

**Study Number:** R10997  
**Test Type:** RACB  
**Route:** Dosing in Feed  
**Species/Strain:** Rat/Sprague-Dawley

**I05P: Pup Clinical Observations Summary**  
**Test Compound:** Diisobutyl Phthalate  
**CAS Number:** 84-69-5

**Date Report Requested:** 12/03/2018  
**Time Report Requested:** 08:49:30  
**Lab:** RTI

**C Number:** R10997  
**Study Gender:** Both  
**PWG Approval Date** See web page for date of PWG Approval

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**F1 Pups - Litter A**

**Treatment Groups (ppm)**

	0	1000	5000	10000
<b>Total Pups (PND 0)</b>	285	298	279	264
<b>No. pups post cull (PND 4)</b>				
<b>Total Litters (PND 0)</b>	21	23	21	22
<b>No. litters post cull (PND 4)</b>				

**Pup Clinical Observations PND 0-4**

Anal Atresia	0	1 (0.3)	0	0
	0	1 (4.3)	0	0
		PND 0		
Bruising	0	1 (0.3)	0	0
Abdomen	0	1 (4.3)	0	0
		PND 1		
Bruising	0	3 (1.0)	1 (0.4)	1 (0.4)
Face	0	2 (8.7)	1 (4.8)	1 (4.5)
		PND 0-1	PND 0	PND 0-3
Bruising	0	1 (0.3)	0	0
Head	0	1 (4.3)	0	0
		PND 0		
Bruising	0	0	1 (0.4)	0
Right Hind Paw	0	0	1 (4.8)	0
			PND 0-2	

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F1 Pups - Litter A

	Treatment Groups (ppm)			
	0	1000	5000	10000
Cold To Touch	1 (0.4)	2 (0.7)	6 (2.2)	0
	1 (4.8)	2 (8.7)	1 (4.8)	0
	PND 0	PND 1	PND 0	
Dehydrated	0	1 (0.3)	0	0
	0	1 (4.3)	0	0
		PND 1		
Loss of Limb Function Left Hindlimb	0	0	1 (0.4)	0
	0	0	1 (4.8)	0
			PND 0-4	
No Milk in Stomach	30 (10.5)	23 (7.7)	18 (6.5)	13 (4.9)
	4 (19.0)	4 (17.4)	2 (9.5)	1 (4.5)
	PND 0	PND 0-1	PND 0	PND 0
Pale	3 (1.1)	6 (2.0)	0	3 (1.1)
	3 (14.3)	5 (21.7)	0	3 (13.6)
	PND 0-2	PND 0-1		PND 0-2
Pup - Found Dead	25 (8.8)	23 (7.7)	17 (6.1)	22 (8.3)
	12 (57.1)	12 (52.2)	7 (33.3)	10 (45.5)
	PND 0-1	PND 0-4	PND 0-1	PND 0-2
Pup Cannibalised	2 (0.7)	2 (0.7)	4 (1.4)	0
	2 (9.5)	2 (8.7)	2 (9.5)	0
	PND 0	PND 0	PND 0-1	

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**F1 Pups - Litter A**

	Treatment Groups (ppm)			
	0	1000	5000	10000
Pup Missing - Presumed Dead	3 (1.1) 3 (14.3) PND 0-1	6 (2.0) 3 (13.0) PND 0-3	4 (1.4) 4 (19.0) PND 1	6 (2.3) 5 (22.7) PND 0-2
Respiration Labored	1 (0.4) 1 (4.8) PND 0	1 (0.3) 1 (4.3) PND 0	1 (0.4) 1 (4.8) PND 0	0 0
Sore(s) On Body Nose/Snout	1 (0.4) 1 (4.8) PND 0-2	0 0	0 0	0 0
Sore(s) On Body Right Hindlimb	1 (0.4) 1 (4.8) PND 2-4	0 0	1 (0.4) 1 (4.8) PND 0	0 0
Tail Damaged	0 0	0 0	0 0	1 (0.4) 1 (4.5) PND 0-4

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**F1 Pups - Litter B**

	Treatment Groups (ppm)			
	0	1000	5000	10000
<b>Total Pups (PND 0)</b>	<b>267</b>	<b>305</b>	<b>287</b>	<b>282</b>
<b>No. pups post cull (PND 4)</b>				
<b>Total Litters (PND 0)</b>	<b>21</b>	<b>23</b>	<b>21</b>	<b>22</b>
<b>No. litters post cull (PND 4)</b>				

