

TDMS No. 96011 - 05

**P18: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE (a)
WITH AVERAGE SEVERITY GRADES[b]**

Date Report Reqsted: 01/12/2006

Test Type: CHRONIC

CUMENE

Time Report Reqsted: 09:48:09

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 98-82-8

First Dose M/F: 06/04/01 / 06/04/01

Species/Strain: RATS/F 344

Pathologist: PIERCE, J. - RENNE, R.

Lab: BNW

F 1 R2

C Number: C96011
Lock Date: 01/28/2004
Cage Range: ALL
Date Range: ALL
Reasons For Removal: ALL
Removal Date Range: ALL
Treatment Groups: Include ALL

a - Number of animals examined microscopically at site and number of animals with lesion
b - Average severity grade (1-minimal; 2-mild; 3-moderate; 4-marked)

Test Type: CHRONIC

CUMENE

Time Report Requested: 09:48:09

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 98-82-8

First Dose M/F: 06/04/01 / 06/04/01

Species/Strain: RATS/F 344

Pathologist: PIERCE, J. - RENNE, R.

Lab: BNW

FISCHER 344 RATS MALE	CONTROL	250 PPM	500 PPM	1000 PPM
Disposition Summary				
Animals Initially in Study	50	50	50	50
Early Deaths				
Moribund Sacrifice	20	24	21	24
Natural Death	4	3	2	2
Survivors				
Terminal Sacrifice	26	23	27	24
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Esophagus	(50)	(50)	(50)	(50)
Foreign Body		1 [4.0]		
Intestine Large, Cecum	(49)	(49)	(49)	(49)
Intestine Large, Colon	(49)	(50)	(50)	(50)
Diverticulum	1 [2.0]			
Intestine Large, Rectum	(49)	(50)	(50)	(50)
Intestine Small, Duodenum	(49)	(49)	(49)	(49)
Intestine Small, Ileum	(49)	(47)	(48)	(49)
Intestine Small, Jejunum	(48)	(47)	(48)	(49)
Inflammation, Chronic Active	1 [4.0]			
Thrombosis	1 [4.0]			
Ulcer	1 [4.0]			
Liver	(50)	(50)	(50)	(50)
Angiectasis		1 [2.0]		
Basophilic Focus	7	4	8	6
Clear Cell Focus	12	6	11	11
Degeneration, Cystic	3 [1.0]	1 [3.0]	4 [2.5]	6 [3.0]
Eosinophilic Focus		1	3	
Eosinophilic Focus, Multiple			1	
Fatty Change, Diffuse		1 [3.0]		
Hepatodiaphragmatic Nodule	3 [4.0]	8 [4.0]	2 [4.0]	3 [4.0]
Inflammation, Suppurative		1 [4.0]		
Mixed Cell Focus	1		3	1
Necrosis	3 [4.0]	3 [2.7]	3 [3.0]	3 [2.3]
Vacuolization Cytoplasmic	6 [2.7]	2 [3.0]	3 [2.3]	2 [2.0]
Bile Duct, Hyperplasia	7 [2.4]	4 [2.3]	12 [3.2]	7 [2.7]

a - Number of animals examined microscopically at site and number of animals with lesion

b - Average severity grade (1-minimal; 2-mild; 3-moderate; 4-marked)

Test Type: CHRONIC

CUMENE

Time Report Requested: 09:48:09

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 98-82-8

First Dose M/F: 06/04/01 / 06/04/01

Species/Strain: RATS/F 344

Pathologist: PIERCE, J. - RENNE, R.

