--|---|---|---|--|--|--|---|---|---|---|---|--|---|--|--|---|--|--|---|---|---|
| Bile Duct, Hyperplasia | | | 1 | | 1 | 2 | 1 | | | | 1 | 1 | 1 | | 2 | | 1 | | | 1 | | | 1 | 1 | 1 |
| Centrilobular, Necrosis | | | 2 | | | | | | | | | | | | | | | | | 2 | | | 2 | | |
| Hepatocyte, Cytoplasmic Alteration | 2 | | | | | | | | | | | | 1 | 1 | | | | | | 2 | | | 3 | | |
| Hepatocyte, Hypertrophy | 1 | | | | | | | | | | | | 2 | 2 | | | | | | 1 | | | 2 | 1 | |
| Hepatocyte, Increased Mitoses | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | | |
| Hepatocyte, Single Cell Death | 1 | | | | | | | | | | | | 1 | 1 | | | | | | 1 | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Acinus, Atrophy | | | | 1 | | | | 1 | | | | | | | | | | | | | | | | | |
| Acinus, Hyperplasia | | | | | | | | | | | | | | | 2 | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Ulcer | | | | | | | | | | | | | | | | | | | | | | | 2 | | |
| Epithelium, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | 3 | | |
| Submucosa, Inflammation, Chronic Active | | | | | | | | | | | | | | | | | | | | | | | 2 | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stomach, Glandular Mucosa, Mineral | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
|------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Blood Vessel Inflammation Aorta, Mineral | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Heart Cardiomyopathy Mineral | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| | | | | 1 | | | | | | | | | | | | | | | | | | | 1 | | |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically M .. Missing tissue 1-4 .. Lesion qualified as:
X .. Lesion present A .. Autolysis precludes evaluation 1) Minimal 3) Moderate
I .. Insufficient tissue BLANK .. Not examined microscopically 2) Mild 4) Marked

Experiment Number: 20614 - 01

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| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0/300 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | females
(cont...) |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clitoral Gland
Hyperplasia, Squamous | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Ovary
Atrophy | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Cyst | 4 | 1 | | 2 | | | 1 | 1 | | 2 | 1 | 1 | 2 | 1 | 2 | | 1 | | 1 | | 2 | 1 | 2 | 1 | 3 |
| Inflammation | | | | | | X | X | | | | | | | | | X | X | | | | | X | X | | X |
| Oviduct | | | | | | | | | | | | | | | | | | | | | | | | | |
| Uterus
Dilation | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Inflammation | | 4 | | | | | | | | | | | | | | | | | | | | | 3 | | |
| Thrombus | | 4 | | | | | | | | | | | | | 2 | | | | | | | | | | |
| Cervix, Hypertrophy | | | | | | | | | | | | | | | | | | | | | | | | | |
| Endometrium, Hyperplasia | | | | | | | | | 1 | | | | | | | | | | | | | | | | |
| Endometrium, Hyperplasia, Cystic | | | | 1 | | | 3 | | | 4 | 2 | 1 | 1 | 2 | | 3 | | | 1 | | | | 2 | 1 | |
| Endometrium, Metaplasia, Squamous | | | | 2 | | | 1 | | | | | 2 | 2 | | 1 | 1 | | 2 | | | | | 2 | 2 | |

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bone Marrow
Hyperplasia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Lymph Node | | 3 | | | | 3 | | 1 | | | | | 2 | 2 | | 3 | 3 | 2 | | | 3 | | 2 | 3 |
| Lymph Node, Mandibular
Atrophy, Lymphoid
Infiltration Cellular, Plasma Cell | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| | | 1 | | | | | | | 1 | | | | | | | | | | | | | | | |
| | | | | | | | 2 | | | | | | | | | | | | | | | | | |

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Route: DOSED FEED

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/25/2018

Time Report Requested: 12:58:26

First Dose M/F: 10/27/08 / 10/28/08

Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0/300 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | ANIMAL ID | females
(cont...) | |
|---|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|---|-------------|---|-------------|
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0 | | | | |
| Lymph Node, Mesenteric Atrophy, Lymphoid | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 1
2 | 1 | |
| Spleen Extramedullary Hematopoiesis Pigment | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 1
3
1 | 1
1
2
1
1
3
3 | |
| Lymphoid Follicle, Atrophy | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 1
2 | 2
2 | |
| Lymphoid Follicle, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | |
| Thymus Atrophy | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 2
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| INTEGUMENTARY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mammary Gland Hyperplasia Inflammation | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 2
1
3
2 | 1
1
2 |
| Skin | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| MUSCULOSKELETAL SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bone | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Skeletal Muscle | | | | | | | | | | | | | | | | | | | | | | | | | | | + |
| NERVOUS SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brain | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

Experiment Number: 20614 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Perfluorooctanoic Acid

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Lab: BAT

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HARLAN SPRAGUE DAWLEY RATS
FEMALE

0/300 ppm | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | ANIMAL ID | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 4 | 7 | 7 | 5 | 6 | 4 | 6 | 7 | 4 | 5 | 7 | 7 | 7 | 7 | 2 | 7 | 6 | 9 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 4 | 4 | 9 | 0 | | |
| | | 9 | 4 | 4 | 4 | 4 | 4 | 4 | 0 | 7 | 4 | 4 | 7 | 9 | 8 | 7 | 4 | 7 | 7 | 4 | 4 | 4 | 4 | 4 | 5 | 4 | 4 | 9 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 0 | 4 | 4 | 9 | 0 | | | |
| | 5 | 3 | 5 | 5 | 6 | 6 | 4 | 7 | 0 | 5 | 5 | 4 | 5 | 4 | 6 | 6 | 4 | 0 | 4 | 5 | 6 | 4 | 6 | 4 | 6 | 4 | 6 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| | 2 | 3 | 4 | 8 | 9 | 0 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 3 | 4 | 6 | 7 | 8 | 8 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |

females
(cont...)

RESPIRATORY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Lung | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | |
| Inflammation, Granulomatous, Multifocal | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Chronic Active | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Alveolus, Infiltration Cellular, Histiocyte | 2 | 2 | 2 | | | | | 1 | 1 | 1 | 2 | 1 | 2 | 1 | | | | 2 | 1 | 1 | 3 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nose | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Trachea | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |

SPECIAL SENSES SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| Eye | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Retina, Degeneration | 3 | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Harderian Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |

URINARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| Kidney | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Accumulation, Hyaline Droplet | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Calculus Micro Observation Only | | | | 1 | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Infarct | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nephropathy, Chronic Progressive | 4 | 1 | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cortex, Cyst | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Epithelium, Renal Tubule, Cytoplasmic Alteration | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Papilla, Urothelium, Hyperplasia | 1 | | | 1 | | | | | | 1 | 1 | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
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|--|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0/300 ppm | DAY ON TEST | 0695 | 0643 | 0745 | 0774 | 0776 | 0777 | 0777 | 0777 | 0470 | 0745 | 0775 | 0775 | 0474 | 0664 | 0748 | 0774 | 0774 | 0774 | 0774 | 0245 | 0744 | 0690 | 0690 | |
| | ANIMAL ID | 00362 | 00364 | 00368 | 00369 | 00370 | 00372 | 00373 | 00374 | 00377 | 00378 | 00380 | 00381 | 00383 | 00384 | 00385 | 00386 | 00387 | 00388 | 00389 | 00390 | 00391 | 00392 | 00393 | 00394 |
| | | | | | | | | | | | | | | | | | | | | | | | | | |

females
(cont...)

