

Experiment Number: 20614 - 02
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: 07/24/2018
Time Report Requested: 12:59:13
First Dose M/F: 07/27/09 / NA
Lab: BAT

Final 1_Core Only

NTP Study Number:	C20614B		
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:	Male		
TDMSE Version:	3.0.2.3_002		
PWG Approval Date:	07/24/2018		

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HARLAN SPRAGUE DAWLEY RATS MALE 0/0 ppm	DAY ON TEST	0743	0743	0747	0778	0775	0765	0777	0766	0776	0766	0777	0773	0773	0737	0774	0774	0774	0758	0774	0774	0774	0774	0774	0773	males (cont...)
	ANIMAL ID	0001	0002	0003	0004	0005	0006	0007	0008	0009	0010	0011	0012	0013	0014	0015	0016	0017	0018	0019	0020	0021	0022	0023	0024	

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Large, Cecum	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Large, Colon Parasite Metazoan	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Small, Ileum	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Small, Jejunum	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Basophilic Focus																									
Clear Cell Focus			X	X	X		X			X		X	X	X		X	X	X	X		X	X	X	X	
Degeneration, Cystic					1																				
Eosinophilic Focus																									
Extramedullary Hematopoiesis																									
Hepatodiaphragmatic Nodule																									
Inflammation, Focal																									
Inflammation, Chronic Active																									
Necrosis																									
Bile Duct, Hyperplasia																									
Hepatocyte, Single Cell Death																									

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
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HARLAN SPRAGUE DAWLEY RATS MALE 0/0 ppm	DAY ON TEST																								males (cont...)
	0 7 4 3	0 7 4 3	0 7 4 7	0 7 4 7	0 7 1 8	0 7 4 5	0 6 7 5	0 7 4 7	0 6 8 9	0 7 4 5	0 6 2 4	0 6 9 7	0 7 4 3	0 7 1 8	0 3 4 7	0 7 4 5	0 7 4 4	0 5 8 4	0 7 4 6	0 7 4 6	0 7 4 4	0 7 4 4	0 7 4 3		
ANIMAL ID	0 0 0 0 1	0 0 0 0 2	0 0 0 0 3	0 0 0 0 4	0 0 0 0 5	0 0 0 0 6	0 0 0 0 7	0 0 0 0 8	0 0 0 0 9	0 0 0 1 0	0 0 0 1 1	0 0 0 1 2	0 0 0 1 3	0 0 0 1 4	0 0 0 1 5	0 0 0 1 6	0 0 0 1 7	0 0 0 1 8	0 0 0 2 9	0 0 0 2 0	0 0 0 2 1	0 0 0 2 2	0 0 0 2 3	0 0 0 2 4	0 0 0 2 5

Preputial Gland Inflammation	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Prostate Epithelium, Ventral, Hyperplasia Ventral, Inflammation, Chronic Active	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
										1	1	1													
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Testes Edema Bilateral, Germinal Epithelium, Degeneration Germinal Epithelium, Degeneration Interstitial Cell, Hyperplasia	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
																							3		
											2														
													1												

HEMATOPOIETIC SYSTEM

Bone Marrow Hyperplasia	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymph Node Deep Cervical, Inflammation, Granulomatous Mediastinal, Hyperplasia, Lymphoid																									
Lymph Node, Mandibular Ectasia Hyperplasia, Lymphoid Infiltration Cellular, Plasma Cell																									
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

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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		
	7	7	7	7	7	7	6	7	6	7	6	6	7	7	3	7	7	7	7	5	7	7	7	7	7	7
	4	4	4	4	1	4	7	4	8	4	2	9	4	1	0	4	4	4	4	8	4	4	4	4	4	4
	3	3	7	7	8	5	5	7	9	5	4	7	3	8	4	7	5	5	4	4	6	6	4	4	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	0	0	0	0	0	0	0	0	0	0	0	0	
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	

Hyperplasia, Lymphoid	2																								
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Extramedullary Hematopoiesis	1		1	2		2	3			1		2	1		2		1	2	2	2	2	1	2	1	2
Pigment		1			1							1	2	2		1			1						1
Lymphoid Follicle, Atrophy							3						3												
Thymus	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Atrophy	3	2	3	3	3	2	3	2	4	1		3	4	1	2	2	3	3	2	2	2	2	3	1	2

INTEGUMENTARY SYSTEM

Mammary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Cyst Epithelial Inclusion																									
Foreign Body		X											X												
Inflammation		4										4								3					
Ulcer																				3					
Epidermis, Hyperplasia																				2					

MUSCULOSKELETAL SYSTEM

Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hyperostosis																									
Skeletal Muscle							+													+					

NERVOUS SYSTEM

Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
-------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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

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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		
	7	7	7	7	7	7	6	7	6	7	6	6	7	7	3	7	7	7	7	5	7	7	7	7	7	7	
	4	4	4	4	1	4	7	4	8	4	2	9	4	1	0	4	4	4	4	8	4	4	4	4	4	4	
	3	3	7	7	8	5	5	7	9	5	4	7	3	8	4	7	5	5	4	4	6	6	4	4	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	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2		
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5		

Retina, Inflammation

1

Harderian Gland
Hyperplasia

+ +

2

Lacrimal Gland

+

URINARY SYSTEM

Kidney
Infarct
Mineral
Nephropathy, Chronic Progressive
Cortex, Cyst
Papilla, Urothelium, Hyperplasia

+ +

1

2 2 3 2 2 2 4 2 2 4 4 4 3 1 1 3 2 1 2 3 2 4 2 3 3

X

Urinary Bladder

+ + + + M +

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MALE
0/0 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | * TOTALS | |
|---|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|------|
| | 0743 | 0747 | 0751 | 0755 | 0759 | 0763 | 0767 | 0771 | 0775 | 0779 | 0783 | 0787 | 0791 | 0795 | 0799 | 0803 | 0807 | 0811 | 0815 | 0819 | | 0823 |
| ANIMAL ID | 00026 | 00027 | 00028 | 00029 | 00030 | 00031 | 00032 | 00033 | 00034 | 00035 | 00036 | 00037 | 00038 | 00039 | 00040 | 00041 | 00042 | 00043 | 00044 | 00045 | 00046 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 |

| | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|--------|
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Acinus, Atrophy | | | 1 | | | 1 | | | | | | | | 1 | | 1 | 1 | | | 1 | | 2 | 13 1.1 |
| Acinus, Hyperplasia | 4 | | | | | 3 | | 2 | | | 1 | | | | 3 | | 4 | | | | 2 | 1 3 | 18 2.7 |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| Atrophy | | | | | | | | | | | | | 2 | | | | | 1 | | | | | 2 1.5 |
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Inflammation | | | | | | | 1 | | | | | | | | | | | | | 3 | | | 3 2.0 |
| Ulcer | | | | | | | | | | | | | | | | | | | | 4 | | | 1 4.0 |
| Epithelium, Hyperplasia, Squamous | | 1 | | | | | 2 | | | | | | | | | | | | | 2 | | | 5 2.0 |
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Mineral | | | | | | | | | | | | 2 | | | | | | | | | | | 1 2.0 |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Inflammation | | | | | 2 | | | | | | | | | | | 1 | | | | | 2 | | 5 1.8 |
| Inflammation, Chronic | 2 | | | | | | | | | | | 2 | | | | | | | | | | | 4 2.0 |
| Mineral | | | | | | | | | | | | 2 | | | | | | | | | | | 1 2.0 |
| Aorta, Mineral | | | | | | | | | | | | | | | | | | | | | | | 1 1.0 |
| Heart | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Cardiomyopathy | 2 | 1 | | | 1 | 1 | | | | 2 | 1 | 3 | | 2 | 1 | 1 | | 3 | 1 | 2 | 1 | 1 | 29 1.5 |
| Myocardium, Inflammation | | | | | | | | | | | | | | | | | | | | | | | 1 2.0 |
| Schwann Cell, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | 1 1.0 |

ENDOCRINE SYSTEM

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|--|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|----------|-----|
| | 0743 | 0747 | 0774 | 0774 | 0774 | 0776 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | | |
| ANIMAL ID | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | | |
| Adrenal Cortex
Degeneration, Cystic
Hypertrophy
Zona Fasciculata, Hyperplasia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | 5 | 1.0 |
| | 2 | 3 | | | 1 | | | 1 | | | | | | | | 1 | | | 1 | | 1 | | 2 | | 18 | 1.3 |
| | | | | | | | | | | | | | | | 1 | | | | 1 | | | | | | 2 | 1.0 |
| Adrenal Medulla
Hyperplasia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | 13 | 1.7 |
| | | | | | | | | 1 | | | 2 | | | | | 1 | | | | | | | 3 | | | |
| Islets, Pancreatic
Hyperplasia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | 3 | 1.7 |
| | | | 2 | | | | | | | | | | | | | | | | | | | | 1 | | | |
| Parathyroid Gland
Hyperplasia | M | + | M | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | 41 | 2 | 2.5 |
| | | | | | | | | | | | | | 3 | | | | | | | | | | | | | |
| Pituitary Gland
Pars Distalis, Hyperplasia
Pars Intermedia, Hypertrophy | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | 23 | 2.3 |
| | | 4 | | | 1 | 2 | 1 | | 3 | | 3 | | | | 2 | 2 | | | | | | | | | 1 | 3.0 |
| Thyroid Gland
C-cell, Hyperplasia
Follicular Cell, Hypertrophy | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | 11 | 2.5 |
| | 3 | | | | | 2 | | 2 | | | | | | | | | | 1 | | | | 4 | | | 8 | 1.5 |
| | 1 | | | | | | | | 1 | | | | | | 1 | | | | 3 | | | | | | | |

