

Experiment Number: 20515 - 03
Test Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY
Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
Metal working fluids (CIMSTAR 3800)
CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
Time Report Requested: 12:32:34
First Dose M/F: 04/14/08 / 04/14/08
Lab: BNW

F2_RE

NTP Study Number: C20515
Lock Date: 01/12/2011
Cage Range: ALL
Date Range: ALL
Reasons For Removal: ALL
Removal Date Range: ALL
Treatment Groups: Include ALL
Study Gender: Both
TDMSE Version: 3.0.2.0_001
PWG Approval Date: 02/21/2013

Note: Animals arranged according to days on test.

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 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

WISTAR HAN RATS MALE	DAY ON TEST																							males (cont...)	
	0 3 4 5	0 4 9 4	0 5 2 0	0 5 3 5	0 5 9 7	0 5 9 7	0 5 9 9	0 6 0 7	0 6 1 2	0 6 1 9	0 6 2 7	0 6 5 3	0 7 0 4	0 7 0 4	0 7 1 0	0 7 1 5	0 7 1 8	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9		
Control	ANIMAL ID																								
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1	3	4	0	0	2	2	4	1	3	2	4	0	1	0	0	0	0	1	1	1	2	2	2	
1	5	3	8	5	8	7	8	3	2	6	9	3	9	9	2	1	7	4	7	8	0	2	3	4	

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Large, Rectum	+	+	+	+	I	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Mesentery																+	+					+	
Oral Mucosa		+																					
Pancreas Adenoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Salivary Glands Schwannoma Malignant	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+
Stomach, Forestomach Leiomyoma Sarcoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

M .. Missing tissue
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WISTAR HAN RATS MALE	DAY ON TEST																							males (cont...)
	0345	0492	0053	0059	0059	0059	0060	0061	0061	0066	0067	0067	0067	0067	0067	0067	0067	0067	0067	0067	0067	0067	0067	
Control	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	
	0011	0034	0040	0000	0022	0022	0041	0033	0024	0000	0011	0000	0000	0000	0000	0000	0000	0001	0011	0011	0022	0022	0022	
	0011	0053	0003	0008	0005	0008	0007	0008	0003	0002	0006	0009	0003	0009	0009	0002	0001	0007	0004	0007	0008	0000	0002	

Sarcoma X

CARDIOVASCULAR SYSTEM

Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Schwannoma Benign																			X				

ENDOCRINE SYSTEM

Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adenoma							X																
Bilateral, Carcinoma																							
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pheochromocytoma Benign								X						X					X				
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Parathyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	M	+	M	+	M	+	M
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pars Distalis, Adenoma			X	X			X		X	X	X			X	X				X	X			
Pars Intermedia, Adenoma																						X	
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
C-cell, Adenoma												X									X		
C-cell, Adenoma, Multiple																							
Follicular Cell, Adenoma																X							

GENERAL BODY SYSTEM

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WISTAR HAN RATS MALE	DAY ON TEST																								males (cont...)
	0345	0455	0555	0655	0755	0856	0966	1066	1166	1266	1367	1467	1567	1667	1767	1867	1967	2067	2167	2267	2367	2467	2567		
Control	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000		
ANIMAL ID	0001	0003	0004	0008	0005	0008	0007	0008	0003	0002	0006	0009	0003	0009	0009	0002	0001	0007	0004	0007	0008	0000	0002	0003	

Peritoneum

GENITAL SYSTEM

Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Preputial Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Prostate Adenoma, Multiple	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Seminal Vesicle Adenoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Testes Interstitial Cell, Adenoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

HEMATOPOIETIC SYSTEM

Bone Marrow Hemangiosarcoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymph Node							+		+			+			+	+					+	+	
Lymph Node, Bronchial	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	M	+	+	+
Lymph Node, Mandibular	+	+	+	+	+	+	M	+	+	+	+	+	M	M	+	+	+	+	+	+	+	+	+
Lymph Node, Mediastinal	+	+	+	M	+	M	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+
Lymph Node, Mesenteric Hemangiosarcoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
	X					X																	X

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Wistar Han Rats Male Control	DAY ON TEST																								males (cont...)
	0 3 4 5	0 4 9 4	0 5 2 0	0 5 3 5	0 5 9 7	0 5 9 7	0 5 9 9	0 6 0 7	0 6 1 2	0 6 1 9	0 6 2 7	0 6 5 3	0 7 0 4	0 7 0 4	0 7 1 0	0 7 1 5	0 7 2 8	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9		
Animal ID	0 0 0 1 1	0 0 0 3 5	0 0 0 4 3	0 0 0 0 8	0 0 0 0 5	0 0 0 2 8	0 0 0 2 7	0 0 0 4 8	0 0 0 1 3	0 0 0 3 2	0 0 0 2 6	0 0 0 4 9	0 0 0 0 3	0 0 0 1 9	0 0 0 0 9	0 0 0 0 2	0 0 0 0 1	0 0 0 0 7	0 0 0 1 4	0 0 0 1 7	0 0 0 1 8	0 0 0 2 0	0 0 0 2 2	0 0 0 2 3	0 0 0 2 4
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Thymus Thymoma Benign	+	M	M	I	+	+	+	+	+	+	+	+	+	+	I	+	+	+	+	+	+	+	+	M	I

INTEGUMENTARY SYSTEM

Mammary Gland	M	M	M	+	M	+	M	M	M	M	+	M	+	M	M	M	M	M	M	M	M	M	M	M
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Basal Cell Carcinoma																								
Keratoacanthoma										X														
Subcutaneous Tissue, Fibroma																								
Subcutaneous Tissue, Fibrosarcoma																	X							
Subcutaneous Tissue, Lipoma																								

MUSCULOSKELETAL SYSTEM

Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Osteosarcoma																								
Skeletal Muscle																								

NERVOUS SYSTEM

Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Glioma										X							X							
Meningioma Malignant										X														
Peripheral Nerve					+	+	+									+	+							
Spinal Cord					+	+	+									+	+							

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	0345	0455	0555	0655	0755	0856	0966	1066	1166	1266	1367	1467	1567	1667	1767	1867	1967	2067	2167	2267	2367	2467	2567		
Control	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000		
ANIMAL ID	0001	0003	0004	0008	0005	0008	0007	0008	0003	0002	0006	0009	0003	0009	0009	0002	0001	0007	0004	0007	0008	0000	0002		

RESPIRATORY SYSTEM

Larynx	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Alveolar/Bronchiolar Adenoma										X													
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

SPECIAL SENSES SYSTEM

Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Zymbal's Gland			+		+																		
Carcinoma					X																		

URINARY SYSTEM

Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Transitional Epithelium, Papilloma																							
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

SYSTEMIC LESIONS

Multiple Organ	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Mesothelioma Malignant																							

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Lab: BNW

WISTAR HAN RATS MALE		DAY ON TEST																								
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7		
		2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
		9	9	9	9	9	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Control		ANIMAL ID																								
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		2	3	3	4	4	4	5	0	0	1	1	1	1	2	2	3	3	3	4	4	4	4	3		
		5	0	4	2	5	6	0	4	6	0	2	5	6	1	9	1	7	8	0	1	4	7	3		
																									* TOTALS	

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	I	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Mesentery														+		+							+	7
Oral Mucosa																								1
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adenoma																							X	1
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Schwannoma Malignant																								1
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Leiomyoma																								1
Sarcoma																								1
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50

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WISTAR HAN RATS MALE	DAY ON TEST																									* TOTALS	
	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729		
Control	0025	0030	0034	0042	0045	0056	0070	0084	0090	0096	0096	0096	0096	0096	0096	0096	0096	0096	0096	0096	0096	0096	0096	0096	0096	0096	
Sarcoma																											1
CARDIOVASCULAR SYSTEM																											
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Schwannoma Benign																											1
ENDOCRINE SYSTEM																											
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adenoma																											2
Bilateral, Carcinoma			X																								1
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Pheochromocytoma Benign				X																							4
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Parathyroid Gland	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	43
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	49
Pars Distalis, Adenoma						X		X		X					X			X							X		16
Pars Intermedia, Adenoma					X																						2
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
C-cell, Adenoma								X						X				X						X			6
C-cell, Adenoma, Multiple													X														1
Follicular Cell, Adenoma																											1

GENERAL BODY SYSTEM

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 Lab: BNW

WISTAR HAN RATS MALE	DAY ON TEST																								* TOTALS	
	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729		0729
Control	0025	0030	0034	0042	0045	0056	0004	0006	0000	0001	0001	0001	0001	0002	0009	0001	0007	0008	0000	0001	0004	0007	0003	0006	0009	

Peritoneum + 1

GENITAL SYSTEM

Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Preputial Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Prostate Adenoma, Multiple	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50 1
Seminal Vesicle Adenoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50 1
Testes Interstitial Cell, Adenoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50 2

HEMATOPOIETIC SYSTEM

Bone Marrow Hemangiosarcoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50 1
Lymph Node	+								+	+		+														12
Lymph Node, Bronchial	M	+	+	+	+	+	+	+	M	M	M	+	+	+	+	+	M	+	M	+	+	+	+	+	+	42
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	46
Lymph Node, Mediastinal	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	46
Lymph Node, Mesenteric Hemangiosarcoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50 3

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

WISTAR HAN RATS MALE	DAY ON TEST																								* TOTALS		
	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729			
Control	ANIMAL ID																								* TOTALS		
	0025	0030	0034	0042	0045	0046	0050	0054	0060	0064	0066	0070	0072	0075	0076	0077	0078	0079	0080	0081	0082	0083	0084	0085		0086	
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50		
Thymus	I	+	+	+	+	+	+	+	+	M	+	+	+	+	I	+	+	+	M	+	+	+	+	+	40		
Thymoma Benign																							X		1		
INTEGUMENTARY SYSTEM																											
Mammary Gland	M	+	M	M	M	M	M	M	M	M	M	M	+	M	M	M	M	M	M	M	M	M	M	M	6		
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50		
Basal Cell Carcinoma																							X		1		
Keratoacanthoma																									1		
Subcutaneous Tissue, Fibroma																						X			1		
Subcutaneous Tissue, Fibrosarcoma																									1		
Subcutaneous Tissue, Lipoma	X																								1		
MUSCULOSKELETAL SYSTEM																											
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50		
Osteosarcoma																							X		1		
Skeletal Muscle																								+	1		
NERVOUS SYSTEM																											
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50		
Glioma																									2		
Meningioma Malignant																									1		
Peripheral Nerve																									5		
Spinal Cord																									5		

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

WISTAR HAN RATS MALE Control	DAY ON TEST																									* TOTALS
	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	0729	
ANIMAL ID	0025	0030	0034	0042	0045	0056	0060	0064	0066	0070	0072	0075	0076	0077	0079	0080	0081	0082	0083	0084	0085	0086	0087	0088	0089	

RESPIRATORY SYSTEM

Larynx	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Lung Alveolar/Bronchiolar Adenoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50 1
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50

SPECIAL SENSES SYSTEM

Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Zymbal's Gland Carcinoma																										3 2

URINARY SYSTEM

Kidney Transitional Epithelium, Papilloma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50 1
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50

SYSTEMIC LESIONS

Multiple Organ Mesothelioma Malignant	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50 1
--	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---------

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

WISTAR HAN RATS MALE	DAY ON TEST																								males (cont...)
	0 2 8 6	0 4 2 9	0 4 3 9	0 5 0 5	0 5 4 7	0 5 6 2	0 5 6 4	0 6 6 3	0 6 0 0	0 6 2 0	0 6 3 3	0 6 5 7	0 6 7 0	0 7 0 4	0 7 1 4	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9		
10 mg/m3	ANIMAL ID																								
	0 0 2 0 8	0 0 0 1 9	0 0 2 2 7	0 0 2 4 7	0 0 2 0 3	0 0 2 1 7	0 0 2 1 8	0 0 2 5 4	0 0 2 1 0	0 0 2 5 6	0 0 2 1 8	0 0 2 3 0	0 0 2 4 2	0 0 2 3 3	0 0 2 2 5	0 0 2 2 5	0 0 2 2 5	0 0 2 2 6	0 0 2 2 7	0 0 2 2 7	0 0 2 1 0	0 0 2 1 2	0 0 2 1 3	0 0 2 2 4	0 0 2 2 6

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Large, Cecum	+	A	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Large, Colon	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Large, Rectum	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	I	+	+
Intestine Small, Duodenum	+	A	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Small, Ileum	+	A	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Small, Jejunum	+	A	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hepatocellular Adenoma																								
Hepatocellular Carcinoma																								
Mesentery						+					+									+			+	+
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Tooth																								+