Lab: BNW

FISCHER 344 RATS MALE	CONTROL	250 PPM	500 PPM	1000 PPM
Hepatocyte, Regeneration Oval Cell, Hyperplasia Periportal, Inflammation, Chronic	1 [4.0]			1 [4.0]
Mesentery	(7)	(13)	2 [3.5] (10)	(6)
Hemorrhage		1 [2.0]		1 [3.0]
Necrosis	6 [2.5]	10 [2.9]	10 [3.0]	3 [3.3]
Fat, Hemorrhage	1 [3.0]			1 [3.0]
Fat, Necrosis		1 [3.0]		
Pancreas	(50)	(50)	(50)	(50)
Hyperplasia				1 [3.0]
Vacuolization Cytoplasmic		1 [2.0]		
Acinus, Atrophy	2 [1.0]	2 [3.0]	2 [3.0]	2 [2.5]
Acinus, Hyperplasia			1 [2.0]	3 [1.7]
Stomach, Forestomach	(50)	(50)	(50)	(50)
Hemorrhage	1 [2.0]			
Inflammation, Suppurative			2 [2.0]	
Necrosis	1 [2.0]			
Ulcer	3 [3.3]	7 [3.9]	1 [4.0]	8 [3.9]
Epithelium, Hyperplasia	6 [2.7]	11 [3.0]	7 [3.4]	10 [3.4]
Stomach, Glandular	(50)	(50)	(50)	(50)
Erosion	2 [2.0]	1 [3.0]	1 [3.0]	2 [2.0]
Hyperplasia, Lymphoid			1 [3.0]	
Mineralization	1 [4.0]			
Ulcer	3 [3.3]		1 [4.0]	1 [4.0]
Tongue	(1)	(3)	(1)	(3)
Epithelium, Hyperplasia	1 [3.0]	2 [3.5]	1 [3.0]	3 [2.0]
Tooth	(0)	(1)	(0)	(0)
Inflammation		1 [4.0]		

CARDIOVASCULAR SYSTEM

Blood Vessel	(1)	(1)	(1)	(0)
Mineralization	1 [4.0]			
Heart	(50)	(50)	(50)	(50)
Cardiomyopathy	9 [1.8]	7 [2.6]	12 [2.0]	11 [1.7]
Atrium, Thrombosis	3 [3.7]	6 [3.0]	4 [2.8]	4 [3.5]
Valve, Cardiomyopathy	1 [3.0]			
Valve, Hemorrhage			1 [2.0]	
Valve, Thrombosis	1 [4.0]			

a - Number of animals examined microscopically at site and number of animals with lesion

b - Average severity grade (1-minimal; 2-mild; 3-moderate; 4-marked)

Test Type: CHRONIC

CUMENE

Time Report Requested: 09:48:09

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 98-82-8

First Dose M/F: 06/04/01 / 06/04/01

Species/Strain: RATS/F 344

Pathologist: PIERCE, J. - RENNE, R.

Lab: BNW

FISCHER 344 RATS MALE	CONTROL	250 PPM	500 PPM	1000 PPM
Ventricle, Hypertrophy				1 [4.0]
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(50)	(50)	(50)
Hyperplasia	17 [2.2]	16 [2.7]	10 [2.4]	10 [2.7]
Hypertrophy			1 [3.0]	
Vacuolization Cytoplasmic	8 [2.0]	5 [2.2]	7 [2.3]	4 [2.5]
Adrenal Medulla	(50)	(50)	(50)	(50)
Hyperplasia	11 [2.5]	13 [2.5]	18 [2.8]	12 [2.5]
Bilateral, Hyperplasia				1 [2.0]
Islets, Pancreatic	(50)	(50)	(50)	(50)
Hyperplasia	1 [3.0]	1 [3.0]		
Parathyroid Gland	(45)	(49)	(49)	(48)
Hyperplasia	1 [4.0]	1 [4.0]		
Pituitary Gland	(50)		(49)	(50)
Cyst		1 [3.0]	2 [3.5]	
Hemorrhage	1 [4.0]	1 [4.0]	1 [4.0]	3 [4.0]
Hyperplasia	6 [3.5]	7 [2.7]	13 [3.2]	6 [3.0]
Pars Intermedia, Hyperplasia	1 [2.0]			
Thyroid Gland	(50)	(50)	(50)	(50)
C-cell, Hyperplasia	7 [1.9]	11 [1.8]	6 [1.8]	8 [2.0]
Follicular Cell, Cyst		1 [2.0]		
Follicular Cell, Hyperplasia			1 [2.0]	
GENERAL BODY SYSTEM				
Peritoneum	(2)	(2)	(4)	(2)
GENITAL SYSTEM				
Epididymis	(50)	(50)	(50)	(50)
Preputial Gland	(50)	(50)	(50)	(50)
Cyst	1 [4.0]		2 [2.5]	
Hyperplasia				1 [4.0]
Inflammation, Suppurative			1 [4.0]	
Prostate	(50)	(50)	(50)	(50)
Hyperplasia		1 [2.0]	1 [2.0]	2 [1.5]

a - Number of animals examined microscopically at site and number of animals with lesion

b - Average severity grade (1-minimal; 2-mild; 3-moderate; 4-marked)

Test Type: CHRONIC

CUMENE

Time Report Requested: 09:48:09

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 98-82-8

First Dose M/F: 06/04/01 / 06/04/01

Species/Strain: RATS/F 344

Pathologist: PIERCE, J. - RENNE, R.