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Epididymis | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
|------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|

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|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | 0
7
4
3 | 0
7
4
7 | 0
7
4
7 | 0
4
3
4 | 0
7
4
4 | 0
7
4
4 | 0
6
9
7 | 0
7
4
3 | 0
7
4
3 | 0
7
4
6 | 0
7
4
6 | 0
6
5
4 | 0
7
4
4 | 0
7
4
4 | 0
3
0
2 | 0
7
4
6 | 0
1
3
7 | 0
7
4
7 | 0
1
9
4 | 0
7
4
5 | 0
7
4
5 | 0
7
4
4 | 0
7
4
4 | | |
| ANIMAL ID | 0
0
0
2
6 | 0
0
0
2
7 | 0
0
0
2
8 | 0
0
0
3
9 | 0
0
0
3
0 | 0
0
0
3
1 | 0
0
0
3
2 | 0
0
0
3
3 | 0
0
0
3
3 | 0
0
0
3
4 | 0
0
0
3
5 | 0
0
0
3
6 | 0
0
0
3
7 | 0
0
0
3
8 | 0
0
0
4
9 | 0
0
0
4
0 | 0
0
0
4
1 | 0
0
0
4
2 | 0
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|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|-----|
| Preputial Gland
Inflammation | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | 1 | 3.0 |
| Prostate
Epithelium, Ventral, Hyperplasia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | 5 | 1.0 |
| Ventral, Inflammation, Chronic Active | 1 | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 4 | 1.0 |
| Seminal Vesicle | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Testes
Edema | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | 2 | 3.0 |
| Bilateral, Germinal Epithelium, Degeneration | | | | | | | | | | | | | | | | | | | | | | | | | | | 6 | 2.8 |
| Germinal Epithelium, Degeneration | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | 8 | 1.8 |
| Interstitial Cell, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2.0 |

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|-----|-----|
| Bone Marrow
Hyperplasia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | 4 | 3.0 | |
| Lymph Node
Deep Cervical, Inflammation, Granulomatous | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | 1 | 3.0 |
| Mediastinal, Hyperplasia, Lymphoid | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 | |
| Lymph Node, Mandibular
Ectasia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | 3 | 2.0 | |
| Hyperplasia, Lymphoid | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 2.5 | |
| Infiltration Cellular, Plasma Cell | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 2.0 | |
| Lymph Node, Mesenteric | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 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 - 02

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: 07/24/2018

Time Report Requested: 12:59:13

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

Lab: BAT

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------------------|
| HARLAN SPRAGUE DAWLEY RATS
MALE
300/0 ppm | DAY ON TEST | 0743 | 0743 | 0745 | 0745 | 0747 | 0744 | 0742 | 0745 | 0745 | 0746 | 0746 | 0744 | 0753 | 0776 | 0776 | 0777 | 0777 | 0763 | 0737 | 0744 | 0755 | 0777 | 0777 | males
(cont...) |
| | ANIMAL ID | 00061 | 00062 | 00063 | 00064 | 00065 | 00066 | 00067 | 00068 | 00069 | 00070 | 00071 | 00072 | 00073 | 00074 | 00075 | 00076 | 00077 | 00078 | 00079 | 00080 | 00081 | 00082 | 00083 | |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Esophagus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Cecum
Erosion
Inflammation | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Colon
Parasite Metazoan | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| | | | | | X | X | | | | | | | | | X | X | | X | | | | | | | |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Liver | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Clear Cell Focus | X | X | X | X | X | X | X | | X | X | X | X | X | | X | X | X | X | | | | | | X | X |
| Eosinophilic Focus | | | | | | | | | | | | X | | | | | | | | | | | | X | X |
| Extramedullary Hematopoiesis | | | | | | | | | | | | | | | 1 | | | | | | | | 1 | | |
| Inflammation, Focal | 1 | 1 | | | 1 | | | | | | | | | | | | | 1 | | 1 | | | | 1 | |
| Necrosis | | | | | | | 1 | | | | | | | | | | | | | | | | | | |
| Bile Duct, Cyst | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bile Duct, Hyperplasia | 1 | 1 | 1 | 1 | | | 1 | | 1 | 1 | | 1 | | | | | | 1 | 2 | | 2 | 1 | 2 | 1 | |
| Endothelial Cell, Hypertrophy, Diffuse | | | | | | | | | | | | | | | | | | | | | | | 3 | | |
| Hepatocyte, Hypertrophy | | | | | | | | | | | | | | | | | | | | | | | 4 | | |

* .. 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 - 02

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: 07/24/2018

Time Report Requested: 12:59:13

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

Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
MALE
300/0 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | | ANIMAL ID | males
(cont...) |
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Hepatocyte, Single Cell Death

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|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Hemorrhage | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Chronic Active | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acinus, Atrophy | | | 1 | | | | | | | 2 | | | | | | | 2 | | | | | 2 | 2 | | | |
| Acinus, Hyperplasia | | 1 | | | 1 | | 3 | 2 | | 4 | 1 | 2 | 1 | | | 4 | 4 | | | 2 | | | | 4 | | |

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

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|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Inflammation | | | | | | | | | | | | | | | | | 2 | | | | | | | | | |
| Epithelium, Erosion | | | | | | | | | | | | | | | | 1 | | | | | | | | | | |
| Epithelium, Hyperplasia, Squamous | | | 2 | | | | | | | | | | | | | 2 | | | | | | | | | | |

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|--------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
|--------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Inflammation | 2 | | | | | | | 2 | | | | | | | | 2 | | | 1 | | | | | | | |
| Inflammation, Chronic | | | | | | | | | | | | 1 | | 2 | | | | 1 | | | | 3 | | | | |
| Mineral | | | | | | | | | | | | | | | | | | | | | | | | | | |

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|--------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Heart | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Cardiomyopathy | | 1 | | 1 | 1 | | 1 | 1 | | 2 | 1 | | 2 | 2 | | | 2 | 1 | 1 | 1 | 3 | | | | | |
| Mineral | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Atrium, Fibrosis | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Endocardium, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | 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 - 02

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: 07/24/2018

Time Report Requested: 12:59:13

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

Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
MALE
300/0 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|---|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| | 0673 | 0746 | 0484 | 0747 | 0744 | 0274 | 0774 | 0774 | 0774 | 0774 | 0774 | 0774 | 0774 | 0774 | 0774 | 0637 | 0374 | 0774 | 0774 | 0774 | 0774 | 0671 | 0744 | 0773 | |
| ANIMAL ID | 00086 | 00077 | 00088 | 00088 | 00088 | 00099 | 00099 | 00099 | 00099 | 00099 | 00099 | 00099 | 00099 | 00099 | 00099 | 00099 | 00099 | 00099 | 00099 | 00099 | 00099 | 00099 | 00099 | 00099 | 00099 |

Hepatocyte, Single Cell Death 4 1 4.0

Pancreas + 50

Hemorrhage 4 1 4.0

Inflammation 1 1 1.0

Inflammation, Chronic Active 2 1 2.0

Acinus, Atrophy 1 9 1.4

Acinus, Hyperplasia 2 4 4 4 1 4 2 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 3 23 2.7

Salivary Glands + 50

Stomach, Forestomach + 50

Inflammation 1 3 2 4 2.0

Epithelium, Erosion 1 2 1.0

Epithelium, Hyperplasia, Squamous 3 2 1 2 6 2.0

Stomach, Glandular + 50

CARDIOVASCULAR SYSTEM

Blood Vessel + 50

Inflammation 1 5 1.6

Inflammation, Chronic 2 2 1 1 9 1.6

Mineral 3 1 3.0

Heart + 50

Cardiomyopathy 3 1 2 2 1 1 1 1 1 2 2 1 2 1 1 1 1 1 1 2 33 1.4

Mineral 1 1 1.0

Atrium, Fibrosis 1 2.0

Endocardium, Hyperplasia 1 1.0

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically M .. Missing tissue
X .. Lesion present A .. Autolysis precludes evaluation
I .. Insufficient tissue BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
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Experiment Number: 20614 - 02

Test Type: CHRONIC

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Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
MALE
300/0 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|---|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| | 0673 | 0746 | 0484 | 0747 | 0744 | 0274 | 0774 | 0777 | 0774 | 0774 | 0774 | 0774 | 0774 | 0774 | 0774 | 0774 | 0774 | 0774 | 0774 | 0774 | 0774 | 0774 | 0774 | 0774 | 0774 | |
| ANIMAL ID | 00086 | 00087 | 00088 | 00089 | 00090 | 00091 | 00092 | 00093 | 00094 | 00095 | 00096 | 00097 | 00098 | 00099 | 00100 | 00101 | 00102 | 00103 | 00104 | 00105 | 00106 | 00107 | 00108 | 00109 | 00110 | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-------|-------|
| Eye | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Anterior Chamber, Cornea, Iris, Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | | 4 | 1 4.0 | |
| Cornea, Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | 1 3.0 |
| Retina, Degeneration | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 2 | 4 1.8 |

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|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-------|
| Harderian Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 1.0 |

URINARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|----|--------|
| Kidney | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Infarct | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 2 1.5 |
| Nephropathy, Chronic Progressive | | | | | | | | | | | | | | | | | | | | | | | | | | | | 48 | 48 2.8 |
| Cortex, Cyst | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | 3 |
| Papilla, Urothelium, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | 3 1.0 |
| Pelvis, Dilation | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 2.0 |
| Pelvis, Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 1 2.0 |
| Renal Tubule, Necrosis | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 1.0 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Urinary Bladder | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|

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

Experiment Number: 20614 - 02

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: 07/24/2018

Time Report Requested: 12:59:13

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

Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
MALE
0/20 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | | ANIMAL ID | males
(cont...) |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------|--------------------|
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Pigment 1 1 2
 Bile Duct, Hyperplasia 1 1
 Hepatocyte, Cytoplasmic Alteration 2 1 2 1 2
 Hepatocyte, Hypertrophy 1 1 1 1 1
 Hepatocyte, Single Cell Death 1

Mesentery

Pancreas

Inflammation, Chronic Active +
 Acinus, Atrophy 1 3 1 2
 Acinus, Hyperplasia 4 4 4 4 3 2 4 4 2 4 4 2 3 4 4 4

Salivary Glands

Stomach, Forestomach

Inflammation +
 Ulcer 1 3 1 3
 Epithelium, Hyperplasia, Squamous 3

Stomach, Glandular

Metaplasia, Atypical Glands, Necrosis +
 1 1

CARDIOVASCULAR SYSTEM

Blood Vessel

Inflammation +
 Inflammation, Chronic 2 2 2
 Mineral

* .. 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 - 02

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: 07/24/2018

Time Report Requested: 12:59:13

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

Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
MALE
0/20 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | | males
(cont...) |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|--------------------|
| | 0
7
4
3 | 0
7
4
3 | 0
7
4
4 | 0
7
1
1 | 0
7
4
6 | 0
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4
6 | 0
6
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5 | 0
7
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4 | 0
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4 | 0
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5 | 0
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5 | 0
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5 | 0
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6 | | |
| ANIMAL ID | 0
0
1
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1 | 0
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2
3 | 0
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4 | 0
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2
5 | 0
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1
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6 | 0
0
1
2
7 | 0
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1
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8 | 0
0
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2
9 | 0
0
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0 | 0
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1
3
1 | 0
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3
2 | 0
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3
3 | 0
0
1
3
4 | 0
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1
3
5 | 0
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6 | 0
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3
7 | 0
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3
8 | 0
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9 | 0
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4
2 | 0
0
1
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3 | 0
0
1
4
4 | 0
0
1
4
5 | |

Mediastinal, Infiltration Cellular, Histiocyte
Pancreatic, Ectasia

3

2

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

+
2
1
2 1

Lymph Node, Mesenteric

+ +

Spleen
Extramedullary Hematopoiesis
Pigment
Lymphoid Follicle, Atrophy
Lymphoid Follicle, Hyperplasia

+
1 2 2 2 1 2 1 2 2 2 2 2 2 1 2 2 1 2 2 1 2 1 2
1 1

Thymus
Atrophy

+ M + + + + M + + + + + + + + + + + + + + + + + +
3 3 2 3 3 3 4 3 3 3 3 3 3 3 3 3 2 3 3 2 3 3 3 3

INTEGUMENTARY SYSTEM

Mammary Gland

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

Skin
Epidermis, Hyperplasia

+ +

MUSCULOSKELETAL SYSTEM

Bone
Osteopetrosis

+ +

* .. 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
MALE
0/20 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | * TOTALS | | | | |
|--|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|
| | 07 | 06 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 06 | 07 | 07 | 07 | 06 | | 07 | 07 | 01 | 07 |
| ANIMAL ID | 001146 | 000747 | 000848 | 000949 | 001050 | 001151 | 001252 | 001353 | 001454 | 001555 | 001656 | 001757 | 001858 | 001959 | 002060 | 002161 | 002262 | 002363 | 002464 | 002565 | 002666 | 002767 | 002868 | 002969 | 003070 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|--|--|--|--|--|--|--|---|---|--|--|--|--|--|---|---|---|--|---|---|--|--|--|---|----|-----|-----|
| Pigment | | | | | | | | 1 | | | | | | | | 2 | | | 2 | | | | | | 1 | 7 | 1.4 |
| Bile Duct, Hyperplasia | | | | | | | | | | | | | | | | 1 | | | | | | | | | | 3 | 1.0 |
| Hepatocyte, Cytoplasmic Alteration | | | | | | | | | 1 | | | | | | 2 | 1 | 1 | | | | | | | 2 | 12 | 1.5 | |
| Hepatocyte, Hypertrophy | | | | | | | | | 1 | | | | | | 1 | 1 | 1 | | | 3 | | | | 1 | 13 | 1.2 | |
| Hepatocyte, Single Cell Death | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 | |

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

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|-----|
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Inflammation, Chronic Active | | | | | | | | | | | | | | | | | | | | | | | | 1 | 4 | 1.5 |
| Acinus, Atrophy | | | | 1 | | | | 3 | 1 | | 1 | | 1 | | | | | | | | | | 1 | 10 | 1.3 | |
| Acinus, Hyperplasia | 4 | | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | 4 | 4 | 4 | 3 | | 4 | 4 | | | | | | 4 | 32 | 3.7 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|--|
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|--|

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Inflammation | | | 1 | | | | | | | | | | | | | | | | | | | | | 2 | 4 | 1.8 |
| Ulcer | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 |
| Epithelium, Hyperplasia, Squamous | | | 2 | | | | | | | | | | | | | | | | | | | | | 2 | 3 | 2.3 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Metaplasia, Atypical | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 |
| Glands, Necrosis | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|-----|
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2 | 1.5 |
| Inflammation, Chronic | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 5 | 1.6 |
| Mineral | | | | | | | | | | | | | | | | 1 | | | | | | | | | 2 | 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:

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Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
MALE
0/20 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS | |
|--|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|------|
| | 0746 | 0748 | 0740 | 0744 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | | 0747 |
| ANIMAL ID | 00146 | 00147 | 00148 | 00149 | 00150 | 00151 | 00152 | 00153 | 00154 | 00155 | 00156 | 00157 | 00158 | 00159 | 00160 | 00161 | 00162 | 00163 | 00164 | 00165 | 00166 | 00167 | 00168 | 00169 | 00170 | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|-----|-----|
| Aorta, Mineral | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 | |
| Aorta, Pulmonary Artery, Mineral | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 |
| Pulmonary Artery, Mineral | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 |
| Pulmonary Vein, Mineral | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|
| Heart | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Cardiomyopathy | 2 | 3 | | 1 | 1 | 2 | 1 | | | | | 2 | 1 | | 1 | 1 | 1 | 1 | | | | | | | | 32 | 1.4 |
| Valve, Degeneration | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2.0 |

ENDOCRINE SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|-----|
| Adrenal Cortex | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Degeneration, Cystic | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 2 | 1.0 |
| Hypertrophy | 1 | | 1 | | | 1 | | | | 1 | | 1 | 1 | 1 | | | 1 | 1 | | 1 | 1 | | 1 | 1 | 24 | 1.1 | |
| Zona Fasciculata, Hyperplasia | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | 5 | 1.2 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|
| Adrenal Medulla | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Hyperplasia | | | | | | 3 | | | | | | | 4 | | | | | | | | | | | | | 5 | 2.8 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|
| Islets, Pancreatic | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | 6 | 1.5 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|
| Parathyroid Gland | M | + | + | + | M | M | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 44 | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2.0 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|--|
| Pituitary Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Pars Distalis, Hyperplasia | | | 1 | 1 | 2 | | 1 | | 1 | | 1 | | | 1 | | | | | 2 | 1 | | | | 1 | 19 | 1.5 | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|--|
| Thyroid Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| C-cell, Hyperplasia | | 4 | 1 | 2 | | | | | 2 | | | | 3 | | 1 | | | 2 | | | 3 | | | 1 | 12 | 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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2) Mild 4) Marked

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CAS Number: 335-67-1

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Time Report Requested: 12:59:13

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

Lab: BAT

| DAY ON TEST | HARLAN SPRAGUE DAWLEY RATS MALE | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|-------------|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| | 0746 | 0748 | 0745 | 0744 | 0744 | 0744 | 0744 | 0746 | 0746 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0746 | 0747 | 0747 | 0746 | 0747 | 0747 | 0741 | 0747 | 0747 | |
| 0/20 ppm | 00146 | 00147 | 00148 | 00149 | 00150 | 00151 | 00152 | 00153 | 00154 | 00155 | 00155 | 00156 | 00157 | 00158 | 00159 | 00160 | 00161 | 00162 | 00163 | 00164 | 00165 | 00166 | 00167 | 00168 | 00169 |

| | | |
|--|---|-----|
| Mediastinal, Infiltration Cellular, Histiocyte | 1 | 2.0 |
| Pancreatic, Ectasia | 1 | 3.0 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|
| Lymph Node, Mandibular | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Hyperplasia, Lymphoid | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 1.5 |
| Infiltration Cellular, Plasma Cell | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 1.5 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|--|
| Lymph Node, Mesenteric | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
|------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|--|