Renal Tubule, Dilation
Renal Tubule, Mineral

Urinary Bladder

+ +

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
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| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0/300 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | * TOTALS | | | | | | | | |
|---|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|-------|-------|-------|-------|-------|----|-----|-----|
| | 07 | 07 | 06 | 06 | 07 | 07 | 07 | 07 | 05 | 05 | 07 | 07 | 07 | 07 | 07 | 07 | 06 | 07 | 06 | 07 | | 06 | 07 | 07 | 06 | 07 | 07 | | |
| ANIMAL ID | 00393 | 00334 | 00335 | 00336 | 00337 | 00338 | 00339 | 00340 | 00341 | 00342 | 00343 | 00344 | 00345 | 00346 | 00347 | 00348 | 00349 | 00350 | 00351 | 00352 | 00353 | 00354 | 00355 | 00356 | 00357 | 00358 | | | |
| Bile Duct, Hyperplasia | | 2 | | 2 | | 1 | 1 | 1 | | | | | | 1 | 1 | | 1 | | 2 | 1 | 1 | | | 1 | | | 25 | 1.2 | |
| Centrilobular, Necrosis | | | | | | | | | | | | | | | | | 4 | | | | | | | | | | 4 | 2.5 | |
| Hepatocyte, Cytoplasmic Alteration | | | | 1 | | | | | | | | 1 | | | | | | 1 | | 1 | | | | | | | 9 | 1.4 | |
| Hepatocyte, Hypertrophy | | | | 3 | | | | | | | | 1 | | | | | | 3 | | 1 | | | | | | | 11 | 1.7 | |
| Hepatocyte, Increased Mitoses | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | 1.0 | |
| Hepatocyte, Single Cell Death | | | | | | | | | | | | | | | | | | | | | | | | | | | 4 | 1.0 | |
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Acinus, Atrophy | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | 3 | 1.0 | |
| Acinus, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2.0 | |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Ulcer | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | 2 | 1.5 | |
| Epithelium, Hyperplasia | | | | 1 | 3 | | | 1 | | | | | | | | 1 | | | | | | | | | | | 5 | 1.8 | |
| Submucosa, Inflammation, Chronic Active | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | 2 | 2.5 | |
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Mucosa, Mineral | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | 1 | 2.0 | |
| CARDIOVASCULAR SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | 1.0 |
| Aorta, Mineral | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2.0 |
| Heart | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Cardiomyopathy | | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | 3 | 5 | 1.4 |
| Mineral | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 1 | 2.0 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

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2) Mild 4) Marked

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0/300 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | * TOTALS | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|-----|
| Clitoral Gland
Hyperplasia, Squamous | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | 49 | 1 | 2.0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|-----|

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|----|-----|-----|
| Ovary
Atrophy | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | 49 | 32 | 1.7 |
| Cyst | X | | X | | | | X | X | | X | X | X | | | X | X | | | X | X | X | | | X | 20 | 1 | 2.0 | |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|--|--|--|--|--|--|--|--|--|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|--|--|
| Oviduct | | | | | | | | | | + | | | | | | | | | | | | | | | 1 | | |
|---------|--|--|--|--|--|--|--|--|--|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|--|--|

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|-----|-----|-----|
| Uterus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | 49 | 3 | 3.0 |
| Dilation | | | | | | | | | | 2 | | | | | | | | | | | | | | | 1 | | 4.0 | |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | 2.0 | |
| Thrombus | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | 3.0 | |
| Cervix, Hypertrophy | | | | | | | | | | | | | | 3 | | | | | | | | | | | 1 | | 1.0 | |
| Endometrium, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | 1.6 | |
| Endometrium, Hyperplasia, Cystic | 1 | 2 | | | 1 | 2 | | | | 1 | 2 | | 1 | | 1 | | 1 | 1 | | | | 2 | 1 | 22 | | 1.5 | | |
| Endometrium, Metaplasia, Squamous | | 1 | | | 1 | | | | | 1 | 2 | | 1 | | 2 | 2 | | | | | | 1 | | 17 | | | | |

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|----|-----|
| Bone Marrow
Hyperplasia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | 20 | 2.6 |
| | 1 | | 3 | 3 | | | | 4 | | | | | | | | 3 | 3 | | | | | 3 | 2 | 3 | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------|--|--|--|--|--|--|--|--|--|---|--|--|--|--|--|--|--|--|--|--|--|--|---|---|--|--|
| Lymph Node | | | | | | | | | | + | | | | | | | | | | | | | + | 3 | | |
|------------|--|--|--|--|--|--|--|--|--|---|--|--|--|--|--|--|--|--|--|--|--|--|---|---|--|--|

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|-----|
| Lymph Node, Mandibular
Atrophy, Lymphoid
Infiltration Cellular, Plasma Cell | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | 2 | 1.0 |
| | | | | | | | | | | | | | | | | | | | | | | | | 1 | | 2.0 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0/300 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | * TOTALS | | | | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|-----|--|
| | 0
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4 | 0
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8 | 0
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7 | 0
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9 | 0
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9 | 0
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5 | 0
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8 | 0
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5 | | | | | | |
| ANIMAL ID | 0
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11 | 0
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12 | 0
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13 | 0
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14 | 0
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4
0
15 | 0
0
4
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16 | 0
0
4
0
17 | 0
0
4
0
18 | 0
0
4
0
19 | 0
0
4
0
20 | | |
| Lymph Node, Mesenteric
Atrophy, Lymphoid | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | 48 | 3 | 1.3 | |
| Spleen | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | | |
| Extramedullary Hematopoiesis | | | | 2 | 4 | 1 | | 1 | | 2 | 2 | | 1 | | | 1 | 3 | 3 | | | | 3 | 2 | 3 | 2 | | 33 | 2.0 | | |
| Pigment | | | 1 | | | 2 | | 1 | | | 1 | | 1 | 1 | 2 | | | | 3 | 2 | 1 | | | 1 | 2 | | 21 | 1.4 | | |
| Lymphoid Follicle, Atrophy | | | | | | | 1 | | | | | | | | | | | 2 | | 2 | | | | | | | 9 | 1.6 | | |
| Lymphoid Follicle, Hyperplasia | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | 2 | 1.0 | | |
| Thymus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | 48 | | | |
| Atrophy | 3 | 3 | 3 | 4 | | 2 | 3 | 3 | | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | | 2 | 3 | 3 | 2 | 46 | 2.8 | | |
| INTEGUMENTARY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mammary Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | | |
| Hyperplasia | | | | | | | | | 2 | | 2 | 1 | 1 | | | | | | | | 3 | | | | | 2 | | 15 | 1.9 | |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2.0 | |
| Skin | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | | |
| MUSCULOSKELETAL SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bone | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | | |
| Skeletal Muscle | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| NERVOUS SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brain | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | | |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue
 M .. Missing tissue
 A .. Autolysis precludes evaluation
 BLANK .. Not examined microscopically
 1-4 .. Lesion qualified as:
 1) Minimal 3) Moderate
 2) Mild 4) Marked

Experiment Number: 20614 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/25/2018

Time Report Requested: 12:58:26

First Dose M/F: 10/27/08 / 10/28/08

Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0/300 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | * TOTALS | | | | |
|---|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----------|----|----|----|----|
| | 07 | 07 | 06 | 06 | 07 | 07 | 07 | 07 | 07 | 05 | 05 | 07 | 07 | 07 | 07 | 07 | 07 | 06 | 07 | 06 | | 07 | 07 | 06 | 07 |
| ANIMAL ID | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 |
| | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| | 34 | 34 | 35 | 36 | 37 | 38 | 39 | 00 | 01 | 02 | 03 | 04 | 07 | 08 | 00 | 01 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 |