Lab: BNW

FISCHER 344 RATS MALE	CONTROL	250 PPM	500 PPM	1000 PPM
Inflammation, Suppurative	42 [1.6]	32 [1.7]	27 [2.0]	28 [1.7]
Seminal Vesicle	(50)	(50)	(50)	(50)
Dilatation		1 [4.0]		
Hyperplasia		1 [3.0]		
Testes	(50)	(50)	(50)	(50)
Necrosis			1 [4.0]	
Artery, Inflammation, Chronic Active		1 [3.0]	2 [3.0]	
Bilateral, Interstitial Cell, Hyperplasia				1 [2.0]
Germinal Epithelium, Atrophy	6 [3.5]	5 [3.8]	3 [2.7]	6 [3.2]
Interstitial Cell, Hyperplasia	12 [1.9]	18 [2.1]	19 [2.2]	9 [3.0]
HEMATOPOIETIC SYSTEM				
Bone Marrow	(50)	(50)	(50)	(50)
Lymph Node	(7)	(10)	(8)	(14)
Deep Cervical, Ectasia		1 [4.0]		1 [4.0]
Deep Cervical, Hemorrhage				1 [3.0]
Deep Cervical, Hyperplasia, Lymphoid			1 [2.0]	2 [3.5]
Pancreatic, Ectasia			1 [2.0]	1 [3.0]
Pancreatic, Hyperplasia, Lymphoid			1 [1.0]	
Pancreatic, Inflammation, Granulomatous			1 [2.0]	
Lymph Node, Bronchial	(7)	(12)	(11)	(8)
Ectasia	1 [4.0]	1 [4.0]		
Hyperplasia, Lymphoid	1 [2.0]	1 [2.0]	1 [4.0]	
Lymph Node, Mandibular	(1)	(3)	(0)	(1)
Ectasia	1 [4.0]	2 [4.0]		
Metaplasia, Osseous	1 [3.0]			
Lymph Node, Mediastinal	(34)	(32)	(34)	(34)
Angiectasis				1 [4.0]
Hemorrhage		1 [2.0]		
Hyperplasia, Lymphoid	1 [4.0]		2 [3.5]	
Inflammation, Suppurative	1 [4.0]			
Lymph Node, Mesenteric	(50)	(50)	(50)	(50)
Hemorrhage		2 [3.5]		1 [2.0]
Spleen	(50)	(50)	(50)	(50)
Accessory Spleen				1
Fibrosis	2 [3.5]	2 [3.0]	7 [3.6]	2 [3.5]
Hematopoietic Cell Proliferation				1 [3.0]
Hemorrhage	4 [4.0]	4 [4.0]	2 [4.0]	4 [4.0]

a - Number of animals examined microscopically at site and number of animals with lesion

b - Average severity grade (1-minimal; 2-mild; 3-moderate; 4-marked)

Test Type: CHRONIC

CUMENE

Time Report Requested: 09:48:09

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 98-82-8

First Dose M/F: 06/04/01 / 06/04/01

Species/Strain: RATS/F 344

Pathologist: PIERCE, J. - RENNE, R.