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|
| Spleen | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Extramedullary Hematopoiesis | 2 | | 2 | 2 | 1 | 2 | | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 3 | | 1 | 2 | 45 | 1.7 |
| Pigment | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | | | 1 | | | 1 | 1 | 1 | 1 | 42 | 1.0 |
| Lymphoid Follicle, Atrophy | | 3 | | | | | | | | | | | | | 2 | | | | | | | | | | | 2 | 2.5 |
| Lymphoid Follicle, Hyperplasia | | | | | | | 1 | | | | | | | | | | | | | | | | | | | 1 | 1.0 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|
| Thymus | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | 46 | |
| Atrophy | 3 | | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 3 | 3 | 4 | 3 | | 2 | 2 | 3 | 3 | 45 | 2.9 |

INTEGUMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|--|
| Mammary Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|--|

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|
| Skin | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Epidermis, Hyperplasia | | | | | | | | 4 | | | | | | | | | | | | | | | | | | 1 | 4.0 |

MUSCULOSKELETAL SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|
| Bone | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Osteopetrosis | | | | | | | | | | | | | | | | | | | | | | | 2 | | | 1 | 2.0 |

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

+ .. Tissue examined microscopically

X .. Lesion present

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| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------------------|-------|
| HARLAN SPRAGUE DAWLEY RATS
MALE
300/20 ppm | DAY ON TEST | 0745 | 0485 | 0743 | 0774 | 0774 | 0775 | 0775 | 0774 | 0774 | 0777 | 0775 | 0775 | 0779 | 0774 | 0774 | 0775 | 0693 | 0774 | 0774 | 0773 | 0238 | 0599 | 0683 | males
(cont...) | |
| | ANIMAL ID | 00181 | 00182 | 00183 | 00184 | 00185 | 00186 | 00187 | 00188 | 00188 | 00189 | 00190 | 00191 | 00192 | 00193 | 00194 | 00195 | 00196 | 00197 | 00198 | 00199 | 00200 | 00201 | 00202 | | 00203 |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Esophagus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Colon
Parasite Metazoan | + | + | + | + | + | + | + | + | + | + | + | + | X | X | | | | X | | | | | | | | X |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Liver | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Basophilic Focus | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cholangiofibrosis | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Clear Cell Focus | X | | | | X | X | X | X | X | X | X | X | X | | X | | X | | X | | X | | | | | X |
| Degeneration, Cystic | | | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| Eosinophilic Focus | | | | | | | | | | | | | | | | | | | X | | | | | | | |
| Fatty Change | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hepatodiaphragmatic Nodule | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Focal | | | 1 | 1 | | | 1 | | | | | | | | | | | 1 | | | | | | | | |
| Mixed Cell Focus | | | | | | | | | X | | | | | | | | X | | | | | | | | | |
| Necrosis | | 1 | | | 1 | 1 | | | | | 1 | | 1 | | | | | | | | | 1 | | | | |
| Pigment | | | | 1 | | | | | | | | | | | 2 | | | | | | | | | | | |
| Bile Duct, Dilation | | | | | | | | | | | | | | | | | | | | | | | | | | |

* .. 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 - 02

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: 07/24/2018

Time Report Requested: 12:59:13

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

Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
MALE
300/20 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|--|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| | 04 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | |
| ANIMAL ID | 00206 | 00007 | 00008 | 00009 | 00010 | 00011 | 00012 | 00013 | 00014 | 00015 | 00016 | 00017 | 00018 | 00019 | 00020 | 00021 | 00022 | 00023 | 00024 | 00025 | 00026 | 00027 | 00028 | 00029 | |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|---|
| Esophagus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Intestine Large, Colon
Parasite Metazoan | + | + | + | + | + | + | + | + | + | X | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | 5 |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Liver | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Basophilic Focus | | | | | | | | | | | | | | X | | | | | | | | | | | | 1 | |
| Cholangiofibrosis | | | | | | | | | 3 | | | | | | | | | | | | | | | | | 1 3.0 | |
| Clear Cell Focus | | X | X | X | X | X | X | X | X | X | | X | X | X | | X | X | X | X | X | X | X | X | X | X | 38 | |
| Degeneration, Cystic | | | | | | | | | | | | | | | | 1 | | | | | 1 | | | | | 3 1.0 | |
| Eosinophilic Focus | | | | | | X | | | | | | | X | | | | | | X | | | | X | | | 5 | |
| Fatty Change | | | | | | | | | | 2 | | | | | | | | | | | | | | | | 1 2.0 | |
| Hepatodiaphragmatic Nodule | | | | | | | | | X | | | | | | | | | | | | | | | | | 1 | |
| Inflammation, Focal | | | | 1 | | | | | 1 | | | | 1 | 1 | | 1 | | | 1 | | | | 1 | | | 11 1.0 | |
| Mixed Cell Focus | | | | | | | | X | | | | | | | | | | | | | | | X | | | 4 | |
| Necrosis | | | | | | | | | 2 | | | | | 1 | 1 | | | | | | 2 | 1 | | | | 11 1.2 | |
| Pigment | | | | | | 1 | | | | | | | | | | 1 | | | | | | | | | | 4 1.3 | |
| Bile Duct, Dilation | | | | | | | | | 3 | | | | | | | | | | | | | | | | | 1 3.0 | |

* .. 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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2) Mild 4) Marked

Experiment Number: 20614 - 02

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: 07/24/2018

Time Report Requested: 12:59:13

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

Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
MALE
300/20 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | * TOTALS | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
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|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|----|-----|-----|
| Lymph Node
Mediastinal, Hemorrhage | + | | | | | | | | | | | | | | | | | | | | | | | | 3 | 1 | 2.0 | |
| Lymph Node, Mandibular
Infiltration Cellular, Plasma Cell | + | | | | | | | | | | | | | | | | | | | | | | | | 50 | 1 | 3.0 | |
| Lymph Node, Mesenteric | + | | | | | | | | | | | | | | | | | | | | | | | | 50 | | | |
| Spleen
Extramedullary Hematopoiesis | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 2 | 1 | 2 | 50 | 40 | 1.6 | |
| Hemorrhage | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 4.0 | |
| Pigment | | | | | | | | | | | | | | | | | | | | | | | | | | 33 | 1.0 | |
| Lymphoid Follicle, Atrophy | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 2.0 | |
| Lymphoid Follicle, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 | |
| Thymus
Atrophy | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 | | 4 | 2 | 3 | 2 | 2 | 3 | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 49 | 48 | 2.8 |
| Hyperplasia, Lymphoid | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2.0 | |

INTEGUMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|---|-----|
| Mammary Gland | + | | | | | | | | | | | | | | | | | | | | | | | | 50 | | |
| Skin
Cyst Epithelial Inclusion | + | | | | | | | | | | | | | | | | | | | | | | | | 50 | | 2 |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | 3.0 |
| Ulcer | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 4.0 |

MUSCULOSKELETAL 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

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 20614 - 02

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P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Perfluorooctanoic Acid

CAS Number: 335-67-1

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Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
MALE
300/20 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|--|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----------|
| | 04 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 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 | |
| | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | |
| | 00 | 00 | 00 | 01 | 01 | 01 | 01 | 01 | 01 | 01 | 01 | 01 | 01 | 01 | 01 | 01 | 01 | 01 | 01 | 01 | 01 | 01 | 01 | 01 | |
| | 67 | 78 | 89 | 00 | 11 | 12 | 23 | 34 | 45 | 56 | 67 | 78 | 89 | 00 | 11 | 23 | 34 | 45 | 56 | 67 | 78 | 89 | 00 | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|-----|--|
| Bone Joint, Arthrosis | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | 1 | 4.0 | |
| Skeletal Muscle | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |

NERVOUS SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|-----|-----|
| Brain Necrosis | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | 1 | 2.0 | |
| Peripheral Nerve Axon, Degeneration | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | 2.0 |
| Spinal Cord Nerve, Degeneration | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | 2.0 |

RESPIRATORY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|-----|-----|
| Lung Infiltration Cellular, Histiocyte | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | 21 | 2.0 |
| Lung Inflammation, Granulomatous, Multifocal | 1 | 1 | | 2 | | | | 1 | 1 | 2 | | | | | 1 | 3 | | 4 | | 1 | 2 | 4 | | 11 | 1.0 | | |
| Lung Inflammation, Chronic Active | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 1.0 | |
| Lung Alveolar Epithelium, Hyperplasia | | | | | 1 | | | | | | | 3 | | 1 | | | | | | | | 1 | | | 4 | 1.5 | |
| Nose Olfactory Epithelium, Accumulation, Hyaline Droplet | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | 49 | 2.4 |
| Nose Olfactory Epithelium, Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | 1.0 |
| Nose Olfactory Epithelium, Metaplasia | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | 1.0 |
| Nose Respiratory Epithelium, Inflammation | | | | 1 | 1 | | | | | | | | | | 1 | | | 1 | | | | | | | 6 | 1.5 | |

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

Experiment Number: 20614 - 02

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Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
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300/20 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | * TOTALS | | | | | |
|--|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|-------|-------|-------|-------|----|
| | 0478 | 0743 | 0773 | 0773 | 0773 | 0776 | 0776 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | | 0777 | | | | |
| ANIMAL ID | 00206 | 00007 | 00008 | 00009 | 00010 | 00011 | 00012 | 00013 | 00014 | 00015 | 00016 | 00017 | 00018 | 00019 | 00020 | 00021 | 00022 | 00023 | 00024 | 00025 | 00026 | 00027 | 00028 | 00029 | 00030 | |
| Trachea | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

SPECIAL SENSES SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-------|
| Eye | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Cornea, Inflammation | | | | | | | 2 | | | | | | | 1 | | | | | | | 1 | | | | | 3 1.3 |
| Harderian Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Zymbal's Gland | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |

URINARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|
| Kidney | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Accumulation, Hyaline Droplet | | | | | | | | | | | | | | | 2 | | | | | | | | | | | 1 2.0 |
| Infarct | | | | | | | | | | | | | | | | | | | | | | | | | | 2 1.0 |
| Mineral | | | | | | | | | | | | | | | | | | | | | | | | | | 1 2.0 |
| Nephropathy, Chronic Progressive Cortex, Cyst | 1 | 1 | 3 | 3 | 1 | 4 | 3 | 2 | 1 | 3 | 1 | 1 | 2 | 3 | 1 | 3 | 2 | 3 | 2 | 4 | 2 | 1 | 2 | 4 | 3 | 49 2.4 |
| Papilla, Urothelium, Hyperplasia | | | | | | X | | | | | | | | | | | | | | | | | | | | 1 |
| Renal Tubule, Necrosis | | | | | | | | | | | | | | | | | | | | | | | | | | 2 1.0 |
| Renal Tubule, Necrosis | | | | | | | | | | | | | | | | | | | | | | | | | | 1 3.0 |
| Urinary Bladder | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Infiltration Cellular, Mast Cell | | | | | | | | | | | | | | | | | | | | | | | | | | 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
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BLANK .. Not examined microscopically

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Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
MALE
0/40 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | ANIMAL ID | males
(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 | | |
| | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | |
| | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | | |

Nasolacrimal Duct, Inflammation

1

Olfactory Epithelium, Accumulation, Hyaline Droplet

2 4 2 2 2 1 1 1 4 1 2 2 4 2 3 3 2 2 1 4

Olfactory Epithelium, Respiratory Epithelium, Inflammation

4

Respiratory Epithelium, Inflammation

1

Respiratory Epithelium, Metaplasia, Mucous

1

Trachea

+ +

SPECIAL SENSES SYSTEM

Eye

+ +

Cornea, Inflammation

Retina, Degeneration

1

Retina, Gliosis, Focal

1

Harderian Gland

+ +

Metaplasia

URINARY SYSTEM

Kidney

+ +

Infarct

1

1

Mineral

1

1

Nephropathy, Chronic Progressive

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

Cortex, Cyst

Papilla, Necrosis

Papilla, Urothelium, Hyperplasia

Pelvis, Inflammation

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 - 02

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: 07/24/2018

Time Report Requested: 12:59:13

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

Lab: BAT

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------------|
| HARLAN SPRAGUE DAWLEY RATS
MALE
0/40 ppm | DAY ON TEST | 07 | 07 | 07 | 07 | 07 | 07 | 05 | 07 | 02 | 07 | 07 | 03 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 07 | 02 | 07 | 07 | 07 | males
(cont...) |
| | 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 | |
| | | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | |

Renal Tubule, Necrosis

1

Urinary Bladder

+ +

Hemorrhage

Inflammation

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

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BLANK .. Not examined microscopically

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| HARLAN SPRAGUE DAWLEY RATS
MALE
0/40 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|--|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| | 0743 | 0745 | 0747 | 0744 | 0744 | 0744 | 0743 | 0753 | 0765 | 0777 | 0777 | 0755 | 0777 | 0777 | 0777 | 0777 | 0711 | 0766 | 0777 | 0777 | 0777 | 0766 | 0777 | 0755 | |
| ANIMAL ID | 00266 | 00267 | 00268 | 00269 | 00270 | 00271 | 00272 | 00273 | 00274 | 00275 | 00276 | 00277 | 00278 | 00279 | 00280 | 00281 | 00282 | 00283 | 00284 | 00285 | 00286 | 00287 | 00288 | 00289 | 00290 |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------|
| Esophagus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Large, Colon
Parasite Metazoan | + | + | + | + | + | X | + | + | + | + | + | + | + | X | X | + | + | X | + | + | + | + | X | + | + | 50
12 |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Liver | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Basophilic Focus | | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| Clear Cell Focus | X | | | X | X | X | | | X | X | | X | X | X | X | | | X | X | X | X | | X | X | | 33 |
| Degeneration, Cystic | | | | | 1 | | | | | 1 | | | 1 | | | | | | 1 | | | | | | | 7 1.0 |
| Eosinophilic Focus | | | X | | | | | | | | | | | | | | | | | X | | | | | | 5 |
| Extramedullary Hematopoiesis | | | | | | 1 | 1 | | | | | 1 | | | | | 1 | | | | | | | | | 4 1.0 |
| Fatty Change | | | | | | | | | | 2 | | | | | | | | | | | | | | | | 2 1.5 |
| Fatty Change, Focal | | | | | | 1 | | | | | | | 1 | | | | | | | | | | | | | 3 1.0 |
| Fatty Change, Diffuse | | | | | | | | | | | | | | | | | | | | | | | | | | 1 3.0 |
| Inflammation, Focal | 1 | | | | | 1 | | | 1 | | | | 1 | 1 | 1 | | | 2 | | | | | | 1 | 1 | 18 1.1 |
| Mixed Cell Focus | | | | X | X | | | | | | | | | X | X | | | | X | | | | | | | 9 |
| Necrosis | 2 | | | 1 | | | | | 1 | 1 | 1 | | | | 1 | | 1 | 2 | 2 | 1 | 2 | | 2 | | 2 | 23 1.4 |
| Pigment | 1 | | 1 | | | | | | 1 | | | | 2 | | | | | 2 | | | 1 | | | | 1 | 15 1.1 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
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I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
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|--|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|
| | 0743 | 0754 | 0774 | 0774 | 0774 | 0775 | 0765 | 0776 | 0777 | 0775 | 0777 | 0777 | 0777 | 0777 | 0771 | 0766 | 0777 | 0777 | 0777 | 0766 | 0777 | 0757 | 0775 | 0777 | |
| ANIMAL ID | 002666 | 000022 | 000022 | 000022 | 000022 | 000022 | 000022 | 000022 | 000022 | 000022 | 000022 | 000022 | 000022 | 000022 | 000022 | 000022 | 000022 | 000022 | 000022 | 000022 | 000022 | 000022 | 000022 | 000022 | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|--|----|-----|
| Heart | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | | |
| Cardiomyopathy | | 1 | | | 1 | 3 | | | 1 | | 1 | 1 | | | | | 1 | 1 | 1 | | 1 | 3 | | 1 | 1 | | 28 | 1.3 |
| Mineral Necrosis | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 1.0 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 |