RESPIRATORY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|-------|
| Lung | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Inflammation, Granulomatous, Multifocal | | | | | | | | | | | | | | | | | | | | | | | | | 1 1.0 |
| Inflammation, Chronic Active | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | 2 1.0 |
| Alveolus, Infiltration Cellular, Histiocyte | 1 | 3 | | | | 4 | 4 | 1 | | 1 | 3 | 2 | 2 | | 3 | 4 | | 1 | 2 | 2 | | 1 | 1 | 33 1.9 | |
| Nose | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | 1 2.0 |
| Trachea | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

SPECIAL SENSES SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-------|
| Eye | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Retina, Degeneration | | | | | | | | | | | | | 3 | 2 | | | | | | | 3 | | | | 5 2.6 |
| Harderian Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

URINARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| Kidney | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Accumulation, Hyaline Droplet | | | | | | | | | | | | | | | | | | | | | | | | | 1 1.0 |
| Calculus Micro Observation Only | 1 | 1 | | | 2 | 1 | | 1 | | | | | 1 | | | 1 | | | | | | 1 | 1 | | 14 1.1 |
| Infarct | | | | | | | | | | | | | | | | | | | | | | | | | 2 1.0 |
| Nephropathy, Chronic Progressive | 1 | 1 | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 4 | | 1 | 1 | | 38 1.2 |
| Cortex, Cyst | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| Epithelium, Renal Tubule, Cytoplasmic Alteration | | | | | | | | | | | | | | | | | | | 2 | | | | | | 1 2.0 |
| Papilla, Urothelium, Hyperplasia | | | | 1 | 1 | | | 1 | | 1 | | | | | 1 | | 1 | | | | 1 | 1 | 1 | | 21 1.0 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 20614 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

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Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/25/2018

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First Dose M/F: 10/27/08 / 10/28/08

Lab: BAT

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------|-----------------|
| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0/300 ppm | DAY ON TEST | 07 | 07 | 06 | 06 | 07 | 07 | 07 | 07 | 05 | 05 | 07 | 07 | 07 | 07 | 07 | 07 | 06 | 07 | 06 | 07 | 07 | 06 | 07 | 07 | 00 | 00 | 00 | |
| | ANIMAL ID | 04 | 04 | 03 | 08 | 04 | 04 | 04 | 04 | 08 | 03 | 04 | 04 | 04 | 04 | 04 | 04 | 09 | 03 | 05 | 04 | 03 | 04 | 06 | 05 | 09 | 01 | 04 | |
| | | 54 | 54 | 58 | 57 | 56 | 55 | 56 | 56 | 59 | 53 | 54 | 56 | 54 | 56 | 54 | 55 | 55 | 57 | 59 | 55 | 54 | 53 | 54 | 56 | 55 | 58 | 51 | 54 |
| | | 33 | 33 | 33 | 33 | 33 | 33 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 32 |
| | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 30 | 31 | 32 | 33 | 34 | 37 | 38 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 30 | 31 | 32 | 30 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
| Renal Tubule, Dilation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 3.0 |
| Renal Tubule, Mineral | | | | | 1 | | | | | | | 1 | | | 1 | | | | 1 | 3 | | | | | | | 1 | 6 1.3 | |
| Urinary Bladder | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | 49 | |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

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| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------------|---|---|---|---|---|---|---|---|
| DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 3 | 7 | 7 | 7 | 5 | 6 | 7 | 6 | 7 | 2 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 5 | 7 | 7 | 7 | 5 | 7 | 7 | 7 | 5 | 7 | 7 | 7 | 5 | 7 | 7 | 7 |
| HARLAN SPRAGUE DAWLEY RATS
FEMALE
150/300 ppm | 2 | 1 | 4 | 4 | 3 | 3 | 4 | 3 | 4 | 9 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 3 | 1 | 4 | 4 | 3 | 1 | 4 | 4 | 8 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | 2 | 8 | 6 | 4 | 3 | 4 | 6 | 8 | 5 | 5 | 6 | 4 | 4 | 9 | 5 | 6 | 5 | 4 | 5 | 3 | 8 | 5 | 4 | 3 | 8 | 5 | 4 | 9 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 |
| ANIMAL ID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 | 1 | 2 | 3 | 3 | 4 | 7 | 8 | 9 | 0 | 1 | 3 | 5 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | females
(cont...) | | | | | | | | |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Esophagus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Colon
Parasite Metazoan | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Liver | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Basophilic Focus | | X | X | X | | | | | | | | X | X | | | | | | | | | | | | | | | | | | | | | | | | |
| Clear Cell Focus | | | | | X | | | | | | | X | X | | | | | | | | | | | | | | | | | | | | | | | | |
| Degeneration, Cystic | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eosinophilic Focus | | X | | | | | | | | | | X | X | | | | | | | | | | | | | | | | | | | | | | | | |
| Extramedullary Hematopoiesis | | | | | 3 | 1 | | | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Focal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mixed Cell Focus | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Necrosis | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pigment | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bile Duct, Cyst | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bile Duct, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Centrilobular, Necrosis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically M .. Missing tissue 1-4 .. Lesion qualified as:
X .. Lesion present A .. Autolysis precludes evaluation 1) Minimal 3) Moderate
I .. Insufficient tissue BLANK .. Not examined microscopically 2) Mild 4) Marked

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Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
150/300 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | | females
(cont...) |
|---|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------------|
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 3 | 7 | 7 | 7 | 5 | 6 | 7 | 6 | 7 | 2 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 5 | 7 | 7 | 7 | 5 | 7 | 7 | |
| | 2 | 1 | 4 | 4 | 3 | 3 | 4 | 3 | 4 | 9 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 3 | 1 | 4 | 4 | 8 | 4 | |
| | 2 | 8 | 6 | 4 | 3 | 4 | 6 | 8 | 5 | 5 | 6 | 4 | 4 | 9 | 5 | 6 | 5 | 4 | 5 | 3 | 8 | 5 | 4 | 9 | 5 | |
| | ANIMAL ID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | |
| | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 | 1 | 2 | 3 | 4 | 7 | 8 | 9 | 0 | 1 | 3 | 5 | 7 | 8 | 9 | 2 | 3 | |
| Hepatocyte, Cytoplasmic Alteration | | 1 | | 1 | | | | | | 1 | | | | 1 | | | 1 | 1 | | | 1 | | | | | |
| Hepatocyte, Hypertrophy | | 1 | | 1 | | | 3 | | | | | | | 1 | | | 1 | 2 | | | 4 | | | | | |
| Hepatocyte, Increased Mitoses | | | | | | | | | | | | | | | | | | | | | 1 | | | | | |
| Hepatocyte, Single Cell Death | | | | | | | | | | | | | | | | | | | | | 1 | | | | | |
| Pancreas | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Basophilic Focus | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Chronic Active | | | | | | | 1 | | | | | | | | | | | | | | | | | | | |
| Acinus, Atrophy | | | | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Salivary Glands | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Stomach, Forestomach | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Inflammation, Chronic Active | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ulcer | | | | | | | | | | | | | | | | | | | | | | | 1 | | | |
| Epithelium, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | 3 | | | |
| Submucosa, Inflammation, Chronic Active | | | | | | | | | | | | | | | | | | | | | | | 3 | | | |
| Stomach, Glandular | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Blood Vessel | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Inflammation | | | | | | | | | | 3 | | | | | | | | | | | | | | |
| Aorta, Mineral | | | | | | | | | | | | | | | | | | | | | | | | |
| Heart | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Cardiomyopathy | | 1 | | 1 | | 1 | | | | 1 | 1 | 1 | | | | | | | | | 1 | 1 | 1 | |
| Mineral | | | | | | | | | | | 1 | | | | | | | | | | | | | |
| Necrosis, Acute | | | | | | | | | | | 1 | | | | | | | | | | | | | |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