**Pup Clinical Observations PND 0-4**

Bruising	0	0	1 (0.3)	0
Abdomen	0	0	1 (4.8) PND 1	0
Bruising	0	2 (0.7)	0	0
Back	0	2 (8.7) PND 1-4	0	0
Bruising	1 (0.4)	0	2 (0.7)	0
Face	1 (4.8) PND 0-1	0	2 (9.5) PND 0-1	0
Bruising	0	0	1 (0.3)	1 (0.4)
Multiple Sites (>2)	0	0	1 (4.8) PND 0	1 (4.5) PND 0-2
Cold To Touch	1 (0.4)	0	2 (0.7)	1 (0.4)
	1 (4.8) PND 0-1	0	2 (9.5) PND 0	1 (4.5) PND 2

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**F1 Pups - Litter B**

	Treatment Groups (ppm)			
	0	1000	5000	10000
Gasping	1 (0.4) 1 (4.8) PND 0	0 0	0 0	3 (1.1) 3 (13.6) PND 0
No Milk in Stomach	3 (1.1) 3 (14.3) PND 1-4	7 (2.3) 2 (8.7) PND 0-2	5 (1.7) 5 (23.8) PND 0-4	5 (1.8) 3 (13.6) PND 1-4
Pale	3 (1.1) 3 (14.3) PND 0-4	8 (2.6) 6 (26.1) PND 0-2	8 (2.8) 6 (28.6) PND 0-3	8 (2.8) 6 (27.3) PND 0-4
Pup - Found Dead	15 (5.6) 8 (38.1) PND 0-1	20 (6.6) 7 (30.4) PND 0-4	18 (6.3) 10 (47.6) PND 0-2	7 (2.5) 6 (27.3) PND 0-3
Pup Cannibalised	1 (0.4) 1 (4.8) PND 0	0 0	2 (0.7) 2 (9.5) PND 0-1	0 0
Pup Missing - Presumed Dead	1 (0.4) 1 (4.8) PND 1	1 (0.3) 1 (4.3) PND 1	5 (1.7) 4 (19.0) PND 0-3	6 (2.1) 3 (13.6) PND 1
Respiration	0	3 (1.0)	0	0
Labored	0	2 (8.7) PND 0-2	0	0

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**F1 Pups - Litter B**

	Treatment Groups (ppm)			
	0	1000	5000	10000
Sore(s) On Body	0	1 (0.3)	0	0
Abdomen	0	1 (4.3) PND 1	0	0
Subcutaneous Discoloration	0	0	0	1 (0.4)
Dorsal	0	0	0	1 (4.5) PND 0
Tail Tip Missing	1 (0.4)	0	0	1 (0.4)
	1 (4.8) PND 0	0	0	1 (4.5) PND 1-4

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**F1 Pups - Litter C**

**Treatment Groups (ppm)**

	0	1000	5000	10000
<b>Total Pups (PND 0)</b>	<b>209</b>	<b>224</b>	<b>211</b>	<b>222</b>
<b>No. pups post cull (PND 4)</b>	<b>177</b>	<b>171</b>	<b>190</b>	<b>191</b>
<b>Total Litters (PND 0)</b>	<b>21</b>	<b>22</b>	<b>20</b>	<b>21</b>
<b>No. litters post cull (PND 4)</b>	<b>21</b>	<b>21</b>	<b>20</b>	<b>20</b>

**Pup Clinical Observations PND 0-4**

Bruising	0	1 (0.4)	0	0
Abdomen	0	1 (4.5)	0	0
		PND 2-3		
Bruising	2 (1.0)	1 (0.4)	1 (0.5)	1 (0.5)
Face	2 (9.5)	1 (4.5)	1 (5.0)	1 (4.8)
	PND 0-2	PND 1	PND 0-1	PND 1
Bruising	1 (0.5)	0	0	0
Head	1 (4.8)	0	0	0
	PND 0-2			
Bruising	0	1 (0.4)	0	1 (0.5)
Multiple Sites (>2)	0	1 (4.5)	0	1 (4.8)
		PND 3		PND 0-1
Bruising	0	1 (0.4)	0	0
Neck	0	1 (4.5)	0	0
		PND 2		