CARDIOVASCULAR SYSTEM

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
Test Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY
Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
Metal working fluids (CIMSTAR 3800)
CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
Time Report Requested: 12:32:34
First Dose M/F: 04/14/08 / 04/14/08
Lab: BNW

WISTAR HAN RATS MALE	DAY ON TEST																								males (cont...)
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2	4	4	5	5	5	5	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7		
10 mg/m3	8	2	3	0	4	6	6	0	2	3	3	5	7	0	0	1	2	2	9	9	9	9	9		
	6	9	9	5	7	2	4	3	0	3	7	3	7	4	4	7	9	9	9	9	9	9	9		
	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		
0	1	2	4	0	1	1	2	5	1	3	4	2	3	3	2	0	0	0	1	1	1	1	2		
8	9	7	7	3	7	8	4	0	6	8	0	2	3	5	5	5	6	7	0	2	3	4	3	6	

Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

ENDOCRINE SYSTEM

Adrenal Cortex Carcinoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
		X																					
Adrenal Medulla Pheochromocytoma Malignant	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	I	+	+
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Parathyroid Gland Adenoma	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	M
				X																			
Pituitary Gland Pars Distalis, Adenoma	+	+	+	+	+	+	+	X	X	X						X	X				X	X	X
Pars Intermedia, Adenoma															X								
Thyroid Gland C-cell, Adenoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Follicular Cell, Carcinoma																	X	X	X				

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
------------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

* .. Total animals with tissue examined microscopically; Total animals with tumor
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M .. Missing tissue
A .. Autolysis precludes evaluation
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Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

WISTAR HAN RATS MALE 10 mg/m3	DAY ON TEST																								ANIMAL ID	males (cont...)
	0286	0499	0499	0505	0505	0505	0505	0606	0606	0606	0606	0606	0606	0707	0707	0707	0707	0707	0707	0707	0707	0707	0707	0707		
Preputial Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Prostate Adenoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Testes Interstitial Cell, Adenoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	X	+	+		
HEMATOPOIETIC SYSTEM																										
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Lymph Node					+					+																
Lymph Node, Bronchial	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	M	+	+	+	+	+		
Lymph Node, Mandibular Carcinoma, Metastatic, Zymbal'S Gland	+	+	+	+	+	+	M	+	+	+	+	+	X	+	+	+	+	+	+	+	+	+	+	+		
Lymph Node, Mediastinal	+	+	M	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Lymph Node, Mesenteric Hemangiosarcoma	+	+	+	+	+	+	+	+	+	+	+	+	+	X	+	+	+	+	+	+	+	+	+	+		
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M		
INTEGUMENTARY SYSTEM																										

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

WISTAR HAN RATS MALE 10 mg/m3	DAY ON TEST																								ANIMAL ID	males (cont...)
	0 2 8 6	0 4 2 9	0 4 3 9	0 5 0 5	0 5 4 7	0 5 6 2	0 5 6 4	0 6 0 3	0 6 2 0	0 6 3 3	0 6 3 7	0 6 5 3	0 6 7 7	0 7 0 4	0 7 0 4	0 7 1 7	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9		
	0	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 0 8		

Mammary Gland	M	M	M	M	M	M	M	M	+	M	M	M	M	M	M	M	M	+	M	M	+	M	M	M	M
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Sebaceous Gland, Adenoma																									
Subcutaneous Tissue, Fibroma																							X		
Subcutaneous Tissue, Neural Crest Tumor																									
Subcutaneous Tissue, Schwannoma Malignant				X																		X			

MUSCULOSKELETAL SYSTEM

Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Osteosarcoma								X																	
Skeletal Muscle																									
Sarcoma													+												

NERVOUS SYSTEM

Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Carcinoma, Metastatic, Zymbal'S Gland				X																					
Glioma						X																			
Granular Cell Tumor Benign																X									
Granular Cell Tumor Malignant																									
Peripheral Nerve									+			+					+		+						
Spinal Cord																									

RESPIRATORY SYSTEM

Larynx	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
Test Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY
Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
Metal working fluids (CIMSTAR 3800)
CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
Time Report Requested: 12:32:34
First Dose M/F: 04/14/08 / 04/14/08
Lab: BNW

DAY ON TEST		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WISTAR HAN RATS MALE		2	4	4	5	5	5	5	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7
		8	2	3	0	4	6	6	0	2	3	3	5	7	0	0	1	2	2	2	2	2	2	2	2	2
	10 mg/m3	6	9	9	5	7	2	4	3	0	3	7	3	7	4	4	7	9	9	9	9	9	9	9	9	9
ANIMAL ID		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		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
		0	1	2	4	0	1	1	2	5	1	3	4	2	3	3	2	0	0	0	1	1	1	1	2	2
		8	9	7	7	3	7	8	4	0	6	8	0	2	3	5	5	5	6	7	0	2	3	4	3	6
males (cont...)																										
Osteosarcoma, Metastatic, Bone		X																								
Osteosarcoma, Metastatic, Uncertain Primary Site		X																								
Nose		+ +																								
Trachea		+ + + + A +																								
SPECIAL SENSES SYSTEM																										
Eye		+ +																								
Harderian Gland		+ +																								
Zymbal's Gland Carcinoma		+ X X + X																								
URINARY SYSTEM																										
Kidney Renal Tubule, Adenoma		+ + + + + + + + + + + + + + + + + + + X + + + + + + + +																								
Urinary Bladder		+ +																								
SYSTEMIC LESIONS																										
Multiple Organ Lymphoma Malignant		+ +																								
Mesothelioma Malignant		X X X																								

* .. Total animals with tissue examined microscopically; Total animals with tumor
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue

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

Experiment Number: 20515 - 03
Test Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY
Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
Metal working fluids (CIMSTAR 3800)
CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
Time Report Requested: 12:32:34
First Dose M/F: 04/14/08 / 04/14/08
Lab: BNW

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WISTAR HAN RATS MALE	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
10 mg/m3	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
ANIMAL ID	9	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	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	
	3	4	4	0	0	0	0	1	1	2	2	2	2	3	3	3	3	3	4	4	4	4	4	3	
	9	3	9	1	2	4	9	1	5	0	1	8	9	1	2	4	6	7	1	2	5	6	8	0	* TOTALS

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Intestine Large, Rectum	I	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	47
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Hepatocellular Adenoma									X																1
Hepatocellular Carcinoma																						X			1
Mesentery																							+	+	7
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Tooth																									1

CARDIOVASCULAR SYSTEM

* .. Total animals with tissue examined microscopically; Total animals with tumor
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

WISTAR HAN RATS MALE 10 mg/m3	DAY ON TEST																								* TOTALS
	0729	0729	0729	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	
ANIMAL ID	0039	0039	0039	0041	0042	0044	0049	0051	0055	0060	0061	0068	0069	0071	0072	0074	0076	0077	0078	0080	0081	0082	0083	0084	
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50

ENDOCRINE SYSTEM

Adrenal Cortex Carcinoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50 1
Adrenal Medulla Pheochromocytoma Malignant	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	48 1
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Parathyroid Gland Adenoma	M	+	+	+	+	+	M	+	+	+	+	M	+	+	+	+	M	+	+	+	+	+	+	43 1
Pituitary Gland Pars Distalis, Adenoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50 18
Pituitary Gland Pars Intermedia, Adenoma	X	X			X	X			X	X		X					X	X						1
Thyroid Gland C-cell, Adenoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50 5
Thyroid Gland Follicular Cell, Carcinoma														X								X		1

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

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

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

WISTAR HAN RATS MALE 10 mg/m3	DAY ON TEST																								* TOTALS
	0729	0729	0729	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730		
ANIMAL ID	0039	0039	0039	0001	0002	0004	0009	0011	0015	0000	0001	0008	0009	0011	0012	0014	0016	0017	0021	0025	0026	0028	0000		
Preputial Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
Prostate Adenoma	+	+	+	+	+	+	+	+	X	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50 1	
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
Testes Interstitial Cell, Adenoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50 1	
HEMATOPOIETIC SYSTEM																									
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
Lymph Node		+											+	+										5	
Lymph Node, Bronchial	+	+	+	+	+	+	+	+	+	+	M	M	+	+	+	M	M	M	M	M	M	+	+	40	
Lymph Node, Mandibular Carcinoma, Metastatic, Zymbal'S Gland	+	+	+	+	+	+	M	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	M	46 1	
Lymph Node, Mediastinal	+	M	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	M	+	+	+	+	+	45	
Lymph Node, Mesenteric Hemangiosarcoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50 1	
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
Thymus	+	+	+	+	+	+	I	+	M	+	+	M	I	+	I	+	M	+	+	+	+	+	+	43	
INTEGUMENTARY SYSTEM																									

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

WISTAR HAN RATS MALE 10 mg/m3	DAY ON TEST																								* TOTALS		
	0729	0729	0729	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730	0730			
ANIMAL ID	0039	0039	0039	0001	0002	0004	0009	0011	0015	0000	0001	0008	0009	0011	0012	0014	0016	0017	0018	0021	0025	0026	0028	0034			
Mammary Gland	M	M	M	M	+	+	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	+	M	M	M	6	
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
Sebaceous Gland, Adenoma								X																	1		
Subcutaneous Tissue, Fibroma																							X		2		
Subcutaneous Tissue, Neural Crest Tumor												X													1		
Subcutaneous Tissue, Schwannoma Malignant																									2		
MUSCULOSKELETAL SYSTEM																											
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
Osteosarcoma																										1	
Skeletal Muscle																										2	
Sarcoma																									X	1	
NERVOUS SYSTEM																											
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
Carcinoma, Metastatic, Zymbal'S Gland																										1	
Glioma																										1	
Granular Cell Tumor Benign						X																			2		
Granular Cell Tumor Malignant																								X	1		
Peripheral Nerve																										4	
Spinal Cord																										4	
RESPIRATORY SYSTEM																											
Larynx	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

		DAY ON TEST																						
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0
WISTAR HAN RATS MALE		7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
		2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
10 mg/m3		9	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		ANIMAL ID																						
		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	
		3	4	4	0	0	0	0	1	1	2	2	2	2	3	3	3	3	3	4	4	4	4	3
		9	3	9	1	2	4	9	1	5	0	1	8	9	1	2	4	6	7	1	2	5	6	4
		* TOTALS																						
Osteosarcoma, Metastatic, Bone																								1
Osteosarcoma, Metastatic, Uncertain Primary Site																								1
Nose		+ +																						50
Trachea		+ +																						49
SPECIAL SENSES SYSTEM																								
Eye		+ +																						50
Harderian Gland		+ +																						50
Zymbal's Gland Carcinoma																								2
																								2
URINARY SYSTEM																								
Kidney Renal Tubule, Adenoma		+ +																						50
																								1
Urinary Bladder		+ +																						50
SYSTEMIC LESIONS																								
Multiple Organ Lymphoma Malignant		+ +																						50
Mesothelioma Malignant																								2
		X																						1

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)

Metal working fluids (CIMSTAR 3800)

CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014

Time Report Requested: 12:32:34

First Dose M/F: 04/14/08 / 04/14/08

Lab: BNW

		DAY ON TEST																						males (cont...)
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WISTAR HAN RATS MALE	ANIMAL ID	3	5	5	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
		0	6	6	2	3	4	5	8	0	0	0	0	1	2	2	2	2	2	2	2	2	2	
		9	4	4	0	9	6	3	4	0	4	4	4	1	2	2	6	9	9	9	9	9	9	
30 mg/m3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
		4	0	1	2	4	4	0	4	3	0	0	1	0	2	5	1	0	0	1	1	2	2	
		4	6	5	2	2	8	8	9	7	7	9	0	5	1	0	2	3	1	3	0	3	5	

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Large, Cecum	A	+	+	+	+	+	+	A	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Large, Colon	A	+	+	+	+	+	+	A	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Large, Rectum	A	+	+	+	+	+	+	A	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Small, Duodenum	A	+	+	+	+	+	+	A	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Small, Ileum	A	+	+	+	+	+	+	A	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Small, Jejunum	A	+	+	+	+	+	+	A	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Mesentery																							
Oral Mucosa							+																
Pancreas	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, Glandular	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

CARDIOVASCULAR SYSTEM

Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
--------------	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

* .. Total animals with tissue examined microscopically; Total animals with tumor
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue

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

Experiment Number: 20515 - 03

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)

Metal working fluids (CIMSTAR 3800)

CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014

Time Report Requested: 12:32:34

First Dose M/F: 04/14/08 / 04/14/08

Lab: BNW

WISTAR HAN RATS MALE	DAY ON TEST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	males (cont...)
		3	5	5	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
30 mg/m3	ANIMAL ID	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Heart
Schwannoma Benign

+	+	+	+	+	+	+	+	+	+	+	X	+	+	+	+	+	+	+	+	+	+	+	+	+
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

ENDOCRINE SYSTEM

Adrenal Cortex
Adenoma
Carcinoma

+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Adrenal Medulla
Pheochromocytoma Benign

+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Islets, Pancreatic
Adenoma
Carcinoma

A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Parathyroid Gland

+	+	M	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Pituitary Gland
Pars Distalis, Adenoma
Pars Distalis, Carcinoma
Pars Intermedia, Adenoma

+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Thyroid Gland
C-cell, Adenoma
C-cell, Carcinoma
Follicular Cell, Carcinoma

+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

GENERAL BODY SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with tumor
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

WISTAR HAN RATS MALE	DAY ON TEST																								males (cont...)
	0 3 0 9	0 5 6 4	0 5 6 4	0 6 2 0	0 6 3 9	0 6 4 6	0 6 5 3	0 6 8 4	0 7 0 0	0 7 0 4	0 7 0 4	0 7 0 4	0 7 1 1	0 7 2 2	0 7 2 2	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9	0 7 2 9		
30 mg/m3	ANIMAL ID																								
	0 4 4 4	0 0 4 0	0 0 4 1	0 0 4 2	0 0 4 4	0 0 4 4	0 0 4 0	0 0 4 4	0 0 4 3	0 0 4 0	0 0 4 0	0 0 4 1	0 0 4 0	0 0 4 5	0 0 4 1	0 0 4 2	0 0 4 2	0 0 4 3	0 0 4 1	0 0 4 3	0 0 4 0	0 0 4 3	0 0 4 5	0 0 4 6	

GENITAL SYSTEM

Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Preputial Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Prostate Adenoma, Multiple Carcinoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Seminal Vesicle	A	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Testes Interstitial Cell, Adenoma	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

HEMATOPOIETIC SYSTEM

Bone Marrow	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymph Node																							
Lymph Node, Bronchial	M	+	M	+	+	+	+	+	M	+	+	+	M	M	+	+	+	+	+	+	+	+	+
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	M	M	+	+	+	+	+	+
Lymph Node, Mediastinal	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymph Node, Mesenteric Hemangioma	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Thymus	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
Test Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY
Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
Time Report Requested: 12:32:34
First Dose M/F: 04/14/08 / 04/14/08
Lab: BNW

WISTAR HAN RATS MALE		DAY ON TEST		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	males (cont...)	
		ANIMAL ID		3	5	5	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7		7
30 mg/m3				0	6	6	2	3	4	5	8	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2		
				9	4	4	0	9	6	3	4	0	4	4	4	1	2	2	6	9	9	9	9	9	9	9		9
				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
				4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
				4	0	1	2	4	4	0	4	3	0	0	1	0	2	5	1	0	0	1	1	2	2	2	2	
				4	6	5	2	2	8	8	9	7	7	9	0	5	1	0	2	3	1	3	0	3	5	6	8	

Thymoma Benign

X

INTEGUMENTARY SYSTEM

Mammary Gland

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

Skin

+ +

Basal Cell Carcinoma

Squamous Cell Papilloma

Subcutaneous Tissue, Fibroma

X

X

MUSCULOSKELETAL SYSTEM

Bone

+ +

Skeletal Muscle

+

Sarcoma

X

NERVOUS SYSTEM

Brain

+ + + + + + + + + + + + + + + + + + + X + + + +

Glioma

X

Granular Cell Tumor Malignant

X

Peripheral Nerve

+ + + M + + +

Spinal Cord

+ + + + + + +

RESPIRATORY SYSTEM

Larynx

+ +

Lung

+ +

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)

Metal working fluids (CIMSTAR 3800)

CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014

Time Report Requested: 12:32:34

First Dose M/F: 04/14/08 / 04/14/08

Lab: BNW

| WISTAR HAN RATS MALE

30 mg/m3 | DAY ON TEST | ANIMAL ID | | | | | | | | | | | | | | | | | | | | | | males
(cont...) | | | | | | |
|--|-------------|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------------------|---|---|---|---|---|--|
| | | 003094 | 004440 | 005550 | 006660 | 007770 | 008880 | 009990 | 010000 | 011110 | 012220 | 013330 | 014440 | 015550 | 016660 | 017770 | 018880 | 019990 | 020000 | 021110 | 022220 | 023330 | 024440 | | | | | | | |
| Alveolar/Bronchiolar Adenoma | | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | |
| Nose | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Trachea | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ear | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eye | | A | + | + | + | + | + | + | | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Harderian Gland Adenoma | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Zymbal's Gland | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| URINARY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kidney | | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Urinary Bladder | | A | + | + | + | + | + | + | | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| SYSTEMIC LESIONS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Multiple Organ Lymphoma Malignant Mesothelioma Malignant | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

* .. Total animals with tissue examined microscopically; Total animals with tumor
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue

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

Experiment Number: 20515 - 03
Test Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY
Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
Metal working fluids (CIMSTAR 3800)
CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
Time Report Requested: 12:32:34
First Dose M/F: 04/14/08 / 04/14/08
Lab: BNW

| DAY ON TEST | ANIMAL ID | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|-----------------------------|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|----------|
| | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | |
| WISTAR HAN RATS MALE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 30 mg/m3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | |
| | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 1 | 1 | 1 | 2 | 3 | 3 | 3 | 3 | 3 | 4 | 0 | 0 | |
| | 9 | 1 | 4 | 5 | 8 | 0 | 5 | 6 | 7 | 4 | 6 | 7 | 8 | 9 | 7 | 0 | 2 | 3 | 6 | 9 | 1 | 1 | 4 | 4 | |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------|
| Esophagus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 47 |
| Intestine Large, Colon | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 47 |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 47 |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 47 |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 47 |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 47 |
| Liver | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Mesentery | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Oral Mucosa | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------|
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------|

* .. Total animals with tissue examined microscopically; Total animals with tumor
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS MALE
30 mg/m3 | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS | |
|--|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|----|
| | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | | |
| ANIMAL ID | 00429 | 00431 | 00434 | 00435 | 00438 | 00440 | 00445 | 00446 | 00447 | 00449 | 00456 | 00457 | 00464 | 00467 | 00468 | 00470 | 00471 | 00472 | 00473 | 00474 | 00475 | 00476 | 00477 | 00478 | | |
| Heart Schwannoma Benign | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | X | + | + | 502 | |
| ENDOCRINE SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adrenal Cortex Adenoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | |
| Adrenal Cortex Carcinoma | | | | | | | | | | | | | | | | | | | | | | | X | | 2 | |
| Adrenal Medulla Pheochromocytoma Benign | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | |
| Islets, Pancreatic Adenoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | |
| Islets, Pancreatic Carcinoma | | X | | | | | | | | | | | | | | | | | | | | | | | 2 | |
| Parathyroid Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | M | M | + | + | 44 |
| Pituitary Gland Pars Distalis, Adenoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Pituitary Gland Pars Distalis, Carcinoma | | | X | | X | | | | | | | | X | | X | | | X | | | | | | X | 11 | |
| Pituitary Gland Pars Intermedia, Adenoma | | | | X | | | | | | | | | | | | | | | | | | | | | 2 | |
| Thyroid Gland C-cell, Adenoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | |
| Thyroid Gland C-cell, Carcinoma | | | | | | | | | | | X | | | | | | | | | | | | X | | 3 | |
| Thyroid Gland Follicular Cell, Carcinoma | | | | | | | | | | | | | | | | | | | | | | | X | | 1 | |

GENERAL BODY SYSTEM

NONE

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS MALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|----------------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | |
| 30 mg/m3 | 00429 | 00443 | 00433 | 00433 | 00438 | 00440 | 00445 | 00446 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 |
| ANIMAL ID | 00429 | 00443 | 00433 | 00433 | 00438 | 00440 | 00445 | 00446 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 | 00447 |

GENITAL SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Epididymis | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Preputial Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Prostate | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Adenoma, Multiple | | | | | | | | | | | | | | | | | | | | | | | | X | | 1 |
| Carcinoma | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Seminal Vesicle | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 48 |
| Testes | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Interstitial Cell, Adenoma | | | | | | | | | | | | | X | | | | | | | | | | | X | | 2 |

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|----|
| Bone Marrow | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| Lymph Node | | + | | | | | | | | | | | | | | | | | | | | | | | | 7 |
| Lymph Node, Bronchial | + | + | + | M | + | + | + | + | + | M | + | M | M | + | + | + | M | + | M | + | I | + | + | M | 37 | |
| Lymph Node, Mandibular | + | + | M | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | M | + | + | + | + | 44 | |
| Lymph Node, Mediastinal | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Lymph Node, Mesenteric Hemangioma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| Spleen | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Thymus | + | + | M | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | I | 44 | |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS MALE
30 mg/m3 | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|----------------------------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | |
| ANIMAL ID | 00429 | 00433 | 00433 | 00433 | 00433 | 00433 | 00433 | 00433 | 00433 | 00433 | 00433 | 00433 | 00433 | 00433 | 00433 | 00433 | 00433 | 00433 | 00433 | 00433 | 00433 | 00433 | 00433 | 00433 | 00433 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Thymoma Benign

X

2

INTEGUMENTARY SYSTEM

Mammary Gland

M M

3

Skin

+ +

50

Basal Cell Carcinoma

X

1

Squamous Cell Papilloma

1

Subcutaneous Tissue, Fibroma

1

MUSCULOSKELETAL SYSTEM

Bone

+ +

50

Skeletal Muscle

1

Sarcoma

1

NERVOUS SYSTEM

Brain

+ +

50

Glioma

1

Granular Cell Tumor Malignant

1

Peripheral Nerve

6

Spinal Cord

7

RESPIRATORY SYSTEM

Larynx

+ +

50

Lung

+ +

50

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS MALE
30 mg/m3 | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|-----------------------------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|----------|
| | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | |
| ANIMAL ID | 00429 | 00433 | 00433 | 00433 | 00434 | 00444 | 00444 | 00444 | 00444 | 00441 | 00441 | 00441 | 00441 | 00441 | 00442 | 00443 | 00443 | 00443 | 00443 | 00443 | 00444 | 00444 | 00444 | 00444 | |
| Alveolar/Bronchiolar Adenoma | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| Nose | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Trachea | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ear | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| Eye | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 48 | |
| Harderian Gland Adenoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | X | + | 50
1 | |
| Zymbal's Gland | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| URINARY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kidney | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | |
| Urinary Bladder | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 48 | |
| SYSTEMIC LESIONS | | | | | | | | | | | | | | | | | | | | | | | | | |
| Multiple Organ Lymphoma Malignant | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Mesothelioma Malignant | | | | | | | | | | | | | | | | | | | | | | X | | 1 | |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS MALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | males
(cont...) |
|----------------------|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------------------|
| | 0
2 | 0
3 | 0
4 | 0
4 | 0
5 | 0
5 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | |
| 100 mg/m3 | 0
2 | 0
3 | 0
4 | 0
4 | 0
5 | 0
5 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | |
| | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | |
| | 1
3 | 3
3 | 1
3 | 0
4 | 0
4 | 0
3 | 0
7 | 2
4 | 4
0 | 1
3 | 1
7 | 2
2 | 0
1 | 0
2 | 0
3 | 0
1 | 0
1 | 0
1 | 0
1 | 0
1 | 0
1 | 0
1 | 0
1 | 0
1 | |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Esophagus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Cecum | + | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Colon | + | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Rectum | + | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | I | + | + | + | + |
| Intestine Small, Duodenum | + | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Ileum | + | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Jejunum | + | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Liver | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Mesentery | | | | | | | | | | | | | | | | | | | | | | | |
| Liposarcoma | | | | | | | | | | | | | | | | | | | | | | | |
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Carcinoma | | | | | | | | | | | | | | | | | | | | | | | |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Sarcoma | | | | | | | | | | | | | | | | | | | | | | | |
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Tooth | | | | | | | | | | | | | | | | | | | | | | | |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS MALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | males
(cont...) |
|----------------------|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------------------|
| | 0
2 | 0
3 | 0
4 | 0
4 | 0
5 | 0
5 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | |
| 100 mg/m3 | 0
2 | 0
3 | 0
4 | 0
4 | 0
5 | 0
5 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
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7 | 0
7 | |
| | 0
6 | 0
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6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | |
| | 1
2 | 3
6 | 3
8 | 1
4 | 0
4 | 0
3 | 2
7 | 4
4 | 4
0 | 1
3 | 1
7 | 2
2 | 0
1 | 0
2 | 2
3 | 2
1 | 1
1 | 1
0 | 2
8 | 2
0 | 2
6 | 2
9 | 3
0 | 3
2 | |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Heart | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |

ENDOCRINE SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Adrenal Cortex
Adenoma
Carcinoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Adrenal Medulla
Pheochromocytoma Benign | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | X | + | + | + | + | + | + | + |
| Islets, Pancreatic
Adenoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Parathyroid Gland
Adenoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + |
| Pituitary Gland
Sarcoma, Metastatic, Salivary Glands
Pars Distalis, Adenoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| | | | | | | | X | | | X | | | X | X | | X | | X | X | | | | X | |
| Thyroid Gland
C-cell, Adenoma
C-cell, Carcinoma
Follicular Cell, Carcinoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | X | + | + | + | + | + | + | + |
| | | | | | | | | | | | | | | | | | | | | | | | X | |

GENERAL BODY SYSTEM

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS MALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | males
(cont...) |
|----------------------|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------------------|
| | 0
2 | 0
3 | 0
4 | 0
4 | 0
5 | 0
5 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | |
| 100 mg/m3 | 0
2 | 0
3 | 0
4 | 0
4 | 0
5 | 0
5 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | |
| | 0
6 | 0
6 | 0
6 | 0
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6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | |
| | 1
3 | 3
3 | 1
3 | 0
4 | 0
4 | 0
3 | 0
7 | 0
4 | 0
0 | 0
3 | 0
7 | 0
2 | 0
1 | 0
2 | 0
3 | 0
1 | 0
1 | 0
1 | 0
2 | 0
2 | 0
2 | 0
3 | 0
3 | | |
| | 2
6 | 5
6 | 7
8 | 8
4 | 4
4 | 5
3 | 1
7 | 7
4 | 5
0 | 6
3 | 5
7 | 5
2 | 4
1 | 4
2 | 4
3 | 2
1 | 2
1 | 2
0 | 2
8 | 2
0 | 2
6 | 2
9 | 2
0 | 2
3 | |

NONE

GENITAL SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Coagulating Gland | + | | | | | | | | | | | | | | | | | | | | | | | |
| Epididymis | + | | | | | | | | | | | | | | | | | | | | | | | |
| Preputial Gland | + | | | | | | | | | | | | | | | | | | | | | | | |
| Prostate Adenoma | + | | | | | | | | | | | | | | | | | | | | | | | |
| Prostate Adenoma, Multiple | X | | | | | | | | | | | | | | | | | | | | | | | |
| Seminal Vesicle | + | | | | | | | | | | | | | | | | | | | | | | | |
| Testes Interstitial Cell, Adenoma | + | | | | | | | | | | | | | | | | | | | | | | | |

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Bone Marrow | + | | | | | | | | | | | | | | | | | | | | | | | |
| Lymph Node | + | | | | | | | | | | | | | | | | | | | | | | | |
| Lymph Node, Bronchial | + | | | | | | | | | | | | | | | | | | | | | | | |
| Lymph Node, Mandibular | + | | | | | | | | | | | | | | | | | | | | | | | |
| Lymph Node, Mediastinal | + | | | | | | | | | | | | | | | | | | | | | | | |
| Lymph Node, Mesenteric | + | | | | | | | | | | | | | | | | | | | | | | | |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS MALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | males
(cont...) |
|----------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|--------------------|
| | 0
2 | 0
3 | 0
4 | 0
4 | 0
5 | 0
5 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | |
| 100 mg/m3 | 0
2 | 0
3 | 0
4 | 0
4 | 0
5 | 0
5 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | |
| ANIMAL ID | 0
6
1
2 | 0
6
3
6 | 0
6
3
8 | 0
6
1
4 | 0
6
0
4 | 0
6
0
3 | 0
6
2
7 | 0
6
4
4 | 0
6
4
0 | 0
6
1
3 | 0
6
1
7 | 0
6
2
2 | 0
6
0
1 | 0
6
0
2 | 0
6
2
3 | 0
6
2
1 | 0
6
1
1 | 0
6
1
0 | 0
6
2
8 | 0
6
2
0 | 0
6
2
6 | 0
6
2
9 | 0
6
3
0 | 0
6
3
2 | |

Hemangiosarcoma

| | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spleen | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Hemangiosarcoma | | | | | | | | | | | | | | | | | | | | | | | | |
| Sarcoma | | | | X | | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Thymus | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + |
| Thymoma Benign | | | | | | | | | | | | | | | | | | | | | | | | |
| Thymoma Malignant | | | | X | | | | | | | | | | | | | | | | | | | | |

INTEGUMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mammary Gland | M | M | + | M | M | M | M | M | M | M | M | + | M | M | + | M | M | M | M | M | M | M | M | M |
| Skin | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Subcutaneous Tissue, Fibroma | | | | | | | | | | | | | | | | | | | | | | | | |
| Subcutaneous Tissue, Hemangiopericytoma | | | | | | | | | | | | X | | | | | | | | | | | | |
| Subcutaneous Tissue, Hemangiosarcoma | | | | | | | | | | | | | | | | | | | | | | | | |
| Subcutaneous Tissue, Lipoma | | | | | | | | | | | | | | | | | | | | | | | | |
| Subcutaneous Tissue, Liposarcoma | | | | | | | | | | | | | | | | | | | | | | | | |

MUSCULOSKELETAL SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bone | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Osteosarcoma | | | | | | | | | | | | | X | | | | | | | | | | | |
| Sarcoma, Metastatic, Salivary Glands | | | | | | | | | | | | | | | | | | | | | | | | |

NERVOUS SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Brain | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Granular Cell Tumor Benign | | | | | | | | | | | | | | | | | | | | | | | | |
| Sarcoma, Metastatic, Salivary Glands | | | | | | | | | | | | | | | | | | | | | | | | |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS MALE
100 mg/m3 | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | ANIMAL ID | males
(cont...) | |
|-----------------------------------|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----------|-----------------------|--------|
| | 0
2 | 0
3 | 0
4 | 0
4 | 0
5 | 0
5 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
6 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | | | 0
7 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0
0
6
1
2 | |

Peripheral Nerve

+ +

Spinal Cord

+ +

RESPIRATORY SYSTEM

Larynx
Sarcoma, Metastatic, Salivary Glands

+
X

Lung
Osteosarcoma, Metastatic, Bone
Sarcoma, Metastatic, Salivary Glands

+
X X

Nose
Sarcoma, Metastatic, Salivary Glands

+
X

Trachea
Sarcoma, Metastatic, Salivary Glands

+
X

SPECIAL SENSES SYSTEM

Eye

+ +

Harderian Gland
Sarcoma, Metastatic, Salivary Glands

+
X

URINARY SYSTEM

Kidney
Lipoma

+ +

Urinary Bladder

+ +

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| DAY ON TEST | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|-----------------------------|------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WISTAR HAN RATS MALE | | 2 | 3 | 4 | 4 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | |
| | 100 mg/m3 | 0 | 9 | 5 | 7 | 0 | 9 | 1 | 2 | 3 | 4 | 7 | 9 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | |
| ANIMAL ID | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | |
| | | 1 | 3 | 3 | 1 | 0 | 0 | 2 | 4 | 4 | 1 | 1 | 2 | 0 | 0 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | | 2 | 6 | 8 | 4 | 4 | 3 | 7 | 4 | 0 | 3 | 7 | 2 | 1 | 2 | 3 | 1 | 1 | 0 | 8 | 0 | 6 | 9 | 0 | 2 | 3 | 2 | 3 | 2 | 3 | 3 | 3 | | |
| males
(cont...) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

SYSTEMIC LESIONS

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| Multiple Organ | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Lymphoma Malignant | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | |
| Mesothelioma Malignant | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS MALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|----------------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | |
| 100 mg/m3 | 00634 | 00634 | 00634 | 00634 | 00634 | 00634 | 00634 | 00634 | 00634 | 00634 | 00634 | 00634 | 00634 | 00634 | 00634 | 00634 | 00634 | 00634 | 00634 | 00634 | 00634 | 00634 | 00634 | 00634 | 50 |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Esophagus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| Intestine Large, Colon | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 48 |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| Liver | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Mesentery | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| Liposarcoma | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Carcinoma | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Sarcoma | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Tooth | | | | | | | | | | | | | | | | | | | | | | | | | 1 |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS MALE
100 mg/m3 | DAY ON TEST | | ANIMAL ID | | | | | | | | | | | | | | | | | | | | * TOTALS | | |
|-----------------------------------|-------------|------|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|----------|------|--|
| | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | | 0729 | |
| | 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 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | |
| | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | 9 | 9 | 9 | 9 | 9 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | |
| | 3 | 3 | 4 | 4 | 4 | 5 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 4 | 4 | 0 | 0 | 1 | 2 | 3 | 4 | |
| | 4 | 5 | 3 | 6 | 9 | 0 | 7 | 9 | 5 | 9 | 4 | 8 | 1 | 9 | 1 | 2 | 5 | 7 | 5 | 6 | 8 | 6 | 5 | 8 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |

NONE

GENITAL SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Coagulating Gland | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| Epididymis | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Preputial Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Prostate | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Adenoma | | | | | | | | | | | | | | | | | | | | | X | X | 2 | |
| Adenoma, Multiple | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| Seminal Vesicle | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Testes | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Interstitial Cell, Adenoma | | | | | | | | | | | | | | | X | 2 | | | | | | | | |

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|----|----|
| Bone Marrow | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Lymph Node | | | | | | | + | | | | | | | + | | | | | | | 5 | | | | | |
| Lymph Node, Bronchial | + | + | + | M | + | + | + | M | M | + | + | + | + | + | M | M | + | + | + | + | + | M | + | + | M | 35 |
| Lymph Node, Mandibular | + | + | + | + | M | + | + | M | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | 45 | |
| Lymph Node, Mediastinal | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | 49 | |
| Lymph Node, Mesenteric | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS MALE
100 mg/m3 | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|---|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | 0729 | |
| ANIMAL ID | 00634 | 00663 | 00664 | 00664 | 00669 | 00670 | 00677 | 00679 | 00685 | 00689 | 00694 | 00698 | 00704 | 00708 | 00713 | 00719 | 00725 | 00731 | 00737 | 00743 | 00749 | 00755 | 00761 | 00767 | |
| Hemangiosarcoma | | | | | | | | | | | | | | | | | | X | | X | | | | | 2 |
| Spleen | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Hemangiosarcoma | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Sarcoma | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Thymus | + | + | + | + | + | + | | I | I | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 46 | |
| Thymoma Benign | | | | | | X | | | | | | | | | | | | | | | | | | 1 | |
| Thymoma Malignant | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| INTEGUMENTARY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mammary Gland | M | M | M | M | M | M | M | M | + | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | 4 |
| Skin | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Subcutaneous Tissue, Fibroma | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| Subcutaneous Tissue, Hemangiopericytoma | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| Subcutaneous Tissue, Hemangiosarcoma | | | | | | | | | | | | | | | | | | | | | | | X | 1 | |
| Subcutaneous Tissue, Lipoma | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| Subcutaneous Tissue, Liposarcoma | | | | | | | | | X | | | | | | | | | | | | | | | 1 | |
| MUSCULOSKELETAL SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bone | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Osteosarcoma | | | | | | | | | | | | | | | | | | | | | | | | 2 | |
| Sarcoma, Metastatic, Salivary Glands | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| NERVOUS SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brain | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Granular Cell Tumor Benign | | | | | | | | | | | | | | | X | | | | | | | | | 1 | |
| Sarcoma, Metastatic, Salivary Glands | | | | | | | | | | | | | | | | | | | | | | | | 1 | |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS MALE
100 mg/m3 | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|-----------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|
| | 0
7
2
9 | 0
7
2
9 | 0
7
2
9 | 0
7
2
9 | 0
7
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7
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9 | 0
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9 | 0
7
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9 | 0
7
2
9 | 0
7
2
9 | 0
7
2
9 | 0
7
2
9 | | |
| ANIMAL ID | 0
0
6
3
4 | 0
0
6
3
5 | 0
0
6
4
3 | 0
0
6
4
6 | 0
0
6
4
9 | 0
0
6
5
0 | 0
0
6
0
7 | 0
0
6
0
9 | 0
0
6
1
5 | 0
0
6
1
9 | 0
0
6
2
4 | 0
0
6
2
8 | 0
0
6
3
1 | 0
0
6
3
9 | 0
0
6
4
1 | 0
0
6
4
2 | 0
0
6
4
5 | 0
0
6
4
7 | 0
0
6
0
5 | 0
0
6
0
6 | 0
0
6
1
8 | 0
0
6
2
5 | 0
0
6
3
7 | 0
0
6
4
6 | |