Experiment Number: 20614 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/25/2018

Time Report Requested: 12:58:26

First Dose M/F: 10/27/08 / 10/28/08

Lab: BAT

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------|-----------------------|
| HARLAN SPRAGUE DAWLEY RATS
FEMALE
150/300 ppm | DAY ON TEST | 0
3
2
2 | 0
7
1
8 | 0
7
4
6 | 0
7
4
4 | 0
5
3
3 | 0
6
4
6 | 0
7
3
8 | 0
6
4
5 | 0
7
2
5 | 0
7
4
5 | 0
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4 | 0
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4 | 0
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9 | 0
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5 | 0
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3 | 0
7
1
8 | 0
7
4
5 | 0
7
4
4 | 0
5
8
9 | 0
7
4
5 | females
(cont...) | |
| | ANIMAL ID | 0
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1 | 0
0
4
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2 | 0
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4
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2 | 0
0
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2 | 0
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ENDOCRINE SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Adrenal Cortex | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Atrophy | | | | | | | | | | | | | | | | | | | | | 4 | | | |
| Degeneration, Cystic | | | | | | | | 2 | | | 1 | | | 3 | | | 2 | | | | | 3 | | |
| Hypertrophy | | | | | | | | | | | | | 1 | | | | | | | | | 1 | | |
| Zona Fasciculata, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | 4 | | |
| Adrenal Medulla | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | 3 | | |
| Islets, Pancreatic | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Parathyroid Gland | + | + | + | + | M | + | + | + | + | + | M | + | M | + | + | + | + | + | + | + | M | + | + | + |
| Pituitary Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Pars Distalis, Hyperplasia | | | | | 1 | 3 | 1 | 2 | 3 | 4 | | | 3 | | | 1 | | | 3 | 2 | 1 | | | 4 |
| Rathke's Cleft, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | |
| Thyroid Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| C-cell, Hyperplasia | | | | | | | | | | | | | | 3 | | 4 | | | | | | | | |
| Follicular Cell, Hypertrophy | | | | | | 4 | | | | | | | 1 | | | | | | | | | 1 | | |

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clitoral Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
150/300 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | ANIMAL ID | females
(cont...) |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
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Duct, Cyst

Ovary
Atrophy
Cyst

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| 1 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 4 | | 1 | 3 | 2 | 2 | 1 | 2 | 1 | | 2 | 1 | 2 | 2 | 3 | | 2 | | | 2 |
| | | | | X | X | | X | X | | X | | | X | X | | X | | | | X | | X | | | | | |

Uterus
Inflammation, Suppurative
Cervix, Hypertrophy
Cervix, Stromal Hyperplasia
Endometrium, Hyperplasia, Cystic
Endometrium, Metaplasia, Squamous
Lymphatic, Angiectasis

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| | | | | | | | | | | | | 1 | | | 1 | | | | | | 1 | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | 4 | | | | | |
| 2 | 3 | 1 | 1 | 2 | 1 | 1 | 2 | 3 | | 1 | 1 | 1 | | 2 | 2 | 3 | | 2 | 2 | 1 | | | | | | 1 | |
| 1 | | 2 | 1 | | | | 1 | | | 1 | 1 | | | 1 | | | | 1 | 1 | | 1 | 3 | | | | 2 | |

HEMATOPOIETIC SYSTEM

Bone Marrow
Hyperplasia

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| 2 | | | | 4 | 3 | | 3 | 3 | | | | | | | | | | 3 | 2 | 3 | 1 | | | 2 | | 2 | |

Lymph Node, Mandibular
Atrophy
Atrophy, Lymphoid
Hyperplasia, Lymphoid
Infiltration Cellular, Plasma Cell

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Lymph Node, Mesenteric
Atrophy, Lymphoid
Hyperplasia, Lymphoid

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Spleen

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

Experiment Number: 20614 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/25/2018

Time Report Requested: 12:58:26

First Dose M/F: 10/27/08 / 10/28/08

Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
150/300 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | | ANIMAL ID | females
(cont...) |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------|----------------------|
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4 | 0
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9 | 0
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5 | 0
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3 | 0
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Extramedullary Hematopoiesis
Pigment
Lymphoid Follicle, Atrophy
Lymphoid Follicle, Hyperplasia

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|---|---|---|---|---|---|
| 1 | | 2 | 1 | 4 | 3 | | 3 | 2 | | | | 2 | 1 | 1 | 1 | 2 | 2 | | 3 | 3 | | 1 | 2 | 1 |
| 1 | 1 | | 1 | | | 1 | | | | 2 | 2 | | 1 | 1 | 2 | | 1 | | | | 2 | 2 | 1 | 1 |
| | | | | | 2 | | | | 1 | 2 | | | | | | 2 | | | | | | | | |

Thymus
Atrophy

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | 3 | 3 | 1 | 3 | 3 | 3 | | 4 | 3 | 2 | 4 | 3 | 4 | 3 | 3 |

INTEGUMENTARY SYSTEM

Mammary Gland
Galactocele
Hyperplasia

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| | | | | 2 | | | | | | | | | | | | | | | | | | | | |
| | | | | | | 2 | | | | | | | | 1 | 2 | 4 | | | | | 1 | 1 | 3 | |

Skin
Cyst Epithelial Inclusion
Subcutaneous Tissue, Inflammation

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

MUSCULOSKELETAL SYSTEM

Bone
Skeletal Muscle

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

NERVOUS SYSTEM

Brain
Necrosis

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

RESPIRATORY SYSTEM

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically

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(cont...) |
|---|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|---|-----------------------|----------------------|
| | 0
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| Lung
Inflammation, Granulomatous, Multifocal
Inflammation, Chronic Active
Alveolus, Infiltration Cellular, Histiocyte | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 0
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1 | + |
| Nose
Inflammation | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 0
0
4
2
1 | + |
| Trachea | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 0
0
4
2
1 | + |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eye
Choroid, Inflammation | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 0
0
4
2
1 | + |
| Harderian Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 0
0
4
2
1 | + |
| URINARY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kidney
Calculus Micro Observation Only
Nephropathy, Chronic Progressive
Cortex, Cyst
Papilla, Urothelium, Hyperplasia
Renal Tubule, Hyperplasia, Atypical
Renal Tubule, Mineral | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 0
0
4
2
1 | + |
| Urinary Bladder | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 0
0
4
2
1 | + |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue

M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

Experiment Number: 20614 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/25/2018

Time Report Requested: 12:58:26

First Dose M/F: 10/27/08 / 10/28/08

Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
150/300 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|---|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|----------|
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 7 | 7 | 7 | 7 | 3 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 5 | 7 | 6 | 3 | 3 | 7 | 7 | 7 | 7 | 7 | | |
| ANIMAL ID | 4 | 4 | 4 | 4 | 5 | 4 | 1 | 4 | 4 | 4 | 4 | 2 | 4 | 6 | 4 | 9 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | | |
| | 6 | 4 | 5 | 2 | 1 | 4 | 4 | 4 | 6 | 6 | 6 | 5 | 2 | 4 | 4 | 6 | 5 | 8 | 9 | 5 | 5 | 6 | 4 | | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | |
| | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 8 | | |
| | 4 | 5 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | |
| Hepatocyte, Cytoplasmic Alteration | 1 | | 1 | 1 | | | | | | | | 2 | 1 | | | | 1 | 1 | 1 | | 1 | | | | |
| Hepatocyte, Hypertrophy | 4 | | 1 | | | 1 | | | | | | 1 | 1 | | | | 1 | 1 | | 1 | | | | | |
| Hepatocyte, Increased Mitoses | 3 | | | | | 1 | 2 | | | | | 1 | | | | | | | | | | | | | |
| Hepatocyte, Single Cell Death | 1 | | | | | | | | | | | 1 | 1 | | | | | | 1 | | | | | | |
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Basophilic Focus | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Chronic Active | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acinus, Atrophy | | | | | | | | | | | | 1 | | | | 1 | | | | | | | 1 | | |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Inflammation, Chronic Active | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ulcer | | | | | | | | | | | | | | | | | 2 | | | | | | | | |
| Epithelium, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | |
| Submucosa, Inflammation, Chronic Active | | | | | | 1 | | | | | | | | | | | | | | | | | | | |
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| CARDIOVASCULAR SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | |
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aorta, Mineral | | | | | | | | | | | | | | | | | | | | | | | | | |
| Heart | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Cardiomyopathy | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| Mineral | | | | | | | | | | | | | | | | | | | | | | | | | |
| Necrosis, Acute | | | | | | | | | | | | | | | | | | | | | | | | | |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue