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**F1 Pups - Litter C**

	Treatment Groups (ppm)			
	0	1000	5000	10000
Cold To Touch	1 (0.5)	9 (4.0)	4 (1.9)	2 (0.9)
	1 (4.8)	4 (18.2)	2 (10.0)	2 (9.5)
	PND 0	PND 0-3	PND 0	PND 0
Dehydrated	0	3 (1.3)	0	0
	0	1 (4.5)	0	0
		PND 3		
Gasping	3 (1.4)	0	0	1 (0.5)
	1 (4.8)	0	0	1 (4.8)
	PND 0			PND 0
No Milk in Stomach	3 (1.4)	12 (5.4)	1 (0.5)	7 (3.2)
	3 (14.3)	6 (27.3)	1 (5.0)	6 (28.6)
	PND 0-4	PND 1-3	PND 0	PND 0-4
Pale	4 (1.9)	5 (2.2)	6 (2.8)	2 (0.9)
	4 (19.0)	5 (22.7)	4 (20.0)	2 (9.5)
	PND 0-2	PND 1-3	PND 0-2	PND 0-1
Pup - Found Dead	23 (11.0)	31 (13.8)	11 (5.2)	13 (5.9)
	13 (61.9)	12 (54.5)	7 (35.0)	7 (33.3)
	PND 0-4	PND 0-4	PND 0-1	PND 0-4
Pup Cannibalised	2 (1.0)	1 (0.4)	1 (0.5)	2 (0.9)
	2 (9.5)	1 (4.5)	1 (5.0)	2 (9.5)
	PND 0-1	PND 2	PND 0	PND 0

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**F1 Pups - Litter C**

**Treatment Groups (ppm)**

	<b>0</b>	<b>1000</b>	<b>5000</b>	<b>10000</b>
Pup Missing - Presumed Dead	0	8 (3.6)	2 (0.9)	4 (1.8)
	0	3 (13.6)	2 (10.0)	3 (14.3)
		PND 1-4	PND 1	PND 1-2
Respiration	0	1 (0.4)	2 (0.9)	0
Labored	0	1 (4.5)	2 (10.0)	0
		PND 1	PND 0	
<b>Pup Clinical Observations PND 5-21</b>				
Cold To Touch	0	3 (1.8)	3 (1.6)	6 (3.1)
	0	3 (14.3)	2 (10.0)	4 (20.0)
		PND 5-10	PND 7-8	PND 6-7
Dehydrated	0	2 (1.2)	0	0
	0	1 (4.8)	0	0
		PND 7-16		
Eye Discharge	0	5 (2.9)	0	1 (0.5)
Bilateral; Brown	0	2 (9.5)	0	1 (5.0)
		PND 21		PND 19-21
Eye Discharge	0	2 (1.2)	0	0
Left; Brown	0	2 (9.5)	0	0
		PND 18-21		

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**F1 Pups - Litter C**

	Treatment Groups (ppm)			
	0	1000	5000	10000
Eye Discharge	0	1 (0.6)	0	0
Left; Red	0	1 (4.8) PND 16-18	0	0
Eye Discharge	0	1 (0.6)	0	0
Right; Brown	0	1 (4.8) PND 21	0	0
Gasping	0	0	0	1 (0.5)
	0	0	0	1 (5.0) PND 6
Lethargic	0	1 (0.6)	0	0
	0	1 (4.8) PND 7	0	0
Nasal Discharge	0	0	1 (0.5)	0
Red	0	0	1 (5.0) PND 13	0
No Milk in Stomach	2 (1.1)	4 (2.3)	5 (2.6)	8 (4.2)
	2 (9.5) PND 5-6	3 (14.3) PND 5-8	4 (20.0) PND 5-8	5 (25.0) PND 5-7
Pale	0	3 (1.8)	2 (1.1)	2 (1.0)
	0	3 (14.3) PND 5-10	2 (10.0) PND 5-7	2 (10.0) PND 6-7