Peripheral Nerve 6
 Spinal Cord 6

RESPIRATORY SYSTEM

Larynx 50
 Sarcoma, Metastatic, Salivary Glands 1
 Lung 50
 Osteosarcoma, Metastatic, Bone 1
 Sarcoma, Metastatic, Salivary Glands 1
 Nose 50
 Sarcoma, Metastatic, Salivary Glands 1
 Trachea 50
 Sarcoma, Metastatic, Salivary Glands 1

SPECIAL SENSES SYSTEM

Eye 50
 Harderian Gland 50
 Sarcoma, Metastatic, Salivary Glands 1

URINARY SYSTEM

Kidney 50
 Lipoma 1
 Urinary Bladder 49

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)

Metal working fluids (CIMSTAR 3800)

CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014

Time Report Requested: 12:32:34

First Dose M/F: 04/14/08 / 04/14/08

Lab: BNW

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|---|
| DAY ON TEST | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | * TOTALS | |
| WISTAR HAN RATS MALE | | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | | |
| 100 mg/m3 | | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| ANIMAL ID | | 9 | 9 | 9 | 9 | 9 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | | |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | | |
| | | 3 | 3 | 4 | 4 | 4 | 5 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 1 | 2 | 3 | | 4 |
| | | 4 | 5 | 3 | 6 | 9 | 0 | 7 | 9 | 5 | 9 | 4 | 8 | 1 | 9 | 1 | 2 | 5 | 7 | 5 | 6 | 8 | 6 | 5 | 7 | | 8 |

SYSTEMIC LESIONS

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Multiple Organ | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Lymphoma Malignant | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Mesothelioma Malignant | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |

*** END OF MALE DATA ***

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

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

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Esophagus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Colon | + | + | + | + | + | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | A | + | + | + | + | + | I | + | + | + | + | + | + | + | + |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Liver | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Mesentery | | | | | | | | | | | | | | | | | | + | | + | | | |
| Pancreas | + | + | + | + | + | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Stomach, Forestomach
Leiomyosarcoma | + | + | + | + | + | + | + | + | + | + | X | + | + | + | + | + | + | + | + | + | + | + | + |
| Stomach, Glandular
Leiomyosarcoma | + | + | + | + | + | + | + | + | + | + | X | + | + | + | + | + | + | + | + | + | + | + | + |
| Tongue | | | | | | | | | | | | | | | | | | | | | | | |

CARDIOVASCULAR SYSTEM

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

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

| | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Heart | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |

ENDOCRINE SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| Adrenal Cortex
Adenoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Adrenal Medulla
Pheochromocytoma Benign
Pheochromocytoma Malignant | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | |
| Islets, Pancreatic
Adenoma | + | + | + | + | + | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Parathyroid Gland | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | M | + | + | + | + | + | + | |
| Pituitary Gland
Pars Distalis, Adenoma
Pars Intermedia, Adenoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Thyroid Gland
C-cell, Adenoma
Follicular Cell, Adenoma
Follicular Cell, Carcinoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE
Control | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | ANIMAL ID | females
(cont...) |
|-----------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-----------------------|-----------|----------------------|
| | 0
4
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6 | 0
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9 | 0
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9 | 0
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9 | 0
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4
5 | 0
6
9
0 | 0
6
9
8 | 0
7
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3 | 0
7
0
3 | 0
7
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9 | 0
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1 | 0
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1 | 0
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3
1 | 0
7
3
1 | 0
7
3
1 | 0
7
3
1 | | | |
| | 0 | 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
3
7 | | |

| | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| Clitoral Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Ovary | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Granulosa Cell Tumor Benign | | | | | | | | | | | | | | | | | | | | | | | | |
| Uterus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Polyp Stromal | | | | | | | | | | | | | | X | | | | | | | X | | | |
| Polyp Stromal, Multiple | | | | | | | | | | | | | | | | | | | | | | X | | |
| Sarcoma Stromal | | | | X | | | | | | | | | | X | | | | | | | | | | |
| Endometrium, Adenocarcinoma | | | | | | | | | | | | | | | | | | | | | | | X | |
| Endometrium, Squamous Cell Papilloma | | | | | | | | | | | | | | | | | | | | | | | | |

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| Bone Marrow | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Lymph Node | | | | | | | | | | | | | | | | | | | | | | + | + | | |
| Lymph Node, Bronchial | + | + | + | + | M | M | + | M | + | + | + | + | M | + | + | + | + | + | M | M | + | M | + | M | |
| Lymph Node, Mandibular | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Lymph Node, Mediastinal | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Lymph Node, Mesenteric Hemangiosarcoma | + | + | + | + | + | + | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Spleen | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Thymus | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | | |
| Thymoma Benign | | | | X | X | | | | | | | | | | | | | | X | X | | | X | | |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

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

INTEGUMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mammary Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Adenoma | | | | | | | | | X | | | | | | | | | | | | X | | |
| Carcinoma | | | | | | | | | | | X | | | | | | | | | | | | X |
| Carcinoma, Multiple | | | | | | | | | | | | | | | | | | | | | | | |
| Fibroadenoma | | | | | | | | X | | | | X | | | | | | | | | | | |
| Fibroadenoma, Multiple | | | | | | | | | | | X | | | | X | | | | | | | | |
| Skin | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Subcutaneous Tissue, Liposarcoma | | | | | | | | | | | | | | | | | | | | | | | |

MUSCULOSKELETAL SYSTEM

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

NERVOUS SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Brain | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Granular Cell Tumor Benign | | | | | | | | | | | | | | | | | | | | | | | |
| Peripheral Nerve | | | | + | | | | | | | | | | + | | | | | | | | | |
| Spinal Cord | | | | + | | | | | | | | | | + | | | | | | | | | |

RESPIRATORY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Larynx | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Lung | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Nose | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | females
(cont...) |
|------------------------------|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|----------------------|
| | 0
4 | 0
4 | 0
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5 | 0
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6 | 0
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6 | 0
6 | 0
6 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | 0
7 | | |
| Control | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 2 | 9 | 8 | 9 | 1 | 1 | 1 | 1 | 4 | 9 | 9 | 0 | 0 | 0 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | |
| | 3 | 2 | 1 | 0 | 0 | 3 | 3 | 4 | 1 | 0 | 2 | 2 | 4 | 4 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | | |
| | 7 | 8 | 3 | 1 | 3 | 0 | 3 | 0 | 6 | 6 | 3 | 4 | 3 | 9 | 0 | 5 | 7 | 8 | 1 | 2 | 5 | 9 | 2 | | |
| Trachea | + | + | + | + | + | + | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eye | + | + | + | + | + | + | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| Harderian Gland | + | + | + | + | + | + | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| URINARY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kidney | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| Renal Tubule, Adenoma | | | | | | | | | | | | | | | | | | | | | | | | | |
| Urinary Bladder | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| SYSTEMIC LESIONS | | | | | | | | | | | | | | | | | | | | | | | | | |
| Multiple Organ | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| Lymphoma Malignant | | | | | | | | | | | | | | | | | | | | | X | + | X | | |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | 0
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3
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2 | 0
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7
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3 | | |
| Control | ANIMAL ID | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0
0
1
4
6 | 0
0
1
0
2 | 0
0
1
0
4 | 0
0
1
0
9 | 0
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1
1
7 | 0
0
1
1
8 | 0
0
1
2
0 | 0
0
1
2
7 | 0
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3
2 | 0
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3
4 | 0
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5 | 0
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6 | 0
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7 | 0
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8 | 0
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4 | 0
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1
1
2 | 0
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2 | 0
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1
3
9 | 0
0
1
4
9 | 0
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1
4
2 | 0
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1
4
4 | 0
0
1
5
0 |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| Esophagus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| Intestine Large, Colon | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| Intestine Large, Rectum | + | + | + | I | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | I | + | + | 46 |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| Liver | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Mesentery | | + | | + | | + | | + | | + | | + | | + | | + | | + | | + | | + | | + | 7 |
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Stomach, Forestomach
Leiomyosarcoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50
1 |
| Stomach, Glandular
Leiomyosarcoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50
1 |
| Tongue | | | | + | | | | | | | | | | | | | | | | | | | | | 1 |

CARDIOVASCULAR SYSTEM

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS | |
|----------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|-----------------------|
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3
1 | 0
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2 | 0
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3 | | |
| Control | ANIMAL ID | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS | |
| | 0
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1
4
6 | 0
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1
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2 | 0
0
1
0
4 | 0
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1
0
9 | 0
0
1
1
7 | 0
0
1
1
8 | 0
0
1
2
0 | 0
0
1
2
7 | 0
0
1
3
2 | 0
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4 | 0
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6 | 0
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5 | 0
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7 | 0
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4 | 0
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1 | 0
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5 | 0
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6 | 0
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1
2
9 | 0
0
1
3
9 | 0
0
1
4
2 | 0
0
1
4
4 | | 0
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1
5
0 |
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Heart | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| ENDOCRINE SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adrenal Cortex | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Adenoma | | | | | | | | | | | | X | | | | | | | X | | | | | 2 | | |
| Adrenal Medulla | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | | |
| Pheochromocytoma Benign | | | X | | | | | | | | | | | | | | | | | | | | | 1 | | |
| Pheochromocytoma Malignant | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| Islets, Pancreatic | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | | |
| Adenoma | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| Parathyroid Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | 47 | | |
| Pituitary Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Pars Distalis, Adenoma | X | | X | X | | X | X | X | | | | | | X | X | X | X | X | X | X | X | X | X | 35 | | |
| Pars Intermedia, Adenoma | | | | | | | | | | | | | | | X | | | | | | | | | 1 | | |
| Thyroid Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| C-cell, Adenoma | | | | | | | | | | | | | | | | | | | | | | | | 3 | | |
| Follicular Cell, Adenoma | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| Follicular Cell, Carcinoma | | | | | | | | | | | | | | | | | | | | | | | X | 1 | | |

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE
Control | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|
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| ANIMAL ID | 0
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1
4
6 | 0
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0
2 | 0
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4 | 0
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1
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9 | 0
0
1
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7 | 0
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8 | 0
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1
2
7 | 0
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2 | 0
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4 | 0
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7 | 0
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4
8 | 0
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1
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4 | 0
0
1
4
0 | |
| Clitoral Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Ovary | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Granulosa Cell Tumor Benign | | | | | | | | | | | | | | | | | | | | | | X | | 1 | |
| Uterus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Polyp Stromal | | | | | | | | | | | | | | | | | | | | | | | X | 4 | |
| Polyp Stromal, Multiple | | | | | | | | | | | | X | | | | | | | | | | | | 1 | |
| Sarcoma Stromal | | | | | | | | | | | | | | | | | | | | | | | | 2 | |
| Endometrium, Adenocarcinoma | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| Endometrium, Squamous Cell Papilloma | | | | X | | | | | | | | | | | | | | | | | | | | 1 | |
| HEMATOPOIETIC SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bone Marrow | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Lymph Node | | | | | | | | | | | | | | | | | | | | | | | | 2 | |
| Lymph Node, Bronchial | M | M | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | M | + | + | 38 | |
| Lymph Node, Mandibular | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | 49 | |
| Lymph Node, Mediastinal | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | |
| Lymph Node, Mesenteric Hemangiosarcoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | X | 49 | |
| Spleen | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Thymus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 48 | |
| Thymoma Benign | | | | | | | | | | | | | | | | | | | | | | | | 5 | |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
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| Control | 0
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7 | 0
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8 | 0
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1 | 0
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5 | 0
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6 | 0
0
1
2
9 | 0
0
1
3
9 | 0
0
1
4
2 | 0
0
1
4
4 | 0
0
1
5
0 |

INTEGUMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Mammary Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Adenoma | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| Carcinoma | | | | | | | X | | | | | | | | | | | | | | | | | | 3 |
| Carcinoma, Multiple | | | | | | | | | | | | | | | | | | | | X | | | | | 1 |
| Fibroadenoma | X | | | | | | | | | | | X | X | | | | | | | X | | | | | 6 |
| Fibroadenoma, Multiple | | | | | | | | | | | | | | | | | | | | | | | | | 3 |
| Skin | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Subcutaneous Tissue, Liposarcoma | | | | | | | | | | | | | | X | | | | | | | | | | | 1 |