M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically

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Perfluorooctanoic Acid

CAS Number: 335-67-1

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Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
150/300 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS | |
|---|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|----------|--|
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 7 | 7 | 7 | 7 | 3 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 5 | 7 | 6 | 3 | 3 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | | |
| ANIMAL ID | 4 | 4 | 4 | 4 | 5 | 4 | 1 | 4 | 4 | 4 | 4 | 2 | 4 | 6 | 4 | 6 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | |
| | 6 | 4 | 5 | 2 | 1 | 4 | 4 | 4 | 6 | 6 | 6 | 5 | 2 | 4 | 4 | 6 | 5 | 8 | 9 | 5 | 5 | 6 | 4 | 5 | 6 | | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | |
| | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | | |
| | 4 | 5 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | | |
| Lung | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Inflammation, Granulomatous, Multifocal | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| Inflammation, Chronic Active | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| Alveolus, Infiltration Cellular, Histiocyte | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| | 1 | | 1 | | | | | 1 | | 2 | | | | | | | | | | | | | | | 7 | | |
| | 3 | 1 | 4 | 1 | | | | | | 2 | 4 | | 4 | 1 | 3 | 2 | 4 | 1 | 1 | | 2 | 2 | 4 | 4 | 4 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | 31 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | 2.5 | | |
| Nose | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | 1.0 | | |
| Trachea | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eye | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Choroid, Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | 1.0 | | |
| Harderian Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| URINARY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kidney | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Calculus Micro Observation Only | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| Nephropathy, Chronic Progressive | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| Cortex, Cyst | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | |
| Papilla, Urothelium, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| Renal Tubule, Hyperplasia, Atypical | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| Renal Tubule, Mineral | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| | 2 | 1 | 1 | | | 1 | | 1 | 1 | 1 | | 2 | 1 | 1 | | 1 | 1 | | | | | | | | 35 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | 8 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | 1.0 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | 2.0 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | 8 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | 1.0 | | |
| Urinary Bladder | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

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Experiment Number: 20614 - 01

Test Type: CHRONIC

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P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/25/2018

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First Dose M/F: 10/27/08 / 10/28/08

Lab: BAT

| | | | | | | | | | | | | | | | | | | | | | | | |
|--|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|----------------------|
| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0/1000 ppm | DAY ON TEST | 0744 | 0744 | 0744 | 0706 | 0740 | 0754 | 0774 | 0726 | 0666 | 0626 | 0677 | 0677 | 0677 | 0447 | 0777 | 0777 | 0777 | 0666 | 0633 | 0777 | 0666 | females
(cont...) |
| | ANIMAL ID | 0048 | 0048 | 0048 | 0048 | 0048 | 0048 | 0048 | 0048 | 0048 | 0048 | 0048 | 0048 | 0048 | 0048 | 0048 | 0048 | 0048 | 0048 | 0048 | 0048 | 0048 | |
| | | 1234 | 5678 | 9012 | 3456 | 7890 | 1234 | 5678 | 9012 | 3456 | 7890 | 1234 | 5678 | 9012 | 3456 | 7890 | 1234 | 5678 | 9012 | 3456 | 7890 | 1234 | |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Esophagus | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Intestine Large, Cecum | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Intestine Large, Colon
Parasite Metazoan | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| | X | | | | | | | | | | | | | | | | | | | X | | | | |
| Intestine Large, Rectum | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Intestine Small, Duodenum | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Intestine Small, Ileum | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Intestine Small, Jejunum | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Liver | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Angiectasis | | | | | | | | | | | | | | | | | | | | | | | | |
| Basophilic Focus | | | X | | | X | | | | | | | | | | | | | X | | | | | |
| Clear Cell Focus | | X | | | X | | | | | | | | | | | | | | X | X | | X | | |
| Degeneration, Cystic | | | | | | | | | | | | | | | | | | | | | | | | |
| Eosinophilic Focus | X | X | | | X | | X | | | | | | | | | | | | | | | | | |
| Extramedullary Hematopoiesis | | | | | | 2 | | | | 1 | | | | | | | | | | | | | | |
| Inflammation, Focal | | 1 | | | 2 | | | | | | | | 1 | | | | | | | | | | | |
| Necrosis | | | 1 | | | | | 1 | 2 | 3 | | 1 | 2 | 3 | | | | | | 1 | | | | |
| Pigment | 2 | 4 | 1 | | 1 | 2 | 3 | 1 | 1 | 2 | 1 | 2 | 2 | | 1 | 2 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 2 |
| Bile Duct, Cyst | | | | | X | | | | | | | X | | | | | | | | | | | | |
| Bile Duct, Hyperplasia | 1 | | | | 1 | | | | | | | 1 | 2 | 1 | 1 | | 1 | 1 | 1 | | 3 | | 1 | |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
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Experiment Number: 20614 - 01

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Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0/1000 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | ANIMAL ID | females
(cont...) |
|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|---|---|-----------|----------------------|
| | 0
7
4
4 | 0
7
4
4 | 0
7
4
4 | 0
0
6
6 | 0
7
4
5 | 0
5
0
4 | 0
7
4
4 | 0
2
9
8 | 0
6
9
5 | 0
6
6
9 | 0
2
5
3 | 0
7
4
1 | 0
7
4
5 | 0
4
3
8 | 0
7
2
2 | 0
7
3
7 | 0
7
4
5 | 0
7
4
5 | 0
6
5
2 | 0
3
7
9 | 0
7
4
5 | 0
6
9
5 | | | | |
| Centrilobular, Fatty Change, Microvesicular, Diffuse | | | | | | | | | | | | | | | | | | | | | | | 2 | | | |
| Centrilobular, Necrosis | | | | | | | | | | | | | | | | | | | | | | | 2 | | | |
| Hepatocyte, Cytoplasmic Alteration | 3 | 2 | 2 | | 2 | 1 | 3 | 4 | 2 | 2 | 2 | 3 | 4 | 2 | 2 | 3 | 4 | 2 | 2 | 3 | 3 | 2 | 3 | 3 | | |
| Hepatocyte, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | 2 | | | |
| Hepatocyte, Hypertrophy | 2 | 3 | 3 | | 2 | 1 | 3 | 4 | | 1 | 4 | 3 | 4 | 2 | 3 | 3 | 4 | 2 | 3 | 1 | 1 | 4 | 2 | 1 | | |
| Hepatocyte, Increased Mitoses | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hepatocyte, Single Cell Death | 1 | 2 | 2 | | 1 | 1 | 1 | 1 | | 1 | | | | | | 1 | | 1 | 1 | | 2 | 2 | 1 | | | |
| Kupffer Cell, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | 4 | | | |
| Oval Cell, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | 3 | | | |
| Mesentery Hemorrhage | | | | | | | | | | | | | | | | | | | | | | | 4 | | | |
| Pancreas Necrosis | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Acinus, Atrophy | | | | | | | | | | | | | | | | | | | | | | | 2 | | | |
| Acinus, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Duct, Inflammation, Granulomatous | | | | | | | | | | | | | | | | | | | | | | | 2 | | | |
| Salivary Glands | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Stomach, Forestomach Mineral Ulcer | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Epithelium, Hyperplasia | 3 | | 1 | | | | 1 | | | | | 3 | | 4 | 3 | 2 | 1 | | | | 4 | | 4 | | | |
| Submucosa, Inflammation, Chronic Active | 1 | | | | | | 1 | | | | | 2 | | 4 | 3 | | | | | | 3 | | 3 | | | |
| Stomach, Glandular Epithelium, Necrosis | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