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**F1 Pups - Litter C**

	<b>Treatment Groups (ppm)</b>			
	<b>0</b>	<b>1000</b>	<b>5000</b>	<b>10000</b>
Pup - Found Dead	3 (1.7) 3 (14.3) PND 6-10	6 (3.5) 5 (23.8) PND 5-11	3 (1.6) 3 (15.0) PND 9-12	13 (6.8) 3 (15.0) PND 5-7
Pup Cannibalised	1 (0.6) 1 (4.8) PND 9	0 0	0 0	0 0
Pup Missing - Presumed Dead	4 (2.3) 2 (9.5) PND 7-11	8 (4.7) 3 (14.3) PND 6-13	4 (2.1) 3 (15.0) PND 6-8	16 (8.4) 6 (30.0) PND 5-12
Respiration Labored	0 0	2 (1.2) 2 (9.5) PND 7-10	1 (0.5) 1 (5.0) PND 7	2 (1.0) 2 (10.0) PND 6-7
Scab(s) Head	0 0	1 (0.6) 1 (4.8) PND 7	0 0	0 0
Skin flap, fur covered Mouth, Bilateral	0 0	1 (0.6) 1 (4.8) PND 10-21	0 0	1 (0.5) 1 (5.0) PND 13-21
Tail Damaged	0 0	1 (0.6) 1 (4.8) PND 13-21	0 0	0 0

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**F1 Pups - Litter C**

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**Treatment Groups (ppm)**

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	<b>0</b>	<b>1000</b>	<b>5000</b>	<b>10000</b>
Tail Tip Missing	0	0	0	1 (0.5)
	0	0	0	1 (5.0)
				PND 10-21

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**F2 Pups - Litter A F1c Parental Females**

	Treatment Groups (ppm)			
	0	1000	5000	10000
<b>Total Pups (PND 0)</b>	<b>466</b>	<b>380</b>	<b>404</b>	<b>315</b>
<b>No. pups post cull (PND 4)</b>				
<b>Total Litters (PND 0)</b>	<b>32</b>	<b>31</b>	<b>32</b>	<b>29</b>
<b>No. litters post cull (PND 4)</b>				
<b>Pup Clinical Observations PND 0-4</b>				
Bruising	1 (0.2)	1 (0.3)	0	0
Abdomen	1 (3.1)	1 (3.2)	0	0
	PND 1	PND 0-2		
Bruising	0	1 (0.3)	1 (0.2)	0
Back	0	1 (3.2)	1 (3.1)	0
		PND 0	PND 0-2	
Bruising	4 (0.9)	5 (1.3)	7 (1.7)	0
Face	3 (9.4)	3 (9.7)	5 (15.6)	0
	PND 0-3	PND 0-2	PND 0-2	
Bruising	3 (0.6)	0	1 (0.2)	0
Head	3 (9.4)	0	1 (3.1)	0
	PND 0-2		PND 0	
Bruising	0	0	1 (0.2)	0
Left Hind Paw	0	0	1 (3.1)	0
			PND 2-4	

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**F2 Pups - Litter A F1c Parental Females**

	Treatment Groups (ppm)			
	0	1000	5000	10000
Bruising	1 (0.2)	0	1 (0.2)	0
Left Hindlimb	1 (3.1) PND 1	0	1 (3.1) PND 2-4	0
Bruising	1 (0.2)	2 (0.5)	1 (0.2)	0
Neck	1 (3.1) PND 1-2	1 (3.2) PND 1	1 (3.1) PND 0-1	0
Cold To Touch	2 (0.4)	0	2 (0.5)	1 (0.3)
	2 (6.2) PND 0	0	2 (6.2) PND 0	1 (3.4) PND 0
Cyanosed	2 (0.4)	1 (0.3)	1 (0.2)	0
	1 (3.1) PND 0	1 (3.2) PND 0	1 (3.1) PND 3	0
Dehydrated	0	2 (0.5)	1 (0.2)	0
	0	1 (3.2) PND 4	1 (3.1) PND 4	0
No Milk in Stomach	7 (1.5)	16 (4.2)	14 (3.5)	0
	5 (15.6) PND 0-4	5 (16.1) PND 1-4	7 (21.9) PND 0-4	0
Pale	9 (1.9)	14 (3.7)	7 (1.7)	3 (1.0)
	7 (21.9) PND 0-2	4 (12.9) PND 0-2	7 (21.9) PND 0-2	3 (10.3) PND 0-2