ENDOCRINE SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|----|-----|-----|
| Adrenal Cortex | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | | |
| Degeneration, Cystic | | | | | | | | | | | | | | | | | | | | | | | | | | | 4 | 1.0 |
| Hypertrophy | | | | | | 1 | 1 | | | | | | | | | 1 | | | | | | | 1 | | | 15 | 1.0 | |
| Zona Fasciculata, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 1.0 |
| Adrenal Medulla | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 | 2.2 |
| Islets, Pancreatic | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | 6 | 2.0 |
| Metaplasia, Hepatocyte | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2.0 |
| Parathyroid Gland | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | M | + | + | M | M | 38 | | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2.0 |
| Pituitary Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Pars Distalis, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | 24 | 1.6 |
| Rathke's Cleft, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 |
| Thyroid Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| C-cell, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | 8 | 2.0 |
| Follicular Cell, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | 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
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MALE
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|--|-------------|----|-----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----------|----|----|-----|
| | 07 | 05 | 07 | 07 | 07 | 07 | 05 | 06 | 07 | 07 | 05 | 07 | 07 | 07 | 07 | 01 | 06 | 07 | 07 | 07 | 06 | 07 | | 05 | 07 | |
| | 4 | 5 | 4 | 4 | 4 | 4 | 3 | 5 | 4 | 4 | 0 | 4 | 4 | 4 | 4 | 3 | 8 | 4 | 4 | 4 | 4 | 9 | 4 | 3 | 4 | |
| | 3 | 7 | 7 | 4 | 4 | 4 | 3 | 9 | 6 | 5 | 2 | 6 | 6 | 5 | 5 | 4 | 3 | 3 | 3 | 4 | 4 | 7 | 5 | 3 | 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 | |
| | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | |
| | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | |
| | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |
| Renal Tubule, Necrosis | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 |
| Urinary Bladder | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Hemorrhage | | | | | | | | | 4 | | | | | | | | | | | | | | | | 1 | 4.0 |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
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| HARLAN SPRAGUE DAWLEY RATS
MALE
300/40 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | ANIMAL ID | males
(cont...) | | |
|--|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----------|--------------------|------|---|
| | 0743 | 0743 | 0751 | 0774 | 0775 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | | | 0777 | |
| Hepatocyte, Cytoplasmic Alteration | 2 | | | 1 | 1 | | 2 | 1 | | 2 | | | 1 | | 2 | 2 | | 1 | | 2 | 1 | 1 | | 1 |
| Hepatocyte, Hypertrophy | 1 | | 2 | 1 | 2 | | 2 | 1 | | 2 | | | 1 | | 2 | 2 | | 1 | | 2 | 1 | 1 | | 1 |
| Hepatocyte, Single Cell Death | 1 | | | | | | | | | | | | | | 3 | 2 | | | | 1 | | | | |
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Inflammation | | | | | | | | | | | | | | | 4 | | | | | | | | | |
| Inflammation, Chronic Active Acinus, Atrophy | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| Acinus, Atrophy | 1 | | | | | 1 | 1 | | 1 | | | | | | | 1 | | 1 | | | 1 | 2 | | |
| Acinus, Hyperplasia | 4 | 1 | | 4 | 4 | 4 | 4 | 3 | 2 | 4 | | 4 | 4 | 4 | | 1 | 4 | 1 | 4 | 1 | 2 | 4 | | 4 |
| Duct, Degeneration, Mucoid | | | | | | | | | | | | | | | | | | | | | | | | 4 |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Inflammation | | | 2 | | | | | | | | | | | | 4 | | | | | | 1 | | | |
| Perforation | | | | | | | | | | | | | | | X | | | | | | | | | |
| Ulcer | | | | | | | | | | | | | | | 4 | | | | | | | | | |
| Epithelium, Hyperplasia, Basal Cell | | | | | | | | | | | | | | | | | | | | | | | | |
| Epithelium, Hyperplasia, Squamous | | | | | | | | | | | | | | | 3 | | | | | | | | | |
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Mineral | | | | | | | | | | | | | | | 3 | | | | | | | | | |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Inflammation | | | 2 | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Chronic | | | | | | | | | | | | | | 4 | | | | | | | | | | |
| Mineral | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| Adventitia, Aorta, Hemorrhage | | | 2 | | | | | | | | | | | | | | | | | | | | | |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
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|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------|
| | 07
44
5 | 07
44
4 | 07
44
4 | 07
44
6 | 07
44
6 | 07
44
7 | 07
44
7 | 07
44
4 | 06
83
3 | 07
44
7 | 06
44
8 | 06
24
4 | 07
44
6 | 07
44
6 | 07
44
5 | 07
44
5 | 02
64
0 | 07
44
7 | 07
44
8 | 07
44
4 | 06
44
5 | 07
44
7 | 07
44
7 | | |
| ANIMAL ID | 00
33
26 | 00
33
27 | 00
33
28 | 00
33
29 | 00
33
30 | 00
33
31 | 00
33
32 | 00
33
33 | 00
33
34 | 00
33
35 | 00
33
36 | 00
33
37 | 00
33
38 | 00
33
39 | 00
33
40 | 00
33
41 | 00
33
42 | 00
33
43 | 00
33
44 | 00
33
45 | 00
33
46 | 00
33
47 | 00
33
48 | 00
33
49 | |
| Hepatocyte, Cytoplasmic Alteration | 1 | | 1 | 1 | 2 | 1 | 2 | 2 | 1 | | 1 | | | 1 | 2 | 1 | 1 | | | | | | 2 | 1 | 29 1.4 |
| Hepatocyte, Hypertrophy | 1 | | 1 | 1 | 2 | 1 | 1 | 2 | | | | | | 1 | 1 | 1 | 1 | 2 | | | | | 2 | 1 | 29 1.4 |
| Hepatocyte, Single Cell Death | | | | | | | | | | | | | | 1 | | | | | | | | | | | 5 1.6 |
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Inflammation | | | | | | | | | | 2 | | | | | | | | | | | | | | | 1 2.0 |
| Inflammation, Chronic Active | 1 | | | | | | | | | | | | | 1 | | | | | | 1 | | | | | 5 1.6 |
| Acinus, Atrophy | 3 | 3 | | | | | | | | | | | | | 1 | | | | | 1 | 2 | | 1 | 14 1.4 | |
| Acinus, Hyperplasia | | | 4 | 3 | 4 | 4 | | | 2 | 4 | 1 | | | 1 | 4 | 4 | 4 | | 4 | 3 | 4 | 4 | 4 | 4 | 38 3.3 |
| Duct, Degeneration, Mucoid | | | | | | | | | | | | | | | | | | | | 2 | | | | | 1 2.0 |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | 3 2.3 |
| Perforation | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Ulcer | | | | | | | | | | | | | | | | | | | | | | | | | 1 4.0 |
| Epithelium, Hyperplasia, Basal Cell | | | | | | | | | | | | | | | | | | | 3 | | | | | | 1 3.0 |
| Epithelium, Hyperplasia, Squamous | | | | | | | | | 1 | | | | | | | | | | | | | | | | 2 2.0 |
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Mineral | | | | | | | | | | | | | | | | | | | | | | | | | 1 3.0 |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-------|-------|
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Inflammation | | | | | | | | | | 1 | | | | | | | | | | | | | | | 2 1.5 |
| Inflammation, Chronic | | | | 2 | | | | | | | | | 1 | | | | | 2 | | | | | 2 | 5 2.2 | |
| Mineral | | | | | | | | | | | | | 1 | | | | | | | | | | | | 2 1.0 |
| Adventitia, Aorta, Hemorrhage | | | | | | | | | | | | | | | | | | | | | | | | | 1 2.0 |

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Date Report Requested: 07/24/2018

Time Report Requested: 12:59:13

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

Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
MALE
300/40 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|
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|----------------------------------|--|--|--|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|--|--|--|--|--|---|-----|-----|
| Aorta, Pulmonary Artery, Mineral | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 | |
| Aorta, Pulmonary Vein, Mineral | | | | 1 | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 |
| Pulmonary Artery, Mineral | | | | | | | | | | | | | | | | | | | 1 | | | | | | | 1 | 1.0 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|
| Heart | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Cardiomyopathy | | | | | 1 | 1 | | | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | | | | | | | | | 24 | 1.5 |

ENDOCRINE SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|
| Adrenal Cortex | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Degeneration, Cystic | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | 1.0 |
| Hyperplasia, Focal | | | | 3 | | | | | | | | | | | | | | | | | | | | | | 1 | 3.0 |
| Hypertrophy | 1 | | | 1 | 1 | | 1 | | | | 1 | 1 | | | | | | 1 | | | 1 | | 1 | 1 | | 20 | 1.0 |
| Thrombus | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 |
| Zona Fasciculata, Hyperplasia | | | | | | | | | | | | | | 1 | | | | | | | | | | | 1 | 4 | 1.3 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|
| Adrenal Medulla | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Hyperplasia | 1 | | 1 | | | | | | | | | | 1 | | | | | | | | | | | | | 5 | 1.4 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|
| Islets, Pancreatic | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Hyperplasia | | | 1 | | | | | | | | | | | | | 1 | | | | | | | | | 1 | 8 | 1.4 |
| Metaplasia, Hepatocyte | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|
| Parathyroid Gland | + | + | + | + | + | M | + | + | + | + | + | M | + | + | + | + | + | + | + | + | M | M | M | + | + | 40 | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 |
| Hyperplasia, Focal | | | | | | | | | 1 | | | | | | | | | | | | | | | | | 1 | 1.0 |

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|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|
| Pituitary Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Hemorrhage | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 4.0 |
| Pars Distalis, Hyperplasia | 3 | | | 1 | 1 | | 4 | | | | 1 | 2 | | 2 | | | | 4 | | | | | | 1 | | 17 | 1.8 |

* .. 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 - 02

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: 07/24/2018

Time Report Requested: 12:59:13

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

Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
MALE
300/40 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|--|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | 07
45 | 07
44 | 07
44 | 07
44 | 07
46 | 07
46 | 07
47 | 07
47 | 07
44 | 06
83 | 07
44 | 07
44 | 06
48 | 06
24 | 07
44 | 07
44 | 07
45 | 07
45 | 02
60 | 07
44 | 07
44 | 06
44 | 07
45 | 07
47 | |
| ANIMAL ID | 00326 | 00327 | 00328 | 00329 | 00330 | 00331 | 00332 | 00333 | 00334 | 00335 | 00336 | 00337 | 00338 | 00339 | 00340 | 00341 | 00342 | 00343 | 00344 | 00345 | 00346 | 00347 | 00348 | 00349 | 00350 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|-----|
| Thyroid Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| C-cell, Hyperplasia | | | | | | | | | 1 | | | | | | 2 | | | 3 | | 1 | | | | 1 | | 10 | 1.8 |
| Follicular Cell, Hyperplasia | | | | | 1 | | | | | | | | | | | | | | | | | | | | | 2 | 1.0 |
| Follicular Cell, Hypertrophy | | | 1 | | | | | | | | | | | | | | 3 | | | | | 1 | | | | 9 | 2.1 |

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|-----|
| Epididymis | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | |
| Preputial Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | |
| Inflammation | | | | | | | | | | | | | | | | | 4 | | | | | | | | | 1 | 4.0 |
| Prostate | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Epithelium, Ventral, Hyperplasia | | | | | | | | | | | | | | | | 1 | | 1 | | | | 1 | | | | 5 | 1.0 |
| Lateral, Inflammation, Chronic Active | | | | | | | | | | | | 1 | | | | | | | | | | | | | | 1 | 1.0 |
| Ventral, Inflammation, Chronic Active | 2 | | | | | | | | 2 | | 2 | | | | 2 | | | | | | | | | | | 10 | 1.7 |
| Seminal Vesicle | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Testes | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | |
| Bilateral, Germinal Epithelium, Degeneration | | 3 | | | | | | | | | | | | | | | 3 | | | 4 | | | | | 4 | 3.5 | |
| Germinal Epithelium, Degeneration | | | | 1 | | | 2 | | | | | | 1 | | | | | | | | 3 | | | 1 | 6 | 1.5 | |

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Bone Marrow | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 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 - 02