MUSCULOSKELETAL SYSTEM

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

NERVOUS SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Brain | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Granular Cell Tumor Benign | | | | | | X | | | | | | | X | | | | | | | | | | | | 2 |
| Peripheral Nerve | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| Spinal Cord | | | | | | | | | | | | | | | | | | | | | | | | | 2 |

RESPIRATORY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Larynx | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Lung | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Nose | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|------------------------------|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|----------|
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Control | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | |
| | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 4 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 1 | 2 | 2 | 2 | 2 | 3 | 4 | 4 | | |
| 6 | 2 | 4 | 9 | 7 | 8 | 0 | 7 | 2 | 4 | 5 | 6 | 1 | 5 | 7 | 8 | 4 | 1 | 5 | 6 | 9 | 9 | 2 | 4 | | |
| Trachea | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eye | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | |
| Harderian Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | |
| URINARY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kidney | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Renal Tubule, Adenoma | | | | | | | | | | | | | | | | | | | | | | X | | 1 | |
| Urinary Bladder | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| SYSTEMIC LESIONS | | | | | | | | | | | | | | | | | | | | | | | | | |
| Multiple Organ | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Lymphoma Malignant | | | | | | | | | | | | | | | | | | | | | | | | 2 | |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | females
(cont...) |
|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------|
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7 | |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Esophagus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Colon | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Liver
Hepatocellular Adenoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Mesentery | | + | | + | | | | | + | | | | | | | | | | | | | | | |
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | ANIMAL ID | females
(cont...) | | | | | | | |
|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
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| 10 mg/m3 | 0
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Heart +

ENDOCRINE SYSTEM

Adrenal Cortex Adenoma +
 Adrenal Medulla Pheochromocytoma Malignant +
 Islets, Pancreatic +
 Parathyroid Gland M + M + + + + + + + +
 Pituitary Gland Pars Distalis, Adenoma +
 Thyroid Gland C-cell, Adenoma +
 Follicular Cell, Carcinoma X

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Clitoral Gland + + + + + + + + + + + + + + + M + + + + + + + + + + + +
 Ovary Granulosa Cell Tumor Malignant +
 Uterus +

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE
10 mg/m3 | DAY ON TEST | | | | | | | | | | | | | | | | | | | | ANIMAL ID | females
(cont...) | |
|------------------------------------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----------|----------------------|------|
| | 0481 | 0483 | 0485 | 0486 | 0488 | 0489 | 0490 | 0491 | 0492 | 0493 | 0494 | 0495 | 0496 | 0497 | 0498 | 0499 | 0500 | 0501 | 0502 | 0503 | | | 0504 |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0030 | |
| | 4 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 0033 | |
| | 8 | 3 | 3 | 4 | 6 | 0 | 1 | 2 | 3 | 3 | 5 | 8 | 8 | 8 | 8 | 8 | 0 | 2 | 3 | 3 | 3 | 0034 | |
| | 1 | 0 | 0 | 4 | 8 | 3 | 9 | 7 | 3 | 3 | 3 | 1 | 3 | 3 | 4 | 7 | 3 | 9 | 1 | 1 | 1 | 0036 | |

Polyp Stromal
 Endometrium, Adenocarcinoma

X

X

Vagina
 Squamous Cell Carcinoma

+
 X

HEMATOPOIETIC SYSTEM

Bone Marrow

+ +

Lymph Node

+ +

Lymph Node, Bronchial

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

Lymph Node, Mandibular

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

Lymph Node, Mediastinal

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

Lymph Node, Mesenteric
 Hemangiosarcoma

+ +

Spleen

+ +

Thymus
 Thymoma Benign

+ M
 X

INTEGUMENTARY SYSTEM

Mammary Gland

+ +

Adenoma

Carcinoma

Fibroadenoma

Fibroadenoma, Multiple

X X X X X X X X X

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
Test Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY
Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)

Metal working fluids (CIMSTAR 3800)

CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014

Time Report Requested: 12:32:34

First Dose M/F: 04/14/08 / 04/14/08

Lab: BNW

| DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | |
|-------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WISTAR HAN RATS FEMALE | 4 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | | | | |
| 10 mg/m3 | 8 | 3 | 3 | 4 | 6 | 0 | 1 | 2 | 3 | 3 | 5 | 8 | 8 | 8 | 8 | 8 | 0 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | | | |
| ANIMAL ID | 1 | 0 | 0 | 4 | 8 | 3 | 9 | 7 | 3 | 3 | 3 | 1 | 3 | 3 | 3 | 4 | 7 | 3 | 9 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | 0 | 3 | 4 | 4 | 0 | 3 | 2 | 2 | 0 | 3 | 3 | 4 | 0 | 0 | 4 | 2 | 0 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | |
| | 6 | 5 | 0 | 4 | 9 | 0 | 2 | 8 | 3 | 4 | 9 | 1 | 4 | 5 | 2 | 1 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 7 | 0 | 2 | 7 | 0 | 1 | 3 | 3 | 7 | 3 | 7 | 3 | 7 | 3 | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Skin | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Subcutaneous Tissue, Sarcoma | X | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MUSCULOSKELETAL SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bone | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Skeletal Muscle | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NERVOUS SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brain | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Granular Cell Tumor Benign | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peripheral Nerve | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Spinal Cord | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RESPIRATORY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Larynx | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Lung | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Squamous Cell Carcinoma | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nose | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Trachea | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eye | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |

females
(cont...)

* .. Total animals with tissue examined microscopically; Total animals with tumor
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | females
(cont...) |
|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
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Harderian Gland

+ +

URINARY SYSTEM

Kidney
 Transitional Epithelium, Papilloma

+
 X

Urinary Bladder

+ +

SYSTEMIC LESIONS

Multiple Organ
 Mesothelioma Malignant

+
 X

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
Test Type: CHRONIC
Route: RESPIRATORY EXPOSURE WHOLE BODY
Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
Metal working fluids (CIMSTAR 3800)
CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
Time Report Requested: 12:32:34
First Dose M/F: 04/14/08 / 04/14/08
Lab: BNW

| DAY ON TEST | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|------------------------|-----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|---|
| WISTAR HAN RATS FEMALE | ANIMAL ID | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 10 mg/m3 | ANIMAL ID | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | | 3 | 4 | 4 | 5 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 4 | 4 | 4 | 4 | 0 | 1 | 2 |
| | | 8 | 6 | 7 | 0 | 7 | 8 | 1 | 3 | 5 | 6 | 8 | 9 | 3 | 6 | 7 | 9 | 6 | 3 | 5 | 8 | 9 | 1 | 4 |
| | | | | | | | | | | | | | | | | | | | | | | | * TOTALS | |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------|
| Esophagus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Large, Colon | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Liver | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Hepatocellular Adenoma | | | | X | | | | | | | | | | | | | | | | | | | | 2 |
| Mesentery | + | | | | + | | | | | | + | | | | | + | | | | | | | | 8 |
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------|
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------|

* .. Total animals with tissue examined microscopically; Total animals with tumor
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE
10 mg/m3 | DAY ON TEST | | | | | | | | | | | | | | | | | | | | * TOTALS | |
|--|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------------|
| | 0731 | 0731 | 0731 | 0731 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | | 0732 |
| ANIMAL ID | 003338 | 003338 | 003338 | 003338 | 003338 | 003338 | 003338 | 003338 | 003338 | 003338 | 003338 | 003338 | 003338 | 003338 | 003338 | 003338 | 003338 | 003338 | 003338 | 003338 | 003338 | |
| Heart | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ENDOCRINE SYSTEM | | | | | | | | | | | | | | | | | | | | | | |
| Adrenal Cortex
Adenoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50
2 |
| Adrenal Medulla
Pheochromocytoma Malignant | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50
1 |
| Islets, Pancreatic | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Parathyroid Gland | + | + | + | + | + | M | + | + | M | + | + | + | + | + | + | + | + | M | + | + | + | 44 |
| Pituitary Gland
Pars Distalis, Adenoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50
33 |
| Thyroid Gland
C-cell, Adenoma
Follicular Cell, Carcinoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50
2
1 |
| GENERAL BODY SYSTEM | | | | | | | | | | | | | | | | | | | | | | |
| NONE | | | | | | | | | | | | | | | | | | | | | | |
| GENITAL SYSTEM | | | | | | | | | | | | | | | | | | | | | | |
| Clitoral Gland | + | + | + | + | + | + | + | + | + | + | + | I | + | + | + | M | + | + | + | + | + | 46 |
| Ovary
Granulosa Cell Tumor Malignant | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50
2 |
| Uterus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE
10 mg/m3 | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|------------------------------------|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|
| | 0731 | 0731 | 0731 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | |
| ANIMAL ID | 003338 | 003334 | 003334 | 003335 | 003337 | 003338 | 003339 | 003341 | 003343 | 003345 | 003346 | 003348 | 003349 | 003351 | 003352 | 003353 | 003354 | 003355 | 003356 | 003357 | 003358 | 003359 | 003360 | 003361 | |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|--|--|--|--|--|--|---|--|--|--|--|--|--|--|---|---|--|--|--|--|--|--|--|---|
| Polyp Stromal Endometrium, Adenocarcinoma | X | | | | | | | X | | | | | | | | X | X | | | | | | | | 6 |
| Vagina Squamous Cell Carcinoma | | | | | | | | | | | | | | | | | | | | | | | | | 1 |

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|----|
| Bone Marrow | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Lymph Node | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| Lymph Node, Bronchial | + | + | M | M | + | + | + | + | + | + | M | M | + | + | M | M | + | M | M | + | M | + | + | + | 35 |
| Lymph Node, Mandibular | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | 47 |
| Lymph Node, Mediastinal | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | M | + | + | + | + | 46 |
| Lymph Node, Mesenteric Hemangiosarcoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| | | | | X | | | | | | | | | | | | | | | | | | | | 1 | |
| Spleen | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Thymus Thymoma Benign | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 48 | |
| | | | | X | | | | | | | X | | | | | | | | | | X | | | 4 | |

INTEGUMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Mammary Gland Adenoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Carcinoma | | | | X | | | | | | | | | | | | | | | | | | | | | 1 |
| Fibroadenoma | X | | | | | | | | | X | | | | X | X | | | | | X | | | X | 5 | |
| Fibroadenoma, Multiple | | | | | | | | | X | | | | X | X | | | | | X | | | | | 8 | |
| | | | | | | | | | | | | | | | | | | | X | | | | | 2 | |

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|--------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|
| | 0
7
3
1 | 0
7
3
1 | 0
7
3
1 | 0
7
3
1 | 0
7
3
2 | 0
7
3
2 | 0
7
3
2 | 0
7
3
2 | 0
7
3
2 | 0
7
3
2 | 0
7
3
2 | 0
7
3
2 | 0
7
3
2 | 0
7
3
2 | 0
7
3
2 | 0
7
3
2 | 0
7
3
2 | 0
7
3
2 | 0
7
3
2 | 0
7
3
3 | 0
7
3
3 | 0
7
3
3 | 0
7
3
3 | | |
| 10 mg/m3 | ANIMAL ID | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
| | 0
0
3
3
8 | 0
0
3
4
6 | 0
0
3
4
7 | 0
0
3
5
0 | 0
0
3
0
7 | 0
0
3
0
8 | 0
0
3
1
1 | 0
0
3
1
3 | 0
0
3
1
5 | 0
0
3
1
6 | 0
0
3
1
8 | 0
0
3
1
9 | 0
0
3
2
3 | 0
0
3
2
6 | 0
0
3
2
7 | 0
0
3
2
9 | 0
0
3
3
6 | 0
0
3
3
3 | 0
0
3
3
5 | 0
0
3
3
8 | 0
0
3
3
9 | 0
0
3
4
1 | 0
0
3
4
4 | 0
0
3
4
5 | |
| Skin
Subcutaneous Tissue, Sarcoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50
2 | |
| MUSCULOSKELETAL SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bone | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Skeletal Muscle | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| NERVOUS SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brain
Granular Cell Tumor Benign | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50
1 | |
| Peripheral Nerve | | | | | | | | | | | | | | | | | | | | | | | | 9 | |
| Spinal Cord | | | | | | | | | | | | | | | | | | | | | | | | 9 | |
| RESPIRATORY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | |
| Larynx | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Lung
Squamous Cell Carcinoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50
1 | |
| Nose | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Trachea | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eye | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE
10 mg/m3 | DAY ON TEST | | ANIMAL ID | | | | | | | | | | | | | | | | | | | | * TOTALS | | | | |
|------------------------------------|-------------|------|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|----------|------|------|--|--|
| | 0731 | 0731 | 0731 | 0731 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | | 0732 | 0732 | | |
| Harderian Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| URINARY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kidney | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Transitional Epithelium, Papilloma | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| Urinary Bladder | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| SYSTEMIC LESIONS | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Multiple Organ | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Mesothelioma Malignant | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | females
(cont...) |
|------------------------|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------------------|
| | 053 | 058 | 063 | 064 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | |
| 30 mg/m3 | 003 | 003 | 003 | 003 | 003 | 003 | 003 | 003 | 003 | 003 | 003 | 003 | 003 | 003 | 003 | 003 | 003 | 003 | 003 | 003 | 003 | 003 | 003 | 003 | |
| ANIMAL ID | 553 | 553 | 553 | 553 | 553 | 553 | 553 | 553 | 553 | 553 | 553 | 553 | 553 | 553 | 553 | 553 | 553 | 553 | 553 | 553 | 553 | 553 | 553 | 553 | |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Esophagus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Colon | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Liver
Hepatocellular Adenoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | X | + |
| Mesentery | | + | | | | | | | | | | + | | | | | | | | | | | + |
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