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**F2 Pups - Litter A F1c Parental Females**

	Treatment Groups (ppm)			
	0	1000	5000	10000
Pup - Found Dead	60 (12.9) 24 (75.0) PND 0-4	26 (6.8) 17 (54.8) PND 0-4	23 (5.7) 13 (40.6) PND 0-4	29 (9.2) 16 (55.2) PND 0-3
Pup Cannibalised	2 (0.4) 2 (6.2) PND 0	5 (1.3) 4 (12.9) PND 0-2	2 (0.5) 2 (6.2) PND 0-4	0 0
Pup Missing - Presumed Dead	10 (2.1) 7 (21.9) PND 1-4	0 0	10 (2.5) 3 (9.4) PND 1-4	13 (4.1) 4 (13.8) PND 1
Respiration Labored	2 (0.4) 1 (3.1) PND 0	2 (0.5) 2 (6.5) PND 0-1	2 (0.5) 1 (3.1) PND 4	1 (0.3) 1 (3.4) PND 0
Scab(s) Abdomen	0 0	0 0	0 0	1 (0.3) 1 (3.4) PND 0
Scab(s) Back	0 0	0 0	0 0	1 (0.3) 1 (3.4) PND 4
Scab(s) Left Forelimb	0 0	1 (0.3) 1 (3.2) PND 4	0 0	0 0



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	Treatment Groups (ppm)			
	0	1000	5000	10000
Sore(s) On Body	0	0	0	1 (0.3)
Back	0	0	0	1 (3.4) PND 3
Sore(s) On Body	1 (0.2)	0	0	0
Right Hindlimb	1 (3.1) PND 0	0	0	0
Tail Damaged	1 (0.2) 1 (3.1) PND 0-4	0	1 (0.2) 1 (3.1) PND 4	1 (0.3) 1 (3.4) PND 0-4
Tail Short	1 (0.2) 1 (3.1) PND 0-4	0	0	0
Tail Tip Missing	0	1 (0.3) 1 (3.2) PND 0-4	0	1 (0.3) 1 (3.4) PND 0-4

**Study Number:** R10997  
**Test Type:** RACB  
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**Species/Strain:** Rat/Sprague-Dawley

**I05P: Pup Clinical Observations Summary**  
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**CAS Number:** 84-69-5

**Date Report Requested:** 12/03/2018  
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**Lab:** RTI

**F2 Pups - Litter B F1c Parental Females**

	Treatment Groups (ppm)			
	0	1000	5000	10000
<b>Total Pups (PND 0)</b>	<b>511</b>	<b>433</b>	<b>407</b>	<b>382</b>
<b>No. pups post cull (PND 4)</b>				
<b>Total Litters (PND 0)</b>	<b>35</b>	<b>31</b>	<b>31</b>	<b>33</b>
<b>No. litters post cull (PND 4)</b>				

**Pup Clinical Observations PND 0-4**

Bruising	1 (0.2)	2 (0.5)	1 (0.2)	2 (0.5)
Face	1 (2.9)	1 (3.2)	1 (3.2)	2 (6.1)
	PND 0	PND 0-1	PND 1	PND 0-2
Bruising	1 (0.2)	0	2 (0.5)	0
Head	1 (2.9)	0	2 (6.5)	0
	PND 0-2		PND 0	
Cold To Touch	4 (0.8)	2 (0.5)	2 (0.5)	2 (0.5)
	4 (11.4)	2 (6.5)	2 (6.5)	2 (6.1)
	PND 0-4	PND 0-4	PND 0	PND 0
Cyanosed	0	0	1 (0.2)	0
	0	0	1 (3.2)	0
			PND 0	
Dehydrated	2 (0.4)	2 (0.5)	3 (0.7)	1 (0.3)
	2 (5.7)	2 (6.5)	2 (6.5)	1 (3.0)
	PND 3-4	PND 4	PND 4	PND 3

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**F2 Pups - Litter B F1c Parental Females**