| DAY ON TEST | HARLAN SPRAGUE DAWLEY RATS FEMALE | | | | | | | | | | | | | | | | | | | | ANIMAL ID | females (cont...) | |
|-------------|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------|-------------------|---|
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | 0 |
| 7 | 7 | 7 | 0 | 7 | 5 | 7 | 2 | 6 | 6 | 2 | 7 | 7 | 7 | 4 | 7 | 7 | 7 | 7 | 7 | 6 | 3 | 7 | 6 |
| 4 | 4 | 4 | 6 | 4 | 0 | 4 | 9 | 9 | 6 | 5 | 4 | 4 | 4 | 3 | 2 | 3 | 1 | 4 | 4 | 5 | 7 | 4 | 9 |
| 4 | 4 | 4 | 6 | 4 | 5 | 4 | 8 | 5 | 9 | 3 | 4 | 1 | 5 | 8 | 2 | 7 | 4 | 5 | 5 | 2 | 9 | 5 | 5 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 8 | 9 | 0 | 2 | 3 | 5 | 6 | 7 | 8 | 0 | 2 | 3 | 4 | 5 | 6 | 8 |

Retina, Degeneration

Harderian Gland

+ + + M +

URINARY SYSTEM

Kidney

Accumulation, Hyaline Droplet

Calculus Micro Observation Only

Hemorrhage

Infarct

Inflammation, Chronic Active

Nephropathy, Chronic Progressive

Thrombus

Papilla, Necrosis

Papilla, Urothelium, Hyperplasia

Pelvis, Dilation

Pelvis, Inflammation, Chronic

Renal Tubule, Hyperplasia, Atypical

Renal Tubule, Mineral

+ + + M +

2

1 2 1 1 2 1 1 2 2 1 1 1 2 2 2 2 1 2 1

1 1

3

2 4 3 1

1 2 3 3 2 3 1 2 2 1 2 3 2 2 3 1 2 2 1 2 2

1

4

2

1 1 1 1 1

Urinary Bladder

Inflammation

+ + + M + + + + + + + + + + + M + + + + + + + + + +

4 2

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

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Experiment Number: 20614 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/25/2018

Time Report Requested: 12:58:26

First Dose M/F: 10/27/08 / 10/28/08

Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0/1000 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|--|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-------|----------|---|----------|
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 4 | 7 | 7 | 7 | 7 | 3 | 7 | 2 | 7 | 7 | 7 | 5 | 6 | 6 | 5 | 7 | 7 | 2 | 5 | 7 | 7 | 7 | 7 | 6 | |
| ANIMAL ID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | | |
| | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | |
| | 0 | 2 | 3 | 5 | 6 | 7 | 8 | 2 | 2 | 2 | 3 | 2 | 5 | 6 | 7 | 8 | 9 | 2 | 3 | 3 | 5 | 6 | 6 | | |
| Centrilobular, Fatty Change, Microvesicular, Diffuse | | | | | | | | | | | | | | | | | | | | | | | 1 2.0 | | |
| Centrilobular, Necrosis | | | | | | | | | | | 2 | | | | | | | | | 2 | | | 3 2.0 | | |
| Hepatocyte, Cytoplasmic Alteration | 2 | 2 | 2 | 2 | 1 | 2 | 4 | 2 | 2 | 3 | 3 | 2 | 2 | 1 | 1 | 3 | 2 | 2 | 1 | 2 | 3 | 1 | 3 2 1 | | |
| Hepatocyte, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | 1 2.0 | | |
| Hepatocyte, Hypertrophy | 2 | 2 | 2 | 1 | 1 | 3 | 4 | 4 | 1 | 3 | 2 | 2 | 2 | 3 | 3 | 1 | 4 | 1 | 3 | 2 | 2 | 3 | 4 2 | | |
| Hepatocyte, Increased Mitoses | 1 | | | | | | | | | | | | | | | | | | 2 | 1 | | | 4 1.5 | | |
| Hepatocyte, Single Cell Death | 1 | | | | 2 | 2 | 3 | 2 | 1 | 1 | 1 | | 1 | 1 | 2 | | | | 1 | 1 | 1 | | 29 1.3 | | |
| Kupffer Cell, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | 1 4.0 | | |
| Oval Cell, Hyperplasia | | | | | | | | | | | 1 | | | | | | | | | | | | 2 2.0 | | |
| Mesentery Hemorrhage | | | | | | | | | | | | | | | | | | | | | | | 2 4.0 | | |
| Pancreas Necrosis | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 1 1.0 | | |
| Acinus, Atrophy | | | | | | | | | | | | | | | | | | | | 1 | | | 2 1.5 | | |
| Acinus, Hyperplasia | | | | | | | | | | | 2 | | | | | | | | | | | | 1 2.0 | | |
| Duct, Inflammation, Granulomatous | | | | | | | | | | | | | | | | | | | | | | | 1 2.0 | | |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | 48 | | |
| Stomach, Forestomach Mineral | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 1 1.0 | | |
| Ulcer | | | | | 1 | | | | | | | | | | | | | | | | | 1 | 9 1.6 | | |
| Epithelium, Hyperplasia | | | | | 3 | 3 | 3 | 3 | | | | | 4 | 3 | | 4 | 2 | | | 1 | | 3 3 4 | 22 2.8 | | |
| Submucosa, Inflammation, Chronic Active | | | | | 3 | | 2 | 2 | | | | | 3 | 3 | | 3 | | | | | | 3 3 2 | 16 2.6 | | |
| Stomach, Glandular Epithelium, Necrosis | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 1 1.0 | | |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

Experiment Number: 20614 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/25/2018

Time Report Requested: 12:58:26

First Dose M/F: 10/27/08 / 10/28/08

Lab: BAT

| DAY ON TEST | HARLAN SPRAGUE DAWLEY RATS FEMALE | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|-------------|-----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------|
| | 04 | 07 | 07 | 07 | 07 | 03 | 07 | 02 | 07 | 07 | 07 | 05 | 06 | 06 | 05 | 07 | 07 | 02 | 05 | 07 | 07 | 07 | 07 | 06 | |
| 0/1000 ppm | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 49 |
| ANIMAL ID | 510 | 511 | 512 | 513 | 514 | 515 | 516 | 517 | 518 | 519 | 520 | 521 | 522 | 523 | 524 | 525 | 526 | 527 | 528 | 529 | 530 | 531 | 532 | 533 | 2 |

Mucosa, Mineral

2 1.5

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-------|
| Blood Vessel Inflammation | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | 1 2.0 |
| Heart Cardiomyopathy | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | 48 | 4 1.0 |