Lab: BNW

FISCHER 344 RATS MALE	CONTROL	250 PPM	500 PPM	1000 PPM
Necrosis Thymus	1 [3.0] (49)	3 [3.7] (49)	1 [4.0] (50)	(50)
INTEGUMENTARY SYSTEM				
Mammary Gland	(50)	(50)	(50)	(50)
Galactocele	2 [4.0]		2 [4.0]	1 [2.0]
Epithelium, Hyperplasia	1 [4.0]		1 [4.0]	1 [2.0]
Skin	(50)	(50)	(50)	(50)
Cyst Epithelial Inclusion	1 [4.0]	1 [4.0]		2 [4.0]
Hyperkeratosis	1 [3.0]		1 [4.0]	
Inflammation, Chronic				1 [4.0]
Ulcer				1 [4.0]
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Hyperostosis			1 [3.0]	
Skeletal Muscle	(1)	(2)	(2)	(1)
NERVOUS SYSTEM				
Brain	(50)	(50)	(50)	(50)
Compression	7 [3.6]	16 [3.1]	6 [2.7]	6 [3.2]
Hemorrhage	5 [3.6]	7 [2.3]	3 [2.0]	1 [2.0]
Necrosis		1 [2.0]		
Thrombosis		1 [2.0]		
RESPIRATORY SYSTEM				
Larynx	(50)	(50)	(50)	(50)
Foreign Body	6 [4.0]	3 [3.0]		3 [4.0]
Inflammation, Suppurative	4 [1.8]	7 [1.6]	1 [1.0]	3 [1.3]
Inflammation, Chronic	1 [3.0]	1 [2.0]	1 [3.0]	
Epiglottis, Hyperplasia	1 [1.0]			
Epiglottis, Metaplasia, Squamous	1 [1.0]		1 [1.0]	2 [2.0]
Respiratory Epithelium, Hyperplasia	3 [1.7]	2 [1.5]		1 [1.0]
Lung	(50)	(50)	(50)	(50)

a - Number of animals examined microscopically at site and number of animals with lesion

b - Average severity grade (1-minimal; 2-mild; 3-moderate; 4-marked)

Test Type: CHRONIC

CUMENE

Time Report Requested: 09:48:09

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 98-82-8

First Dose M/F: 06/04/01 / 06/04/01

Species/Strain: RATS/F 344

Pathologist: PIERCE, J. - RENNE, R.

Lab: BNW

FISCHER 344 RATS MALE	CONTROL	250 PPM	500 PPM	1000 PPM
Congestion	1 [3.0]			
Hemorrhage	3 [2.0]	7 [2.6]	3 [2.3]	
Inflammation			1 [2.0]	
Inflammation, Suppurative	1 [1.0]	1 [4.0]		
Inflammation, Granulomatous		1 [1.0]		
Inflammation, Chronic	3 [2.0]	3 [1.7]	6 [1.3]	5 [2.4]
Thrombosis		1 [2.0]		
Alveolar Epithelium, Hyperplasia	13 [2.0]	11 [1.5]	10 [2.1]	10 [2.3]
Alveolar Epithelium, Metaplasia, Squamous				1 [4.0]
Alveolar Epithelium, Metaplasia, Mucous				1 [3.0]
Alveolus, Emphysema				1 [2.0]
Alveolus, Foreign Body		1 [2.0]		
Alveolus, Infiltration Cellular, Histiocyte	9 [1.9]	7 [1.4]	4 [1.8]	14 [1.8]
Alveolus, Proteinosis				1 [3.0]
Artery, Mineralization	2 [2.5]			
Artery, Thrombosis	1 [3.0]			
Bronchiole, Hyperplasia		1 [2.0]		
Bronchiole, Inflammation, Chronic		1 [2.0]	1 [2.0]	
Interstitium, Fibrosis		2 [2.0]	1 [2.0]	1 [3.0]
Nose	(50)	(50)	(49)	(50)
Foreign Body	5	5	3	4
Hyperplasia, Basal Cell				1 [1.0]
Inflammation, Suppurative	7 [1.4]	8 [2.4]	8 [1.9]	6 [2.2]
Inflammation, Chronic	5 [1.6]	1 [1.0]		
Epithelium, Nasolacrimal Duct, Metaplasia, Squamous		2 [2.0]	1 [2.0]	
Glands, Olfactory Epithelium, Hyperplasia	1 [1.0]		1 [2.0]	1 [2.0]
Glands, Respiratory Epithelium, Dilatation	1 [4.0]	3 [3.0]	2 [3.0]	2 [3.0]
Glands, Respiratory Epithelium, Hyperplasia			2 [2.0]	4 [2.0]
Goblet Cell, Olfactory Epithelium, Hyperplasia			1 [2.0]	
Goblet Cell, Hyperplasia	3 [1.7]	11 [2.3]	7 [2.3]	5 [2.0]
Nasolacrimal Duct, Inflammation, Suppurative	2 [2.0]	2 [2.0]	3 [2.3]	
Olfactory Epithelium, Degeneration			1 [1.0]	
Olfactory Epithelium, Degeneration,	3 [1.7]	2 [2.0]	1 [2.0]	

a - Number of animals examined microscopically at site and number of animals with lesion

b - Average severity grade (1-minimal; 2-mild; 3-moderate; 4-marked)

Test Type: CHRONIC

CUMENE

Time Report Requested: 09:48:09

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 98-82-8

First Dose M/F: 06/04/01 / 06/04/01

Species/Strain: RATS/F 344

Pathologist: PIERCE, J. - RENNE, R.