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|--|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|-------|-------|-------|-------|
| | 0745 | 0744 | 0744 | 0744 | 0746 | 0746 | 0747 | 0747 | 0744 | 0748 | 0744 | 0744 | 0742 | 0744 | 0744 | 0745 | 0745 | 0740 | 0747 | 0747 | | 0744 | 0744 | 0746 | 0747 |
| ANIMAL ID | 00326 | 00337 | 00338 | 00333 | 00333 | 00333 | 00333 | 00333 | 00333 | 00333 | 00333 | 00333 | 00333 | 00333 | 00333 | 00333 | 00333 | 00333 | 00333 | 00333 | 00333 | 00333 | 00333 | 00333 | 00333 |
| Hyperplasia | | | | 2 | | | | | | | | 4 | | | 2 | | | | | | | 4 | | | |
| Lymph Node | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mediastinal, Pigment | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pancreatic, Pigment | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lymph Node, Mandibular | | | | | | | | | | | | | | | | | | | | | | | | | |
| Atrophy | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia, Lymphoid | | | | | | | | | | | | | | | | | | | | | | | | | |
| Infiltration Cellular, Plasma Cell | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lymph Node, Mesenteric | | | | | | | | | | | | | | | | | | | | | | | | | |
| Atrophy | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia, Lymphoid | | | | | | | | | | | | | | | | | | | | | | | | | |
| Spleen | | | | | | | | | | | | | | | | | | | | | | | | | |
| Extramedullary Hematopoiesis | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pigment | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lymphoid Follicle, Atrophy | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thymus | | | | | | | | | | | | | | | | | | | | | | | | | |
| Atrophy | | | | | | | | | | | | | | | | | | | | | | | | | |

INTEGUMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Mammary Gland | | | | | | | | | | | | | | | | | | | | | | | | | |
| Skin | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Suppurative | | | | | | | | | | | | | | | | | | | | | | | | | |

* .. 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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|----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Eye | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Cornea, Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| Retina, Degeneration | 1 | | | | | | | | | | | | 1 | | | | | | | | | | | 1 | 4 |
| Harderian Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

URINARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Kidney | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Infarct | | | | | | | | | | | | | 2 | | | | | | | | | | | | 4 |
| Nephropathy, Chronic Progressive
Cortex, Cyst | 3 | 1 | 2 | 4 | 1 | 3 | 2 | 1 | 2 | 4 | 3 | 4 | 2 | 2 | 2 | 2 | 3 | 1 | 4 | 1 | 3 | 4 | | 2 | 3 |
| Papilla, Urothelium, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Renal Tubule, Necrosis | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Urinary Bladder | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
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MALE
0/80 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | | ANIMAL ID | males
(cont...) |
|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|---|-----------|--------------------|
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5 | 0
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4 | | | |
| Hepatocyte, Cytoplasmic Alteration | 1 | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 1 | 2 | 2 | | 2 | 2 | | |
| Hepatocyte, Hyperplasia, Nodular | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hepatocyte, Hypertrophy | 1 | | 2 | 2 | 4 | 2 | 1 | 1 | 1 | 1 | 2 | | 1 | 2 | 1 | 1 | | 2 | 2 | 1 | 2 | 2 | | 1 | 1 | | |
| Hepatocyte, Single Cell Death | | | 1 | | 4 | 1 | | | | | 3 | | | 1 | | | 2 | 1 | 1 | 1 | | 1 | | 1 | 1 | | |
| Mesentery | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fat, Necrosis | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Inflammation, Chronic Active | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | |
| Acinus, Atrophy | | | | | | | | | | 1 | 2 | | | | | 1 | | 1 | | | | | | | | | |
| Acinus, Hyperplasia | | | | | | 3 | 3 | 4 | | 4 | | | 4 | | 4 | 2 | | 4 | 1 | 2 | | 1 | 4 | 2 | 4 | | |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | | |
| Atrophy | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mineral | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Epithelium, Hyperplasia, Squamous | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Epithelium, Metaplasia, Squamous | | | | | | | | | | | | | | | | | | | | | | | | | | | |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Chronic | | | | | | | | | | | 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:
1) Minimal 3) Moderate
2) Mild 4) Marked

Experiment Number: 20614 - 02

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: 07/24/2018

Time Report Requested: 12:59:13

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

Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
MALE
0/80 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | ANIMAL ID | males
(cont...) |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|--------------------|
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5 | |

Mineral
Aorta, Mineral
Aorta, Pulmonary Artery, Mineral
Pulmonary Vein, Thrombus

1 1 1

Heart
Cardiomyopathy
Endocardium, Hyperplasia
Myocardium, Hemorrhage
Myocardium, Inflammation
Valve, Degeneration
Valve, Thrombus

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

ENDOCRINE SYSTEM

Adrenal Cortex
Hypertrophy
Necrosis
Zona Fasciculata, Hyperplasia

+
1 2 1

Adrenal Medulla
Hyperplasia

+
1 1

Islets, Pancreatic
Hyperplasia

+ +

Parathyroid Gland
Hyperplasia

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

Pituitary Gland

+ +

* .. 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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MALE
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|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------|-----|-----|-----|
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| ANIMAL ID | 0
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8 | 0
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9 | 0
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0 | | | |
| Hepatocyte, Cytoplasmic Alteration | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 3 | | 2 | 1 | 2 | 2 | 2 | 1 | 3 | 46 | 1.8 | | |
| Hepatocyte, Hyperplasia, Nodular | | | | | | | | | | | | | | | | | | | 3 | | | | | | 1 | 3.0 | | |
| Hepatocyte, Hypertrophy | 2 | 1 | 2 | | | 1 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 2 | 1 | 2 | | 2 | 1 | 2 | 1 | 1 | 1 | 4 | 1 | 43 | 1.6 | |
| Hepatocyte, Single Cell Death | 1 | 1 | 1 | | 3 | | | | | 1 | 1 | 1 | | | | 1 | | 1 | | 1 | 1 | | | | 24 | 1.3 | | |
| Mesentery | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fat, Necrosis | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pancreas | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Chronic Active | 3 | | | | | | | | | | | | | | | 4 | | | | | | | | 4 | | | 50 | |
| Acinus, Atrophy | 3 | | | | | | | | | | | | | 2 | 1 | | | | | | | | | | | | | |
| Acinus, Hyperplasia | | | 4 | 4 | 1 | | 4 | | | 4 | 1 | 4 | 4 | 4 | 4 | | 4 | 4 | 4 | 2 | 2 | 4 | | | | | 31 | 3.2 |
| Salivary Glands | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Atrophy | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | |
| Stomach, Forestomach | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| Mineral | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Epithelium, Hyperplasia, Squamous | | | 1 | | | | | | | | | | | | 1 | | | | 1 | | | | 1 | | | | | |
| Stomach, Glandular | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Epithelium, Metaplasia, Squamous | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Blood Vessel | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Chronic | | | | | | | | | | | | | | | | | | | | | | | | | | | |

* .. 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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|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------|------------------|------------------|------------------|------------------|--|
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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 | 0 | 0 | |
| | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | |
| | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|-----|
| Mineral | 1 | | | | | | | | | | | | | | | | | | | | | | | 4 | 1.0 |
| Aorta, Mineral | 1 | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 |
| Aorta, Pulmonary Artery, Mineral | 1 | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 |
| Pulmonary Vein, Thrombus | 1 | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|-----|
| Heart | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Cardiomyopathy | 2 | 1 | 1 | | | 1 | | 2 | | | | 1 | | | 1 | 1 | 1 | 1 | 1 | | | 1 | | | 25 | 1.2 |
| Endocardium, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | 3 | 1 | 3.0 |
| Myocardium, Hemorrhage | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | 2.0 |
| Myocardium, Inflammation | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | 3.0 |
| Valve, Degeneration | 1 | | | | | | | | | | | | | | | | | | | | | | | 3 | 1.3 | |
| Valve, Thrombus | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | 2.0 |

ENDOCRINE SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|---|---|---|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----|-----|---|-----|-----|
| Adrenal Cortex | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hypertrophy | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | 1 | 1 | 1 | 4 | 4 | 2 | | | | | | | | | | | | | | | | 16 | 1.5 | | | |
| Necrosis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 | |
| Zona Fasciculata, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2.0 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|-----|
| Adrenal Medulla | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 1.0 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|-----|
| Islets, Pancreatic | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | 2.3 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|-----|
| Parathyroid Gland | + | + | M | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 41 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1.0 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|--|
| Pituitary Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|--|