ENDOCRINE SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|--------|--------|
| Adrenal Cortex Degeneration, Cystic Vacuolization Cytoplasmic | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | 9 1.2 | |
| | | | | | 1 | | | | | 1 | 1 | | | | 2 | | | | | | | 1 | | | | 5 1.2 | |
| Adrenal Medulla Hyperplasia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | 12 1.8 | |
| Islets, Pancreatic Hyperplasia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | 1 1.0 | |
| Parathyroid Gland | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | 46 | | |
| Pituitary Gland Pars Distalis, Hyperplasia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | 13 1.7 | |
| Thyroid Gland C-cell, Hyperplasia | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | 48 | 7 2.1 | |
| Follicular Cell, Hypertrophy | 1 | | 2 | 3 | | 3 | 1 | 1 | | | 1 | | 2 | | | 2 | 3 | 1 | | 2 | 1 | | 2 | 2 | 3 | | 28 2.0 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

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Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
0/1000 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|--|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----------|
| | 04 | 07 | 07 | 07 | 07 | 03 | 07 | 02 | 07 | 07 | 07 | 05 | 06 | 06 | 05 | 07 | 07 | 02 | 05 | 07 | 07 | 07 | 07 | 06 | |
| ANIMAL ID | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| | 84 | 45 | 46 | 45 | 21 | 51 | 36 | 84 | 45 | 45 | 65 | 49 | 22 | 69 | 22 | 46 | 18 | 25 | 40 | 46 | 46 | 44 | 46 | 24 | |
| | 51 | 51 | 55 | 55 | 51 | 51 | 51 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | 52 | |
| | 0 | 2 | 3 | 5 | 6 | 7 | 8 | 0 | 2 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 2 | 3 | 5 | 6 | 8 | 4 | |

Retina, Degeneration

1

1 1.0

Harderian Gland

+ 49

URINARY SYSTEM

Kidney

+ 49

Accumulation, Hyaline Droplet

1 2.0

Calculus Micro Observation Only

1 3 1 1 1 1 19 1.3

Hemorrhage

4 1 1 1 1 4.0

Infarct

1 1 1 5 1.0

Inflammation, Chronic Active

1 3.0

Nephropathy, Chronic Progressive

1 2 2 2 2 2 1 3 1 1 1 1 1 1 2 37 1.4

Thrombus

1 1.0

Papilla, Necrosis

3 4 4 1 1 1 12 2.3

Papilla, Urothelium, Hyperplasia

1 1 2 1 1 3 2 2 2 2 3 1 1 2 2 2 1 1 2 40 1.9

Pelvis, Dilation

2 2.5

Pelvis, Inflammation, Chronic

3 4 2.3

Renal Tubule, Hyperplasia, Atypical

1 1.0

Renal Tubule, Mineral

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 16 1.0

Urinary Bladder

+ 48

Inflammation

1 3 4 2.5

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

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Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
300/1000 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | ANIMAL ID | females
(cont...) | | | | | | |
|--|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----------|----------------------|-------|-------|-------|-------|-------|-------|
| | 05774 | 07746 | 06746 | 08839 | 05817 | 06675 | 07744 | 08832 | 09921 | 00010 | 01100 | 02200 | 03300 | 04400 | 05500 | 06600 | 07700 | 08800 | 09900 | 00000 | | | 01100 | 02200 | 03300 | 04400 | 05500 | 06600 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 4 | 6 | 6 | 3 | 9 | 7 | 5 | 5 | 3 | 2 | 4 | 1 | 5 | 4 | 4 | 4 | 4 | 8 | 6 | 3 | 4 | 4 | 5 | 3 | 7 | 6 | 4 | 7 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 3 | 4 | 6 | 7 | 8 | 6 | 8 | 8 |

Aorta, Mineral

1

Heart

+ +

Cardiomyopathy

1 1 1

Mineral

1

ENDOCRINE SYSTEM

Adrenal Cortex

+ +

Degeneration, Cystic

1 1

Hypertrophy

3 2

Hypertrophy, Focal

2

Necrosis

1

Vacuolization Cytoplasmic

Adrenal Medulla

+ +

Hyperplasia

1 2 1 3 1

Islets, Pancreatic

+ +

Hyperplasia

Parathyroid Gland

+ + + + M + + + + + M + + + + + + + + + + + +

Cytoplasmic Alteration

Pituitary Gland

+ +

Necrosis

3

Pars Distalis, Hyperplasia

3 1 3 1

Thyroid Gland

+ +

C-cell, Hyperplasia

1 2 3 3

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ .. Tissue examined microscopically

X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

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Lab: BAT

| DAY ON TEST | HARLAN SPRAGUE DAWLEY RATS FEMALE | | | | | | | | | | | | | | | | | | | | | | | | ANIMAL ID | females (cont...) | |
|--------------|-----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----------|-------------------|-------|
| | 05774 | 07746 | 07746 | 06883 | 05889 | 06147 | 07745 | 07745 | 06473 | 07742 | 06741 | 07745 | 06644 | 04744 | 07748 | 07746 | 07743 | 06744 | 07744 | 07745 | 06743 | 07744 | 06745 | 06743 | | | 06747 |
| 300/1000 ppm | 0054 | 0076 | 0076 | 0008 | 0008 | 0001 | 0004 | 0004 | 0007 | 0003 | 0002 | 0004 | 0001 | 0005 | 0004 | 0006 | 0004 | 0004 | 0007 | 0007 | 0007 | 0006 | 0007 | 0007 | 0007 | 0006 | 0006 |
| | 0054 | 0076 | 0076 | 0008 | 0008 | 0001 | 0004 | 0004 | 0007 | 0003 | 0002 | 0004 | 0001 | 0005 | 0004 | 0006 | 0004 | 0004 | 0007 | 0007 | 0007 | 0006 | 0007 | 0007 | 0007 | 0006 | 0006 |

Inflammation, Granulomatous, Multifocal
 Inflammation, Chronic Active
 Alveolus, Infiltration Cellular, Histiocyte

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|--|--|---|---|---|---|---|---|---|---|---|---|---|---|---|--|---|--|
| | | | | 1 | | | | | 1 | | | | 1 | | | | | | | | | | | | | | |
| | | | 1 | | | | 1 | | | | | 1 | | 2 | | | | | | | 1 | | 1 | | | | |
| | 2 | 3 | 3 | 1 | 3 | 4 | 3 | 2 | 1 | | | 3 | 2 | 3 | 2 | 1 | 2 | 2 | 2 | 1 | 1 | 4 | 3 | 2 | | 1 | |

Nose
 Foreign Body
 Inflammation

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | |

Trachea

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

SPECIAL SENSES SYSTEM

Eye
 Retina, Degeneration

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | |

Harderian Gland

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Zymbal's Gland

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

URINARY SYSTEM

Kidney
 Calculus Micro Observation Only
 Infarct
 Nephropathy, Chronic Progressive
 Thrombus
 Papilla, Necrosis
 Papilla, Urothelium, Hyperplasia
 Pelvis, Dilation
 Pelvis, Hemorrhage

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| | 1 | | | | | | 1 | 2 | | | | | 2 | | | | | | | 2 | | | 1 | | | 3 | 1 |
| | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | |
| | 1 | 1 | 1 | 1 | 2 | 3 | 1 | 3 | 1 | | 2 | 2 | 1 | 2 | 2 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2 | 1 | 1 | 1 | | 2 | 3 | 2 | 1 | 1 | 1 | 3 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 1 | | 1 | 1 | 2 | 3 | 1 | |
| | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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Lab: BAT