Lab: BNW

FISCHER 344 RATS MALE	CONTROL	250 PPM	500 PPM	1000 PPM
Hyaline Olfactory Epithelium, Hyperplasia, Basal Cell		19 [1.1]	27 [1.0]	26 [1.0]
Olfactory Epithelium, Inflammation, Chronic				1 [2.0]
Olfactory Epithelium, Metaplasia	7 [1.7]	4 [1.3]	5 [2.4]	5 [2.2]
Olfactory Epithelium, Necrosis		1 [1.0]		1 [1.0]
Olfactory Epithelium, Ulcer			2 [4.0]	
Respiratory Epithelium, Degeneration, Hyaline	1 [1.0]	1 [1.0]		
Respiratory Epithelium, Hyperplasia		15 [2.0]	16 [2.9]	23 [2.7]
Respiratory Epithelium, Inflammation, Chronic			1 [2.0]	2 [1.5]
Respiratory Epithelium, Necrosis				1 [1.0]
Squamous Epithelium, Hyperplasia			1 [1.0]	
Squamous Epithelium, Inflammation			1 [1.0]	
Vomeranasal Organ, Inflammation, Suppurative	1 [2.0]			
Pleura	(5)	(3)	(5)	(6)
Inflammation, Chronic	4 [1.3]	3 [1.3]	4 [1.0]	6 [1.5]
Mesothelium, Hyperplasia	1 [4.0]			
Trachea	(50)	(50)	(50)	(50)
Epithelium, Hyperplasia				1 [2.0]
Glands, Cyst		1 [3.0]		

SPECIAL SENSES SYSTEM

Eye	(50)	(50)	(49)	(50)
Degeneration		1 [4.0]		
Inflammation, Chronic Active		1 [4.0]		
Bilateral, Lens, Cataract	1 [2.0]	1 [4.0]		1 [1.0]
Bilateral, Retina, Atrophy		1 [2.0]	1 [2.0]	
Ciliary Body, Iris, Inflammation, Suppurative			1 [3.0]	
Cornea, Inflammation, Suppurative	2 [1.5]			
Cornea, Inflammation, Chronic				1 [1.0]
Lens, Cataract	5 [2.4]	1 [2.0]	2 [2.0]	4 [2.5]
Retina, Atrophy	4 [2.5]			2 [3.0]
Harderian Gland	(50)	(50)	(50)	(50)

a - Number of animals examined microscopically at site and number of animals with lesion

b - Average severity grade (1-minimal; 2-mild; 3-moderate; 4-marked)

Test Type: CHRONIC

CUMENE

Time Report Requested: 09:48:09

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 98-82-8

First Dose M/F: 06/04/01 / 06/04/01

Species/Strain: RATS/F 344

Pathologist: PIERCE, J. - RENNE, R.

Lab: BNW

FISCHER 344 RATS MALE	CONTROL	250 PPM	500 PPM	1000 PPM
Inflammation, Suppurative		1 [3.0]		
Inflammation, Chronic	1 [1.0]	1 [3.0]		
Zymbal's Gland	(1)	(0)	(0)	(2)
URINARY SYSTEM				
Kidney	(50)	(50)	(50)	(50)
Atrophy				1 [4.0]
Infarct		1 [4.0]	2 [3.0]	1 [2.0]
Infarct, Multiple		1 [4.0]		
Nephropathy	47 [2.3]	47 [2.6]	47 [2.9]	50 [2.7]
Bilateral, Renal Tubule, Cyst			1	
Bilateral, Infarct		1 [3.0]		
Capsule, Dilatation			1 [3.0]	
Glomerulus, Inflammation, Suppurative		1 [4.0]		
Papilla, Mineralization	5 [1.0]	35 [1.7]	44 [2.1]	41 [2.1]
Pelvis, Transitional Epithelium, Hyperplasia	3 [1.7]	5 [1.8]	14 [2.4]	15 [2.0]
Pelvis, Dilatation			1 [4.0]	1 [4.0]
Renal Tubule, Accumulation, Hyaline Droplet			1 [4.0]	1 [4.0]
Renal Tubule, Cyst		1	3	2
Renal Tubule, Hyperplasia		3 [3.3]	8 [2.6]	6 [2.2]
Renal Tubule, Hypertrophy				1 [3.0]
Renal Tubule, Mineralization	1 [4.0]			
Ureter	(0)	(1)	(0)	(1)
Urethra	(0)	(0)	(1)	(1)
Transitional Epithelium, Hyperplasia			1 [3.0]	
Urinary Bladder	(50)	(50)	(49)	(50)
Calculus Gross Observation			1	
Hemorrhage		1 [2.0]		
Inflammation, Chronic			1 [2.0]	
Transitional Epithelium, Hyperplasia	1 [3.0]		4 [2.0]	2 [1.5]