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
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|--|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| | 0744 | 0744 | 0744 | 0748 | 0761 | 0774 | 0784 | 0793 | 0796 | 0797 | 0797 | 0797 | 0797 | 0797 | 0797 | 0797 | 0797 | 0797 | 0797 | 0797 | 0797 | 0797 | 0797 | 0797 | |
| ANIMAL ID | 00386 | 00387 | 00388 | 00389 | 00390 | 00391 | 00392 | 00393 | 00394 | 00395 | 00396 | 00397 | 00398 | 00399 | 00400 | 00401 | 00402 | 00403 | 00404 | 00405 | 00406 | 00407 | 00408 | 00409 | 00410 |
| Pars Distalis, Hyperplasia | 3 | 4 | | | | | 2 | | | 1 | 1 | | | 1 | 1 | | | 1 | | | 1 | | | 1 | |
| Thyroid Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| C-cell, Hyperplasia | | 1 | | | | | | | | | 2 | 1 | | | | | | 2 | | | | | | | |
| Follicular Cell, Hypertrophy | | | | | | | | 1 | | | | | | 3 | | | | | | | 2 | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-------|
| Epididymis | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Preputial Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Inflammation | | | | | | | 3 | | | | | | | | | | | | | | | | | | 1 3.0 |
| Prostate | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Dorsal, Inflammation, Chronic Active | | | | | | | | | | | | | | | | | | 1 | | | | | | 1 | 2 1.0 |
| Dorsal, Lateral, Inflammation, Chronic Active | | | | | | | 4 | | | | | | | | | | | | | | | | | | 1 4.0 |
| Epithelium, Ventral, Hyperplasia | | | | | | | | | | | 2 | | | | | | | | | | | | | | 3 1.7 |
| Lateral, Inflammation, Chronic Active | | | | | | | | | | | | | | | | | | | | | | | | | 1 1.0 |
| Ventral, Inflammation, Chronic Active | | 1 | | | | | 4 | | 1 | 1 | | | | | | 2 | | | | 1 | | | | | 9 1.8 |
| Seminal Vesicle | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Testes | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Edema | | | | | | | | | | | | 3 | | | | | | | | | | | | | 1 3.0 |
| Bilateral, Germinal Epithelium, Degeneration | | | | | | | | | | | | | | | | | | | 1 | | | | | | 3 2.3 |
| Germinal Epithelium, Degeneration | | | | | | | | | | | 3 | | 1 | | | | | | | | | | | | 4 1.5 |

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+ .. Tissue examined microscopically
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| HARLAN SPRAGUE DAWLEY RATS
MALE
0/80 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS | | |
|--|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|------|-----|
| | 0744 | 0744 | 0744 | 0748 | 0741 | 0747 | 0744 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | 0747 | | 0747 | |
| ANIMAL ID | 00386 | 00387 | 00388 | 00389 | 00390 | 00391 | 00392 | 00393 | 00394 | 00395 | 00396 | 00397 | 00398 | 00399 | 00400 | 00401 | 00402 | 00403 | 00404 | 00405 | 00406 | 00407 | 00408 | 00409 | 00410 | | |
| Retina, Degeneration | | | | | | | | | | | | | | | | | | | | | | | | | | 5 | 1.0 |
| Harderian Gland
Hyperplasia | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | 1.0 |
| URINARY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kidney | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Infarct | | | | | | | | | | | | | | | | | | | | | | | | | | 7 | 1.0 |
| Nephropathy, Chronic Progressive
Cortex, Cyst | 2 | 3 | 3 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 4 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 47 | 1.5 |
| Cortex, Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2.0 |
| Pelvis, Inflammation | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 2.0 |
| Urinary Bladder
Inflammation | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | 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 - 02

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: 07/24/2018

Time Report Requested: 12:59:13

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

Lab: BAT

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--------------------|
| HARLAN SPRAGUE DAWLEY RATS
MALE
300/80 ppm | DAY ON TEST | 0744 | 0744 | 0747 | 0778 | 0777 | 0777 | 0777 | 0777 | 0777 | 0776 | 0777 | 0777 | 0777 | 0777 | 0776 | 0777 | 0777 | 0776 | 0777 | 0776 | 0777 | 0777 | 0777 | 0777 | males
(cont...) |
| | ANIMAL ID | 0042 | 0044 | 0044 | 0044 | 0044 | 0044 | 0044 | 0044 | 0044 | 0044 | 0044 | 0044 | 0044 | 0044 | 0044 | 0044 | 0044 | 0044 | 0044 | 0044 | 0044 | 0044 | 0044 | 0044 | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Esophagus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Colon
Parasite Metazoan | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | X | + | + | X | + | + | + | + | + | + |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Liver | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Basophilic Focus | | | | | | | | X | | | | | | | | | | | | | | | | | |
| Clear Cell Focus | X | X | X | X | | X | X | X | X | X | | X | X | X | X | | X | X | | X | X | X | X | X | X |
| Degeneration, Cystic | | | 1 | 1 | | | | | | 3 | | | | 2 | | | | | | 1 | 1 | | 1 | 1 | |
| Eosinophilic Focus | X | X | | | | | | | | | | X | | | | | | | X | | | | | | |
| Extramedullary Hematopoiesis | | | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Focal | 1 | | | 1 | | 1 | 1 | 1 | | | | 1 | | 1 | | 1 | 1 | 1 | | | 1 | | | 1 | |
| Mixed Cell Focus | | | | | | | | | | | | X | | | | | | | X | | X | | X | | |
| Necrosis | 1 | 1 | | 1 | | 2 | | | | | | 1 | | 1 | 1 | 2 | 1 | 1 | 1 | | | 2 | | 1 | |
| Pigment | 1 | | 1 | 1 | | 2 | 1 | | 1 | | | | | 2 | | 1 | | | 3 | | 2 | 2 | | | |
| Bile Duct, Hyperplasia | 1 | | | 1 | | | 1 | | | | | | | | | | | | | | 1 | | | | |
| Hepatocyte, Cytoplasmic Alteration | 2 | 1 | 2 | 1 | | 1 | 2 | 1 | 2 | | | 2 | 3 | 2 | 1 | 2 | | 1 | 1 | | | 2 | 2 | 3 | 2 |
| Hepatocyte, Hypertrophy | 2 | 2 | 2 | 1 | | 1 | 2 | 1 | 2 | | | 1 | 2 | 2 | 1 | 1 | | 1 | 1 | 4 | 3 | 4 | 1 | 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 - 02

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Species/Strain: RATS/HSD

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Perfluorooctanoic Acid

CAS Number: 335-67-1

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Lab: BAT

| HARLAN SPRAGUE DAWLEY RATS
MALE
300/80 ppm | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | ANIMAL ID | males
(cont...) | |
|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-----------|--------------------|------------------|
| | 0
7
4
4 | 0
7
4
4 | 0
7
4
7 | 0
7
4
7 | 0
2
9
8 | 0
7
4
7 | 0
7
4
4 | 0
7
4
4 | 0
7
4
6 | 0
7
4
5 | 0
6
2
9 | 0
7
4
4 | 0
7
4
4 | 0
7
4
4 | 0
6
1
5 | 0
7
4
5 | 0
6
1
7 | 0
7
4
6 | 0
7
4
6 | 0
6
7
0 | 0
7
4
8 | 0
6
4
9 | 0
7
4
3 | 0
7
4
3 | | | 0
7
4
3 |
| Hepatocyte, Single Cell Death | 1 | 1 | 1 | 1 | | 1 | 1 | 1 | | | | | | 1 | | 1 | 1 | 1 | 1 | | | 3 | | 1 | 1 | | |
| Mesentery
Fat, Necrosis | | | | | | | | | | | | | | | | | | | | | | | | | | | + |
| Pancreas
Inflammation, Chronic Active
Acinus, Atrophy
Acinus, Hyperplasia
Duct, Inflammation, Chronic Active | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 1 | |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 1 | |
| Stomach, Forestomach
Inflammation
Epithelium, Hyperplasia, Squamous | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 2 | |
| Stomach, Glandular
Erosion
Inflammation | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 1 | |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Blood Vessel
Inflammation
Inflammation, Chronic
Mineral
Aorta, Mineral
Aorta, Pulmonary Artery, Mineral
Pulmonary Artery, Mineral | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 1 |
| | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | 1 |
| | | | | | | | | | | | | | | | | | | | | | | | | | 1 |

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
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I .. Insufficient tissue
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MALE
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|--|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|-------|-------|-------|-------|
| | 0743 | 0744 | 0713 | 0750 | 0774 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | 0777 | | 0777 | | | |
| ANIMAL ID | 00446 | 00447 | 00448 | 00449 | 00450 | 00451 | 00452 | 00453 | 00454 | 00455 | 00456 | 00457 | 00458 | 00459 | 00460 | 00461 | 00462 | 00463 | 00464 | 00465 | 00466 | 00467 | 00468 | 00469 | 00470 |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--------|-------|
| Lymph Node, Mandibular Atrophy | + | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Hyperplasia, Lymphoid | | | 3 | | | | | | | | | | | | | | | 1 | | | | | | 2 | 3 2.0 |
| Lymph Node, Mesenteric Atrophy | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Spleen | | | | | | | | | | | | | | | | | | | | | | | | | 50 |
| Extramedullary Hematopoiesis | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 1 | 1 | | | | 36 1.4 | |
| Pigment | | | 1 | 1 | 1 | | 1 | | | | 1 | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | | | 1 | 1 | 28 1.1 | |
| Lymphoid Follicle, Atrophy | | | 2 | 3 | | | | | | | | | | | | | | | | | | | | 2 2.5 | |
| Thymus | + | M | + | M | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | 45 | |
| Atrophy | 3 | | 4 | | 3 | 3 | 2 | 3 | 4 | 3 | 2 | | 3 | 3 | 3 | 2 | 4 | | 3 | 3 | 2 | 2 | 3 | 43 2.8 | |
| Hyperplasia, Lymphoid | | | | | | | | | | | | | | | | | | | | | | | | 1 2.0 | |

INTEGUMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-------|
| Mammary Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Skin | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Cyst Epithelial Inclusion | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Inflammation | | | 4 | | | | | | | | | | 3 | 3 | | | | | | | | | | 4 3.5 |
| Ulcer | | | | | | | | | | | | 1 | 3 | | | | | | | | | | | 2 2.0 |

MUSCULOSKELETAL SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Bone | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Skeletal Muscle | | | | | | | | | | | | | | | | | | | | | | | | 2 |

* .. 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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