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FEMALE
300/1000 ppm | DAY ON TEST | | ANIMAL ID | | | | | | | | | | | | | | | | | | | | * TOTALS | | | |
|--|-------------|------|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|----------|------|------|--|
| | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | | 0745 | 0745 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 7 | 6 | 5 | 7 | 1 | 3 | 4 | 7 | 6 | 7 | 6 | 7 | 3 | 7 | 6 | 4 | 7 | 7 | 4 | 7 | 7 | 7 | 6 | 6 | 7 | |
| | 4 | 9 | 0 | 4 | 8 | 9 | 5 | 4 | 3 | 4 | 9 | 4 | 9 | 4 | 3 | 4 | 4 | 4 | 9 | 4 | 4 | 4 | 7 | 7 | 4 | |
| | 5 | 0 | 8 | 6 | 3 | 1 | 7 | 6 | 4 | 6 | 5 | 5 | 3 | 4 | 8 | 0 | 4 | 4 | 1 | 4 | 4 | 4 | 6 | 6 | 5 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | |
| | 9 | 0 | 2 | 3 | 4 | 5 | 6 | 8 | 9 | 0 | 2 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 4 | 6 | 7 | 9 | | |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| Esophagus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Large, Colon
Parasite Metazoan | + | + | + | + | + | + | + | + | + | X | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50
7 |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Liver | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Basophilic Focus | | | | X | | | | | | X | X | | | X | | | | | | | | | | | | 6 |
| Cholangiofibrosis | | | | | | | | | | | | 4 | | | | | | | | | | | | | | 1 4.0 |
| Clear Cell Focus | | | | | | | | | | | | | | | | | | X | | | | | | | | 5 |
| Degeneration, Cystic | | | | | | | | | | | | | | | | | | | | | | | | | | 1 1.0 |
| Eosinophilic Focus | | | | | | | | | | | | | | | | | | | | X | | | | | | 2 |
| Extramedullary Hematopoiesis | | | | | | | | | | | | | | | | | | | | | | | | | | 1 1.0 |
| Hepatodiaphragmatic Nodule | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Inflammation, Focal | | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | | 6 1.0 |
| Necrosis | | | | | | | 2 | | | | | | | | 2 | | | | | | | | | | | 5 2.4 |
| Pigment | 1 | | | 1 | 1 | 2 | 2 | 2 | | | 3 | 2 | 4 | | | 1 | 2 | 1 | | 1 | 4 | 3 | 3 | 2 | 1 | 40 1.8 |
| Bile Duct, Cyst | X | | | | | | | | | | | | | | | X | X | | | | | | | | | 5 |
| Bile Duct, Hyperplasia | 2 | | | 2 | | | | 1 | | 2 | 1 | | | | | | 1 | 1 | | 1 | 1 | 1 | | | 1 | 27 1.3 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

Experiment Number: 20614 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Perfluorooctanoic Acid

CAS Number: 335-67-1

Date Report Requested: 07/25/2018

Time Report Requested: 12:58:26

First Dose M/F: 10/27/08 / 10/28/08

Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
FEMALE
300/1000 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | * TOTALS |
|--|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| | 0745 | 0690 | 0508 | 0746 | 0183 | 0349 | 0475 | 0064 | 0764 | 0674 | 0734 | 0794 | 0044 | 0634 | 0448 | 0744 | 0774 | 0474 | 0676 | 0667 | |
| ANIMAL ID | 00569 | 00557 | 00557 | 00557 | 00557 | 00557 | 00557 | 00557 | 00557 | 00557 | 00557 | 00557 | 00557 | 00557 | 00557 | 00557 | 00557 | 00557 | 00557 | 00557 | 00557 |

Aorta, Mineral

1 1.0

Heart
Cardiomyopathy
Mineral

+ 50
1 4 1.0
1 1.0

ENDOCRINE SYSTEM

Adrenal Cortex
Degeneration, Cystic
Hypertrophy
Hypertrophy, Focal
Necrosis
Vacuolization Cytoplasmic

+ 50
1 7 1.0
3 2.7
1 2.0
1 1.0
2 4 1.8

Adrenal Medulla
Hyperplasia

+ 50
2 8 1.6

Islets, Pancreatic
Hyperplasia

+ 50
2 1 2.0

Parathyroid Gland
Cytoplasmic Alteration

+ 48
1 1 1.0

Pituitary Gland
Necrosis
Pars Distalis, Hyperplasia

+ 50
3 1 7 1.9

Thyroid Gland
C-cell, Hyperplasia

+ 50
3 4 2 1 2 1 2 11 2.2

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|--|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|-------|--------------|
| | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | 0745 | | 0745 | 0745 |
| ANIMAL ID | 00569 | 00569 | 00569 | 00569 | 00569 | 00569 | 00569 | 00569 | 00569 | 00569 | 00569 | 00569 | 00569 | 00569 | 00569 | 00569 | 00569 | 00569 | 00569 | 00569 | 00569 | 00569 | |
| Atrophy, Lymphoid | 3 | 3 | | | 2 | 3 | | | | | 1 | 1 | | | 2 | | | | | | | | 10 2.1 |
| Lymph Node, Mesenteric Atrophy, Lymphoid | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 48
10 1.0 |
| Spleen | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Extramedullary Hematopoiesis | 1 | 3 | | 1 | | | | | | 2 | 2 | 3 | | | 1 | | 1 | 1 | | 2 | 2 | | 28 1.9 |
| Pigment | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 1 | | | | 2 | 1 | 1 | 3 | 2 | 2 | | 1 | | 1 | 31 1.7 |
| Lymphoid Follicle, Atrophy | | 1 | 1 | | 3 | 3 | 3 | | | | | 2 | 1 | | 1 | 2 | | | | 1 | | | 20 2.2 |
| Thymus | + | + | + | + | M | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | 47 |
| Atrophy | 3 | 4 | 3 | 3 | | 3 | 4 | 3 | 2 | 3 | 3 | | 3 | 1 | 2 | 4 | 3 | 3 | | 3 | 3 | 3 | 46 3.2 |
| INTEGUMENTARY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | |
| Mammary Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Hyperplasia | | | | | | | | | | | | | 3 | 2 | | | | | | 3 | | | 15 1.7 |
| Skin | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| MUSCULOSKELETAL SYSTEM | | | | | | | | | | | | | | | | | | | | | | | |
| Bone | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| NERVOUS SYSTEM | | | | | | | | | | | | | | | | | | | | | | | |
| Brain | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| RESPIRATORY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | |
| Lung | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

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|--|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------|---|-------|
| | ANIMAL ID | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | |
| | 9 | 0 | 2 | 3 | 4 | 5 | 6 | 8 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 4 | 6 | 7 | 8 | 9 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pelvis, Inflammation, Suppurative | | | | | | | | | | | | | | | | | | | | | | | | | 1 4.0 |
| Pelvis, Inflammation, Chronic | | | | | | | | | | | | | | | | | | | | | | 3 | 3 | | 2 3.0 |
| Renal Tubule, Dilation | | | | | | | | | | | | | | | | | | | | | | | | | 1 3.0 |
| Renal Tubule, Inflammation, Suppurative | | | | | | | | | | | | | | | | | | | | | | | | | 1 3.0 |
| Renal Tubule, Mineral | | | | | | | | | | | | | 1 | | | 1 | 1 | | | | | 1 | | | 8 1.5 |
| Renal Tubule, Necrosis | | | | | | | | | | | | | | | | | | | | | | | | | 1 3.0 |
| Urinary Bladder | | | | | | | | | | | | | | | | | | | | | | | | | 50 |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | 2 | 1 2.0 |
| Metaplasia, Squamous | | | | | | | | | | | | | | | | | | | | | | | | 3 | 1 3.0 |

*** END OF REPORT ***

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

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X .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

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