*** END OF MALE ***

a - Number of animals examined microscopically at site and number of animals with lesion

b - Average severity grade (1-minimal; 2-mild; 3-moderate; 4-marked)

Test Type: CHRONIC

CUMENE

Time Report Requested: 09:48:09

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 98-82-8

First Dose M/F: 06/04/01 / 06/04/01

Species/Strain: RATS/F 344

Pathologist: PIERCE, J. - RENNE, R.

Lab: BNW

FISCHER 344 RATS FEMALE	CONTROL	250 PPM	500 PPM	1000 PPM
Disposition Summary				
Animals Initially in Study	50	50	50	50
Early Deaths				
Moribund Sacrifice	23	18	17	15
Natural Death	6	5	2	3
Survivors				
Terminal Sacrifice	21	27	31	32
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Intestine Large, Cecum	(46)	(45)	(50)	(49)
Necrosis				1 [3.0]
Intestine Large, Colon	(48)	(46)	(50)	(50)
Artery, Inflammation, Chronic				1 [3.0]
Intestine Large, Rectum	(48)	(46)	(50)	(50)
Liver	(50)	(50)	(50)	(50)
Angiectasis	1 [3.0]		2 [2.5]	
Basophilic Focus	27	31	36	32
Clear Cell Focus	15	9	6	5
Eosinophilic Focus				1
Hepatodiaphragmatic Nodule	6 [4.0]	6 [4.0]	4 [4.0]	6 [4.0]
Inflammation, Granulomatous	1 [2.0]			
Mixed Cell Focus			2	1
Necrosis		1 [2.0]	1 [3.0]	3 [3.7]
Vacuolization Cytoplasmic	11 [3.1]	4 [3.0]	4 [2.8]	2 [3.0]
Bile Duct, Hyperplasia			1 [3.0]	
Centrilobular, Congestion		1 [4.0]		
Periportal, Vacuolization Cytoplasmic	1 [2.0]			
Mesentery	(18)	(18)	(17)	(9)
Necrosis	18 [3.1]	16 [3.0]	17 [2.9]	8 [3.0]
Oral Mucosa	(0)	(0)	(1)	(1)
Pancreas	(50)	(49)	(50)	(50)
Fibrosis		1 [4.0]		
Hemorrhage		1 [4.0]		
Thrombosis				1 [4.0]
Artery, Inflammation, Chronic				1 [4.0]

a - Number of animals examined microscopically at site and number of animals with lesion

b - Average severity grade (1-minimal; 2-mild; 3-moderate; 4-marked)

Test Type: CHRONIC

CUMENE

Time Report Requested: 09:48:09

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 98-82-8

First Dose M/F: 06/04/01 / 06/04/01

Species/Strain: RATS/F 344

Pathologist: PIERCE, J. - RENNE, R.