	Treatment Groups (ppm)			
	0	1000	5000	10000
Emaciated	0	1 (0.2)	0	0
	0	1 (3.2) PND 4	0	0
No Milk in Stomach	9 (1.8)	5 (1.2)	6 (1.5)	2 (0.5)
	7 (20.0)	3 (9.7)	4 (12.9)	2 (6.1)
	PND 0-4	PND 0-4	PND 0-4	PND 1-3
Pale	6 (1.2)	2 (0.5)	1 (0.2)	4 (1.0)
	4 (11.4)	2 (6.5)	1 (3.2)	4 (12.1)
	PND 0-1	PND 0-1	PND 1	PND 0-3
Pup - Found Dead	57 (11.2)	49 (11.3)	32 (7.9)	29 (7.6)
	24 (68.6)	19 (61.3)	13 (41.9)	13 (39.4)
	PND 0-4	PND 0-4	PND 0-4	PND 0-2
Pup Cannibalised	12 (2.3)	3 (0.7)	1 (0.2)	4 (1.0)
	4 (11.4)	3 (9.7)	1 (3.2)	2 (6.1)
	PND 0-1	PND 0	PND 0	PND 0
Pup Missing - Presumed Dead	11 (2.2)	7 (1.6)	4 (1.0)	8 (2.1)
	10 (28.6)	5 (16.1)	3 (9.7)	7 (21.2)
	PND 1-4	PND 1-4	PND 1	PND 1-4
Sore(s) On Body	0	1 (0.2)	0	0
Abdomen	0	1 (3.2) PND 0-2	0	0

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**F2 Pups - Litter B F1c Parental Females**

	Treatment Groups (ppm)			
	0	1000	5000	10000
Sore(s) On Body	0	0	0	1 (0.3)
Back	0	0	0	1 (3.0) PND 0-1
Sore(s) On Body	0	0	0	1 (0.3)
Left Eye	0	0	0	1 (3.0) PND 0
Sore(s) On Body	0	0	0	1 (0.3)
Nose/Snout	0	0	0	1 (3.0) PND 0
Tail Missing	0	0	0	1 (0.3)
	0	0	0	1 (3.0) PND 0-4

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**Species/Strain:** Rat/Sprague-Dawley

**I05P: Pup Clinical Observations Summary**  
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**F2 Pups - Litter C F1c Parental Females**

	Treatment Groups (ppm)			
	0	1000	5000	10000
<b>Total Pups (PND 0)</b>	<b>466</b>	<b>470</b>	<b>379</b>	<b>361</b>
<b>No. pups post cull (PND 4)</b>	<b>346</b>	<b>362</b>	<b>304</b>	<b>308</b>
<b>Total Litters (PND 0)</b>	<b>33</b>	<b>37</b>	<b>30</b>	<b>34</b>
<b>No. litters post cull (PND 4)</b>	<b>32</b>	<b>36</b>	<b>28</b>	<b>34</b>

**Pup Clinical Observations PND 0-4**

Bruising	1 (0.2)	0	0	0
Abdomen	1 (3.0)	0	0	0
	PND 1-4			
Bruising	1 (0.2)	1 (0.2)	0	0
Back	1 (3.0)	1 (2.7)	0	0
	PND 4	PND 0-3		
Bruising	0	2 (0.4)	1 (0.3)	1 (0.3)
Face	0	2 (5.4)	1 (3.3)	1 (2.9)
		PND 0	PND 0	PND 0-2
Bruising	1 (0.2)	0	1 (0.3)	1 (0.3)
Head	1 (3.0)	0	1 (3.3)	1 (2.9)
	PND 0		PND 0-3	PND 1
Bruising	1 (0.2)	0	0	1 (0.3)
Left Hind Paw	1 (3.0)	0	0	1 (2.9)
	PND 0			PND 0

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**F2 Pups - Litter C F1c Parental Females**

	Treatment Groups (ppm)			
	0	1000	5000	10000
Bruising	0	0	0	1 (0.3)
Right Hind Paw	0	0	0	1 (2.9) PND 1-2
Bruising	0	1 (0.2)	0	0
Right Hindlimb	0	1 (2.7) PND 2-4	0	0
Cold To Touch	3 (0.6)	2 (0.4)	2 (0.5)	0
	3 (9.1) PND 0-4	1 (2.7) PND 0	2 (6.7) PND 4	0
Cyanosed	1 (0.2)	0	0	1 (0.3)
	1 (3.0) PND 0	0	0	1 (2.9) PND 0
Deformed	0	1 (0.2)	0	0
Left Hindlimb	0	1 (2.7) PND 4	0	0
Dehydrated	0	1 (0.2)	1 (0.3)	0
	0	1 (2.7) PND 4	1 (3.3) PND 4	0
Distended	0	0	1 (0.3)	0
Abdomen	0	0	1 (3.3) PND 4	0