M .. Missing tissue
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Experiment Number: 20515 - 03

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)

Metal working fluids (CIMSTAR 3800)

CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014

Time Report Requested: 12:32:34

First Dose M/F: 04/14/08 / 04/14/08

Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | ANIMAL ID | females
(cont...) |
|------------------------|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------|----------------------|
| | 053 | 058 | 063 | 064 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | 066 | | |
| 30 mg/m3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00533 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00553 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00555 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00557 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00558 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00559 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00560 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00561 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00562 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00563 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00564 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00565 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00566 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00567 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00568 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00569 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00570 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00571 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00572 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00573 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00574 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00575 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00576 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00577 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00578 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00579 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00580 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00581 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00582 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00583 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00584 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00585 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00586 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00587 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00588 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00589 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00590 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00591 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00592 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00593 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00594 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00595 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00596 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00597 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00598 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00599 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00600 | |

Heart
Chemodectoma Benign
Hemangioma

+
X

ENDOCRINE SYSTEM

Adrenal Cortex
Adenoma

+
X

Adrenal Medulla
Pheochromocytoma Benign

+
X

Islets, Pancreatic

+ +

Parathyroid Gland

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

Pituitary Gland
Pars Distalis, Adenoma

+
X X

Thyroid Gland
C-cell, Adenoma
Follicular Cell, Adenoma

+
X

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Clitoral Gland

+ +

Ovary

+ +

* .. Total animals with tissue examined microscopically; Total animals with tumor
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | females
(cont...) |
|------------------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------------------|
| | 05333 | 05511 | 06602 | 06644 | 06666 | 06666 | 06666 | 06666 | 06666 | 06666 | 06666 | 06666 | 06666 | 06666 | 06666 | 06666 | 06666 | 06666 | 06666 | 06666 | 06666 | 06666 | 06666 | 06666 | |
| 30 mg/m3 | 00333 | 00551 | 00660 | 00664 | 00666 | 00666 | 00666 | 00666 | 00666 | 00666 | 00666 | 00666 | 00666 | 00666 | 00666 | 00666 | 00666 | 00666 | 00666 | 00666 | 00666 | 00666 | 00666 | 00666 | |
| | 00555 | 00555 | 00555 | 00555 | 00555 | 00555 | 00555 | 00555 | 00555 | 00555 | 00555 | 00555 | 00555 | 00555 | 00555 | 00555 | 00555 | 00555 | 00555 | 00555 | 00555 | 00555 | 00555 | 00555 | |
| | 00331 | 00333 | 00332 | 00335 | 00330 | 00330 | 00333 | 00331 | 00334 | 00330 | 00333 | 00330 | 00332 | 00330 | 00331 | 00331 | 00331 | 00331 | 00331 | 00332 | 00332 | 00333 | 00334 | 00334 | |
| | 00337 | 00338 | 00330 | 00330 | 00337 | 00332 | 00332 | 00334 | 00333 | 00334 | 00330 | 00333 | 00334 | 00336 | 00339 | 00333 | 00335 | 00336 | 00339 | 00333 | 00339 | 00337 | 00332 | 00336 | |

Granulosa Cell Tumor Benign

| | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Uterus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Fibroma | | | | | | | | | | | | | | | | | | | | | | | X |
| Leiomyoma | | | | | | | | | | | | | | | | | | X | | | | | |
| Polyp Stromal | | | | | X | | | | | | | | | | | | | | | | | | |
| Endometrium, Adenocarcinoma | | | | | X | | | | | | | | | | | | | | | | | | |

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bone Marrow | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Lymph Node | | | | | | | | + | | | | | | | | | | | | | | | |
| Lymph Node, Bronchial | + | + | + | + | M | + | M | + | + | M | + | + | M | M | M | + | + | + | + | + | + | M | + |
| Lymph Node, Mandibular | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + |
| Lymph Node, Mediastinal | + | + | M | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Lymph Node, Mesenteric Hemangiosarcoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Spleen | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Thymus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + |
| Thymoma Benign | | | | | | | | | | | | | X | X | | | | | | | | | X |

INTEGUMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mammary Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Adenoma | | | | | | | | | | | | | | | | | | | | | | | |
| Carcinoma | | | | | | | X | | | | | | | | | | | | | | | | X |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE
30 mg/m3 | DAY ON TEST | | | | | | | | | | | | | | | | | | | | ANIMAL ID | females
(cont...) |
|------------------------------------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----------|----------------------|
| | 0563 | 0558 | 0663 | 0664 | 0665 | 0666 | 0667 | 0668 | 0669 | 0670 | 0671 | 0672 | 0673 | 0674 | 0675 | 0676 | 0677 | 0678 | 0679 | 0680 | | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0563 | females
(cont...) |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0558 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0663 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0664 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0665 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0666 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0667 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0668 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0669 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0670 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0671 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0672 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0673 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0674 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0675 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0676 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0677 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0678 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0679 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0680 | |
| Carcinoma, Multiple | | | | | | | | | X | | | | | | | | | | | X | | |
| Fibroadenoma | | | | | | | | | | | | | | | | X | X | | | | | |
| Fibroadenoma, Multiple | | | | X | | | | X | X | | | | | | | | | | | | | |
| Skin | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| MUSCULOSKELETAL SYSTEM | | | | | | | | | | | | | | | | | | | | | | |
| Bone | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| NERVOUS SYSTEM | | | | | | | | | | | | | | | | | | | | | | |
| Brain | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Peripheral Nerve | | + | | + | | | | | | + | | | | + | | | | | | | | |
| Spinal Cord | | + | | + | | | | | | + | | | | + | | | | | | | | |
| RESPIRATORY SYSTEM | | | | | | | | | | | | | | | | | | | | | | |
| Larynx | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Lung | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Nose | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Trachea | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | | | | | | | | |
| Eye | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Harderian Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

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 Metal working fluids (CIMSTAR 3800)
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 Lab: BNW

| | | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | females
(cont...) |
|-------------------------------|-----------------|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------------------|
| WISTAR HAN RATS FEMALE | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | |
| | 30 mg/m3 | 6 | 9 | 0 | 4 | 4 | 6 | 7 | 8 | 8 | 8 | 9 | 0 | 0 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | ANIMAL ID | 3 | 8 | 3 | 2 | 6 | 0 | 3 | 1 | 3 | 4 | 0 | 5 | 8 | 9 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | | |
| | | 3 | 1 | 3 | 2 | 5 | 0 | 0 | 3 | 1 | 4 | 0 | 3 | 0 | 2 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | | |
| | | 3 | 7 | 8 | 0 | 0 | 7 | 2 | 2 | 4 | 3 | 4 | 0 | 3 | 4 | 6 | 9 | 3 | 5 | 6 | 9 | 3 | 9 | | |

URINARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kidney | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Urinary Bladder | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |

SYSTEMIC LESIONS

| | | | | | | | | | | | | | | | | | | | | | | | |
|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Multiple Organ | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

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 Metal working fluids (CIMSTAR 3800)
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Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| DAY ON TEST | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | * TOTALS | |
|------------------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------|--|
| WISTAR HAN RATS FEMALE | | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | | |
| 30 mg/m3 | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| ANIMAL ID | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | | |
| | | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | | |
| | | 1 | 5 | 8 | 1 | 2 | 1 | 5 | 6 | 7 | 4 | 9 | 1 | 4 | 5 | 8 | 9 | 0 | 8 | 2 | 8 | 1 | 5 | 6 | 0 | |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Esophagus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Large, Cecum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Large, Colon | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Large, Rectum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | I | + | I | I | + | + | + | + | 47 |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Small, Ileum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Intestine Small, Jejunum | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Liver | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Hepatocellular Adenoma | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Mesentery | | + | | | + | + | + | | | | + | | | | | | | | | | | | | | 8 |
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|------------------------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|----------|
| | 0732 | 0733 | 0732 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | 0733 | |
| 30 mg/m3 | 0050 | 0050 | 0050 | 0051 | 0052 | 0051 | 0055 | 0056 | 0057 | 0054 | 0059 | 0051 | 0054 | 0055 | 0058 | 0059 | 0050 | 0058 | 0052 | 0058 | 0051 | 0055 | 0056 | 0050 | |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Heart | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Chemodectoma Benign | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Hemangioma | | | | | | | X | | | | | | | | | | | | | | | | | | 1 |

ENDOCRINE SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Adrenal Cortex | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Adenoma | | | | X | | | | | | | | | | | | | | | | | | | | | 2 |
| Adrenal Medulla | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| Pheochromocytoma Benign | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Islets, Pancreatic | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Parathyroid Gland | M | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | M | + | + | M | + | M | + | 40 |
| Pituitary Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Pars Distalis, Adenoma | X | | X | X | X | | | | X | X | | X | | X | | X | X | X | X | X | X | X | X | X | 36 |
| Thyroid Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| C-cell, Adenoma | | | X | | | X | | | X | | | | | X | | | | | | | | | | | 4 |
| Follicular Cell, Adenoma | | | | | | X | X | | | | | | | | | | | | | | | | | | 3 |

GENERAL BODY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| NONE | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

GENITAL SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Clitoral Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Ovary | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|------------------------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|----------|
| | 0732 | 0733 | 0732 | 0733 | 0732 | 0733 | 0732 | 0733 | 0732 | 0733 | 0732 | 0733 | 0732 | 0733 | 0732 | 0733 | 0732 | 0733 | 0732 | 0733 | 0732 | 0733 | 0732 | 0733 | |
| 30 mg/m3 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | 0000 | |
| ANIMAL ID | 5001 | 5005 | 5008 | 5001 | 5002 | 5001 | 5005 | 5006 | 5007 | 5004 | 5009 | 5001 | 5004 | 5005 | 5008 | 5009 | 5000 | 5008 | 5002 | 5008 | 5001 | 5005 | 5006 | 5007 | |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Granulosa Cell Tumor Benign | | | | | | | | | | | | | | | | | | | | | | | | X | 1 |
| Uterus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Fibroma | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Leiomyoma | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Polyp Stromal | | | | | | | | | | | | | | X | | | | | | | | | | X | 3 |
| Endometrium, Adenocarcinoma | | | | | | | | | | | | | | | | | | | | | | | | | 1 |

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|----|
| Bone Marrow | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Lymph Node | | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| Lymph Node, Bronchial | + | + | M | + | + | + | + | + | + | M | M | + | M | + | M | M | + | M | M | + | M | + | M | M | 32 | |
| Lymph Node, Mandibular | + | + | M | + | + | + | + | + | + | I | + | + | + | + | + | M | + | + | + | + | + | + | M | M | 43 | |
| Lymph Node, Mediastinal | + | M | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | 45 | |
| Lymph Node, Mesenteric Hemangiosarcoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50
1 | |
| Spleen | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Thymus | + | I | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | M | M | 45 |
| Thymoma Benign | | | X | | | | | | | X | | | | | | | | | | | X | | X | | 7 | |

INTEGUMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Mammary Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Adenoma | | | | | | | | | | | | | | X | | | | | | | | | | | 1 |
| Carcinoma | | | | | | | | X | X | | | | | | | | | | | | | | X | | 5 |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | * TOTALS | | |
|-------------------------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|-------|---|
| | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | 0732 | | 0732 | |
| 30 mg/m3 | ANIMAL ID | | | | | | | | | | | | | | | | | | | | * TOTALS | | |
| | 00501 | 00501 | 00501 | 00501 | 00501 | 00501 | 00501 | 00501 | 00501 | 00501 | 00501 | 00501 | 00501 | 00501 | 00501 | 00501 | 00501 | 00501 | 00501 | 00501 | | 00501 | |
| Carcinoma, Multiple | | | | X | | | | | | | | | | | | | | X | | | | 4 | |
| Fibroadenoma | | | | X | | X | | | X | | | | X | | | | | | X | | X | | 9 |
| Fibroadenoma, Multiple | | | | | | | | | | | | | X | | | | | | | | | 4 | |
| Skin | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| MUSCULOSKELETAL SYSTEM | | | | | | | | | | | | | | | | | | | | | | | |
| Bone | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| NERVOUS SYSTEM | | | | | | | | | | | | | | | | | | | | | | | |
| Brain | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Peripheral Nerve | | | | | | | | | | | | | | | | | | | | | | 5 | |
| Spinal Cord | | | | | | | | | | | | | | | | | | | | | | 5 | |
| RESPIRATORY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | |
| Larynx | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Lung | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Nose | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Trachea | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | | | | | | | | | |
| Eye | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Harderian Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| | | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|-------------------------------|-----------------|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----------|
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| WISTAR HAN RATS FEMALE | | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| | 30 mg/m3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | | 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 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| | | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 1 | 1 | 2 | 2 | 3 | 3 | 3 | 4 | 4 |
| | | 1 | 5 | 8 | 1 | 2 | 1 | 5 | 6 | 7 | 4 | 9 | 1 | 4 | 5 | 8 | 9 | 0 | 8 | 2 | 8 | 1 | 5 | 6 | 0 | 7 |

URINARY SYSTEM

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

SYSTEMIC LESIONS

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Multiple Organ | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | females
(cont...) | | |
|------------------------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|----------------------|------|------|
| | 0523 | 0528 | 0536 | 0533 | 0533 | 0535 | 0539 | 0535 | 0533 | 0533 | 0531 | 0531 | 0533 | 0533 | 0535 | 0537 | 0537 | 0539 | 0539 | 0537 | 0537 | 0533 | 0533 | 0531 | | 0531 | 0531 |
| 100 mg/m3 | 0070 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 | 0077 |
| ANIMAL ID | 831 | 731 | 220 | 220 | 101 | 202 | 303 | 020 | 233 | 331 | 330 | 106 | 330 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Esophagus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Cecum | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Colon | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Large, Rectum | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Duodenum | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Ileum | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Intestine Small, Jejunum | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Liver | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Mesentery | | | | | | | | | | | | + | | | | | | | | | | | | | | | |
| Oral Mucosa | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Adenocarcinoma, Metastatic, Uterus | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Salivary Glands | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Stomach, Forestomach | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Stomach, Glandular | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |

CARDIOVASCULAR SYSTEM

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | | females
(cont...) |
|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
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|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Heart | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |

ENDOCRINE SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Adrenal Cortex
Adenoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Adrenal Medulla | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Islets, Pancreatic | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Parathyroid Gland | + | + | + | + | + | M | + | + | + | M | + | + | + | M | + | + | + | M | + | + | + | + | + | + | + | + | + |
| Pituitary Gland
Pars Distalis, Adenoma
Pars Intermedia, Adenoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Thyroid Gland
C-cell, Adenoma
C-cell, Carcinoma
Follicular Cell, Adenoma | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Clitoral Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Ovary | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | females
(cont...) |
|------------------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------------------|
| | 0523 | 0526 | 0528 | 0530 | 0533 | 0535 | 0537 | 0539 | 0541 | 0543 | 0545 | 0547 | 0549 | 0551 | 0553 | 0555 | 0557 | 0559 | 0601 | 0603 | 0605 | 0607 | 0609 | 0611 | |
| 100 mg/m3 | 00708 | 00773 | 00772 | 00204 | 00133 | 00225 | 00309 | 00077 | 00234 | 00331 | 00041 | 00006 | 00003 | 00000 | 00007 | 00009 | 00011 | 00014 | 00019 | 00022 | 00025 | 00028 | 00032 | 00034 | |

Granulosa Cell Tumor Malignant

X

Uterus

+ +

Polyp Stromal

X

Polyp Stromal, Multiple

X

Sarcoma Stromal, Multiple

X

Endometrium, Adenocarcinoma

Endometrium, Malignant Mixed Mullerian Tumor

Vagina

Polyp

HEMATOPOIETIC SYSTEM

Bone Marrow

+ +

Lymph Node, Bronchial

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

Lymph Node, Mandibular

+ +

Lymph Node, Mediastinal

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

Lymph Node, Mesenteric

+ +

Spleen

+ +

Thymus

Thymoma Benign

+ M + +
 X X

INTEGUMENTARY SYSTEM

Mammary Gland

+ +

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | females
(cont...) |
|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
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| 100 mg/m3 | 0
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Adenoma
 Carcinoma X
 Carcinoma, Multiple X
 Fibroadenoma X X X
 Fibroadenoma, Multiple X X X

Skin +
 Keratoacanthoma X
 Squamous Cell Papilloma X
 Subcutaneous Tissue, Lipoma X

MUSCULOSKELETAL SYSTEM

Bone +

NERVOUS SYSTEM

Brain +
 Granular Cell Tumor Benign
 Granular Cell Tumor Malignant X
 Oligodendroglioma Malignant X
 Peripheral Nerve + + + + +
 Spinal Cord + + + + +

RESPIRATORY SYSTEM

Larynx +
 Lung +
 Alveolar/Bronchiolar Adenoma

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE
100 mg/m3 | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | females
(cont...) | |
|-------------------------------------|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------------------|--|
| | 0523 | 0556 | 0663 | 0663 | 0665 | 0666 | 0666 | 0666 | 0666 | 0666 | 0666 | 0666 | 0666 | 0666 | 0666 | 0666 | 0666 | 0666 | 0666 | 0666 | 0666 | 0666 | 0666 | 0666 | | |
| ANIMAL ID | 007088 | 007088 | 007088 | 007088 | 007088 | 007088 | 007088 | 007088 | 007088 | 007088 | 007088 | 007088 | 007088 | 007088 | 007088 | 007088 | 007088 | 007088 | 007088 | 007088 | 007088 | 007088 | 007088 | 007088 | | |
| Nose | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Trachea | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eye | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Harderian Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Zymbal's Gland | | | | | | | | | | | | | | | | | | | | | | | | + | | |
| URINARY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kidney | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Urinary Bladder | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| SYSTEMIC LESIONS | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Multiple Organ | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE
100 mg/m3 | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|-------------------------------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|----------|
| | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | |
| ANIMAL ID | 00732 | 00734 | 00734 | 00734 | 00735 | 00737 | 00738 | 00735 | 00736 | 00735 | 00737 | 00736 | 00733 | 00736 | 00734 | 00739 | 00731 | 00738 | 00730 | 00737 | 00734 | 00735 | 00737 | 00738 | 00736 | |
| Blood Vessel | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Heart | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| ENDOCRINE SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adrenal Cortex Adenoma | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50
1 | |
| Adrenal Medulla | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | 49 | |
| Islets, Pancreatic | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Parathyroid Gland | M | + | + | + | + | + | I | + | + | + | M | + | + | + | + | + | + | + | + | + | + | M | + | + | 42 | |
| Pituitary Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Pars Distalis, Adenoma | | | | | | X | X | | | | X | X | | X | X | X | X | X | | | X | X | | X | 30 | |
| Pars Intermedia, Adenoma | | | | | X | | | | X | | | | | | | | | | | | | | | | 2 | |
| Thyroid Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | |
| C-cell, Adenoma | | | | | | | | | | | | | | | | | | | | | | X | | | 4 | |
| C-cell, Carcinoma | | | | | | | | | | | | | | X | | | | | | | | | | X | 3 | |
| Follicular Cell, Adenoma | | X | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| GENERAL BODY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NONE | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GENITAL SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Clitoral Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | |
| Ovary | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE
100 mg/m3 | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS |
|-------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
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|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Granulosa Cell Tumor Malignant | | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| Uterus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| Polyp Stromal | | | | | | | | | | | | | | | | | | | | | | | | | X | 3 |
| Polyp Stromal, Multiple | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Sarcoma Stromal, Multiple | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Endometrium, Adenocarcinoma | | | | | | | | | | | | | | | | | | | | | | | | | X | 2 |
| Endometrium, Malignant Mixed Mullerian Tumor | X | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Vagina | | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| Polyp | X | | | | | | | | | | | | | | | | | | | | | | | | | 1 |

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|
| Bone Marrow | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Lymph Node, Bronchial | + | M | M | + | M | + | + | + | M | M | + | + | + | + | + | + | + | + | + | M | + | + | M | + | 35 | |
| Lymph Node, Mandibular | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 | |
| Lymph Node, Mediastinal | + | + | + | I | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | 47 | |
| Lymph Node, Mesenteric | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Spleen | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Thymus | + | I | + | I | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | 45 | |
| Thymoma Benign | | | | | | | | | | | | | | | | | | | | | | | | | X | 3 |

INTEGUMENTARY SYSTEM

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| Mammary Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
|---------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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

Experiment Number: 20515 - 03
 Test Type: CHRONIC
 Route: RESPIRATORY EXPOSURE WHOLE BODY
 Species/Strain: RATS/Wistar Han

P17: NEOPLASMS BY INDIVIDUAL ANIMAL (SYSTEMIC LESIONS ABRIDGED)
 Metal working fluids (CIMSTAR 3800)
 CAS Number: CIMSTAR3800

Date Report Requested: 02/18/2014
 Time Report Requested: 12:32:34
 First Dose M/F: 04/14/08 / 04/14/08
 Lab: BNW

| WISTAR HAN RATS FEMALE
100 mg/m3 | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS | | |
|-------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----|---|
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| ANIMAL ID | 0
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5 | 0
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6 | 0
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5 | 0
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6 | 0
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3 | 0
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6 | 0
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4 | 0
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9 | 0
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7
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1 | 0
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| Adenoma | | | | | | | | | | | | | | X | | | | | | | | | | | | 1 | |
| Carcinoma | | | | | | | | | | | | | | | | | | | | | | | | | X | | 3 |
| Carcinoma, Multiple | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| Fibroadenoma | | | | | | | | | | | | X | | | X | | | | | | | | | | | 8 | |
| Fibroadenoma, Multiple | | | | | | | | | | | | | X | X | | | | | | | | | | | | 2 | |
| Skin | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Keratoacanthoma | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| Squamous Cell Papilloma | | | | | X | | | | | | | | X | | | | | | | | | | | | | 3 | |
| Subcutaneous Tissue, Lipoma | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| MUSCULOSKELETAL SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bone | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| NERVOUS SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brain | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Granular Cell Tumor Benign | | | | | | | | | | | | | | | | | | | | | | | | X | | 1 | |
| Granular Cell Tumor Malignant | | | | | | | | | | | | X | | | | | | | | | | | | | | 2 | |
| Oligodendroglioma Malignant | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| Peripheral Nerve | | | | | | | | | | | | | | | | | | | | | | | | | | 6 | |
| Spinal Cord | | | | | | | | | | | | | | | | | | | | | | | | | | 6 | |
| RESPIRATORY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Larynx | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Lung | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| Alveolar/Bronchiolar Adenoma | | | | | | | | | | | | | | | | | | | | | | | | | X | 1 | |

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

M .. Missing tissue
 A .. Autolysis precludes evaluation
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| WISTAR HAN RATS FEMALE
100 mg/m3 | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | * TOTALS | | |
|-------------------------------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|------|--|
| | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | 0731 | | 0731 | |
| ANIMAL ID | 00732 | 00734 | 00734 | 00734 | 00735 | 00737 | 00738 | 00735 | 00736 | 00735 | 00737 | 00736 | 00733 | 00736 | 00734 | 00739 | 00731 | 00738 | 00730 | 00737 | 00734 | 00735 | 00737 | 00738 | 00736 | | |
| Nose | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Trachea | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eye | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Harderian Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Zymbal's Gland | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| URINARY SYSTEM | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kidney | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| Urinary Bladder | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |
| SYSTEMIC LESIONS | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Multiple Organ | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | | |

*** END OF REPORT ***

* .. Total animals with tissue examined microscopically; Total animals with tumor
 + .. Tissue examined microscopically
 X .. Lesion present
 I .. Insufficient tissue

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