Lab: BNW

FISCHER 344 RATS FEMALE	CONTROL	250 PPM	500 PPM	1000 PPM
Stomach, Forestomach	(50)	(50)	(50)	(50)
Erosion			1 [3.0]	
Inflammation, Suppurative				1 [4.0]
Inflammation, Chronic		1 [2.0]	1 [2.0]	
Ulcer	5 [3.0]	4 [4.0]	3 [2.3]	1 [4.0]
Epithelium, Cyst			1 [4.0]	
Epithelium, Erosion		1 [3.0]		
Epithelium, Hyperplasia	11 [1.7]	13 [2.2]	12 [1.9]	8 [1.4]
Submucosa, Fibrosis			1 [3.0]	
Stomach, Glandular	(50)	(49)	(50)	(50)
Erosion	1 [2.0]			
Ulcer			1 [4.0]	
Epithelium, Hyperplasia				1 [3.0]
Tongue	(1)	(2)	(2)	(3)
Epithelium, Hyperplasia	1 [3.0]	2 [3.0]	2 [2.5]	3 [3.0]
Tooth	(0)	(2)	(0)	(0)
Peridontal Tissue, Inflammation		2 [3.5]		
CARDIOVASCULAR SYSTEM				
Heart	(50)	(50)	(50)	(50)
Cardiomyopathy	1 [2.0]	2 [1.5]	2 [2.0]	
Inflammation, Chronic				1 [2.0]
Atrium, Thrombosis		2 [3.0]	2 [4.0]	1 [4.0]
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(49)	(50)	(50)
Hemorrhage	1 [3.0]			
Hyperplasia	9 [2.8]	9 [2.8]	13 [2.8]	12 [2.0]
Necrosis	2 [2.5]			1 [3.0]
Vacuolization Cytoplasmic	11 [2.1]	18 [2.6]	16 [2.4]	7 [2.7]
Adrenal Medulla	(50)	(49)	(50)	(50)
Islets, Pancreatic	(50)	(49)	(50)	(50)
Parathyroid Gland	(49)	(45)	(48)	(47)
Hyperplasia		1 [3.0]		
Pituitary Gland	(50)	(50)	(50)	(49)
Cyst	7 [3.3]	2 [3.5]	2 [2.0]	2 [4.0]
Hemorrhage	2 [4.0]	2 [4.0]	2 [3.5]	

a - Number of animals examined microscopically at site and number of animals with lesion

b - Average severity grade (1-minimal; 2-mild; 3-moderate; 4-marked)

Test Type: CHRONIC

CUMENE

Time Report Requested: 09:48:09

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 98-82-8

First Dose M/F: 06/04/01 / 06/04/01

Species/Strain: RATS/F 344

Pathologist: PIERCE, J. - RENNE, R.

Lab: BNW

FISCHER 344 RATS FEMALE	CONTROL	250 PPM	500 PPM	1000 PPM
Hyperplasia Thyroid Gland	10 [3.0] (50)	13 [3.2] (49)	6 [2.7] (50)	16 [2.8] (50)
Ultimobranchial Cyst	1 [1.0]			
C-cell, Hyperplasia	13 [1.5]	13 [1.7]	15 [1.8]	15 [2.2]
Follicular Cell, Hyperplasia			1 [4.0]	
GENERAL BODY SYSTEM				
Peritoneum	(0)	(0)	(1)	(0)
GENITAL SYSTEM				
Clitoral Gland	(50)	(49)	(50)	(50)
Cyst		2 [3.0]	2 [3.5]	1 [1.0]
Hyperplasia	2 [3.5]	5 [3.6]	7 [3.3]	5 [3.8]
Inflammation, Chronic		1 [4.0]	1 [4.0]	3 [3.7]
Ovary	(50)	(49)	(50)	(50)
Cyst	3 [3.3]	7 [3.9]	7 [3.3]	6 [2.8]
Cyst, Multiple			1 [4.0]	
Uterus	(50)	(49)	(50)	(50)
Hemorrhage	1 [4.0]	1 [4.0]	4 [3.8]	1 [4.0]
Pigmentation			1 [3.0]	
Endometrium, Hyperplasia	4 [1.5]	7 [2.4]	2 [2.0]	5 [2.2]
Vagina	(2)	(0)	(0)	(0)
Epithelium, Hyperplasia, Adenomatous	1 [4.0]			
HEMATOPOIETIC SYSTEM				
Lymph Node	(3)	(3)	(5)	(2)
Pancreatic, Infiltration Cellular, Histiocyte			1 [4.0]	
Pancreatic, Pigmentation			1 [3.0]	
Lymph Node, Bronchial	(7)	(9)	(8)	(5)
Ectasia	2 [3.0]			
Hemorrhage				1 [4.0]
Hyperplasia, Lymphoid		1 [3.0]		1 [3.0]
Inflammation	1 [2.0]			
Lymph Node, Mandibular	(4)	(1)	(1)	(4)
Ectasia				1 [4.0]

a - Number of animals examined microscopically at site and number of animals with lesion

b - Average severity grade (1-minimal; 2-mild; 3-moderate; 4-marked)

Test Type: CHRONIC

CUMENE

Time Report Requested: 09:48:09

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 98-82-8

First Dose M/F: 06/04/01 / 06/04/01

Species/Strain: RATS/F 344

Pathologist: PIERCE, J. - RENNE, R.