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**F2 Pups - Litter C F1c Parental Females**

	Treatment Groups (ppm)			
	0	1000	5000	10000
Fell from dosing table	0	0	0	1 (0.3)
	0	0	0	1 (2.9) PND 1
Gasping	0	0	0	1 (0.3)
	0	0	0	1 (2.9) PND 4
No Milk in Stomach	12 (2.6)	8 (1.7)	9 (2.4)	2 (0.6)
	8 (24.2)	5 (13.5)	4 (13.3)	1 (2.9)
	PND 0-4	PND 0-4	PND 0-4	PND 3-4
Pale	10 (2.1)	6 (1.3)	4 (1.1)	4 (1.1)
	7 (21.2)	5 (13.5)	4 (13.3)	4 (11.8)
	PND 0-4	PND 0-4	PND 0-4	PND 0-4
Pup - Found Dead	60 (12.9)	57 (12.1)	31 (8.2)	27 (7.5)
	21 (63.6)	24 (64.9)	14 (46.7)	16 (47.1)
	PND 0-4	PND 0-4	PND 0-4	PND 0-1
Pup Cannibalised	2 (0.4)	2 (0.4)	4 (1.1)	2 (0.6)
	2 (6.1)	2 (5.4)	2 (6.7)	2 (5.9)
	PND 0	PND 1	PND 0-1	PND 0-1
Pup Missing - Presumed Dead	8 (1.7)	9 (1.9)	14 (3.7)	7 (1.9)
	5 (15.2)	7 (18.9)	6 (20.0)	5 (14.7)
	PND 1-4	PND 1-4	PND 1-4	PND 1

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**F2 Pups - Litter C F1c Parental Females**

	Treatment Groups (ppm)			
	0	1000	5000	10000
Respiration	1 (0.2)	0	2 (0.5)	1 (0.3)
Labored	1 (3.0) PND 0	0	2 (6.7) PND 4	1 (2.9) PND 0
Sore(s) On Body	0	0	1 (0.3)	0
Right Axillary	0	0	1 (3.3) PND 1-3	0
Sore(s) On Body	0	1 (0.2)	0	0
Right Forelimb	0	1 (2.7) PND 4	0	0
Swelling	0	0	0	1 (0.3)
Abdomen	0	0	0	1 (2.9) PND 4
Swelling	0	0	0	1 (0.3)
Head	0	0	0	1 (2.9) PND 1
Tail Damaged	1 (0.2)	0	0	0
	1 (3.0) PND 4	0	0	0
Tail Missing	0	0	1 (0.3)	0
	0	0	1 (3.3) PND 0-4	0



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**F2 Pups - Litter C F1c Parental Females**

	Treatment Groups (ppm)			
	0	1000	5000	10000
<b>Pup Clinical Observations PND 5-21</b>				
Alopecia	1 (0.3)	0	0	1 (0.3)
Head	1 (3.1)	0	0	1 (2.9)
	PND 17-21			PND 13-18
Cold To Touch	3 (0.9)	1 (0.3)	5 (1.6)	3 (1.0)
	3 (9.4)	1 (2.8)	2 (7.1)	1 (2.9)
	PND 10-13	PND 5	PND 6-9	PND 10-11
Deformed	0	1 (0.3)	0	0
Left Hindlimb	0	1 (2.8)	0	0
		PND 5-13		
Deformed	0	0	0	1 (0.3)
Right Hind Paw	0	0	0	1 (2.9)
				PND 19-21
Dehydrated	3 (0.9)	3 (0.8)	6 (2.0)	2 (0.6)
	3 (9.4)	3 (8.3)	2 (7.1)	2 (5.9)
	PND 10-12	PND 6-10	PND 8-11	PND 8-10
Emaciated	1 (0.3)	0	0	0
	1 (3.1)	0	0	0
	PND 12			

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**F2 Pups - Litter C F1c Parental Females**

	Treatment Groups (ppm)			
	0	1000	5000	10000
Eye Discharge	0	0	0	1 (0.3)
Bilateral; Brown	0	0	0	1 (2.9) PND 18-21
Eye Discharge	0	0	0	2 (0.6)
Bilateral; Clear	0	0	0	1 (2.9) PND 18-21
Eye Discharge	0	0	0	1 (0.3)
Right; Brown	0	0	0	1 (2.9) PND 18-21
Eye Squinting	0	0	0	4 (1.3)
Bilateral	0	0	0	1 (2.9) PND 19-21
Fell from dosing table	1 (0.3)	0	0	0
	1 (3.1) PND 7	0	0	0
Lethargic	0	1 (0.3)	4 (1.3)	4 (1.3)
	0	1 (2.8) PND 6	2 (7.1) PND 6-9	2 (5.9) PND 6-11
Nasal Discharge	1 (0.3)	0	0	0
Red	1 (3.1) PND 7	0	0	0

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**F2 Pups - Litter C F1c Parental Females**

	Treatment Groups (ppm)			
	0	1000	5000	10000
No Milk in Stomach	7 (2.0)	8 (2.2)	12 (3.9)	14 (4.5)
	5 (15.6)	5 (13.9)	6 (21.4)	4 (11.8)
	PND 5-11	PND 5-10	PND 5-11	PND 5-12
Pale	5 (1.4)	1 (0.3)	3 (1.0)	6 (1.9)
	4 (12.5)	1 (2.8)	3 (10.7)	3 (8.8)
	PND 5-6	PND 5	PND 6-9	PND 6-11
Pup - Found Dead	22 (6.4)	11 (3.0)	8 (2.6)	9 (2.9)
	12 (37.5)	9 (25.0)	3 (10.7)	5 (14.7)
	PND 5-15	PND 5-11	PND 5-13	PND 7-13
Pup Cannibalised	1 (0.3)	2 (0.6)	1 (0.3)	1 (0.3)
	1 (3.1)	2 (5.6)	1 (3.6)	1 (2.9)
	PND 14	PND 6-11	PND 10	PND 7
Pup Missing - Presumed Dead	9 (2.6)	7 (1.9)	16 (5.3)	17 (5.5)
	6 (18.8)	3 (8.3)	6 (21.4)	8 (23.5)
	PND 5-13	PND 7-12	PND 5-13	PND 6-13
Respiration Audible	3 (0.9)	0	2 (0.7)	3 (1.0)
	2 (6.2)	0	2 (7.1)	3 (8.8)
	PND 7-18		PND 11-19	PND 14-19
Respiration Labored	2 (0.6)	1 (0.3)	2 (0.7)	0
	2 (6.2)	1 (2.8)	2 (7.1)	0
	PND 11-13	PND 5	PND 6-11	

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**F2 Pups - Litter C F1c Parental Females**

	Treatment Groups (ppm)			
	0	1000	5000	10000
Scab(s)	0	1 (0.3)	0	0
Chest	0	1 (2.8) PND 12	0	0
Sore(s) On Body	0	0	1 (0.3)	0
Nose/Snout	0	0	1 (3.6) PND 13-21	0
Swelling	0	1 (0.3)	0	0
Left Fore Paw	0	1 (2.8) PND 7-15	0	0
Tail Damaged	1 (0.3) 1 (3.1) PND 5-10	2 (0.6) 1 (2.8) PND 7-20	2 (0.7) 2 (7.1) PND 7-21	2 (0.6) 2 (5.9) PND 7-18
Tail Missing	0 0	0 0	1 (0.3) 1 (3.6) PND 5	0 0
Tail Tip Missing	0 0	0 0	1 (0.3) 1 (3.6) PND 16-21	0 0

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## LEGEND

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Animals exhibiting clinical observations "within normal limits" were recorded as scheduled but are omitted from the table for clarity.

Upper row denotes the pup incidence N (%)

Middle row denotes the litter incidence N (%)

Lower row denotes the range of postnatal days the finding was seen for the group

No. live litters includes litters with  $\geq 1$  live pup

Percent incidence calculated using number of live pups or litters on PND 0 (pre cull) or PND 4 (post cull)

PND - Postnatal Day, pups pre-weaning

In multiple breeding/littering studies Litter A is the default designation for the first litter; subsequent litters would be B, C etc.

**\*\* END OF REPORT \*\***