Lab: BNW

FISCHER 344 RATS FEMALE	CONTROL	250 PPM	500 PPM	1000 PPM
Hyperplasia, Lymphoid Lymph Node, Mediastinal	(30)	(28)	(26)	1 [4.0] (31)
Angiectasis			1 [4.0]	
Hemorrhage			1 [3.0]	1 [4.0]
Hyperplasia, Histiocytic			1 [4.0]	
Hyperplasia, Lymphoid			1 [4.0]	2 [3.5]
Inflammation, Suppurative Lymph Node, Mesenteric	(48)	(49)	(49)	1 [2.0] (50)
Ectasia			1 [4.0]	
Hemorrhage	2 [3.0]			
Hyperplasia, Lymphoid		1 [2.0]		
Infiltration Cellular, Histiocyte		1 [4.0]		
Necrosis				1 [3.0]
Spleen	(50)	(50)	(50)	(50)
Atrophy				1 [4.0]
Fibrosis			3 [3.3]	
Hematopoietic Cell Proliferation		1 [4.0]	2 [4.0]	2 [4.0]
Necrosis				2 [4.0]
Capsule, Fibrosis	1 [2.0]			
Thymus	(48)	(46)	(50)	(50)
Hyperplasia, Tubular			1 [4.0]	
INTEGUMENTARY SYSTEM				
Mammary Gland	(50)	(50)	(50)	(50)
Galactocele	3 [3.0]			2 [2.5]
Hyperplasia	1 [2.0]			
Inflammation, Suppurative		1 [4.0]		
Epithelium, Hyperplasia			1 [4.0]	1 [4.0]
Skin	(50)	(50)	(50)	(50)
Cyst Epithelial Inclusion		1 [4.0]		
Hyperkeratosis	1 [2.0]	1 [3.0]		1 [2.0]
Inflammation, Chronic				1 [3.0]
Ulcer		3 [4.0]		2 [3.5]
Sebaceous Gland, Hemorrhage		1 [3.0]		
Subcutaneous Tissue, Fibrosis				1 [2.0]
Subcutaneous Tissue, Inflammation, Suppurative		1 [4.0]		

a - Number of animals examined microscopically at site and number of animals with lesion

b - Average severity grade (1-minimal; 2-mild; 3-moderate; 4-marked)

Test Type: CHRONIC

CUMENE

Time Report Requested: 09:48:09

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 98-82-8

First Dose M/F: 06/04/01 / 06/04/01

Species/Strain: RATS/F 344

Pathologist: PIERCE, J. - RENNE, R.

Lab: BNW

FISCHER 344 RATS FEMALE	CONTROL	250 PPM	500 PPM	1000 PPM
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Hyperostosis		1 [4.0]		
Maxilla, Fracture			1 [4.0]	
Maxilla, Inflammation, Chronic Active				1 [3.0]
Skeletal Muscle	(1)	(0)	(1)	(1)
NERVOUS SYSTEM				
Brain	(50)	(49)	(50)	(50)
Compression	12 [3.7]	9 [3.6]	4 [4.0]	5 [3.6]
Demyelination				1 [3.0]
Gliosis				1 [3.0]
Hemorrhage	1 [4.0]	3 [3.3]	2 [3.5]	3 [3.0]
Inflammation, Chronic Active				1 [3.0]
Necrosis	1 [4.0]			
Thrombosis		1 [2.0]	1 [4.0]	
Medulla, Meninges, Inflammation, Suppurative	1 [2.0]			
Medulla, Neuron, Necrosis				1 [3.0]
Neuron, Degeneration				1 [3.0]
Spinal Cord	(0)	(1)	(1)	(1)
Gliosis				1 [3.0]
Inflammation, Chronic Active				1 [3.0]
RESPIRATORY SYSTEM				
Larynx	(50)	(49)	(50)	(50)
Foreign Body	2 [4.0]	1 [4.0]	2 [4.0]	
Inflammation, Suppurative	3 [2.0]	3 [2.0]	4 [1.5]	1 [1.0]
Inflammation, Chronic	2 [1.5]		2 [1.5]	2 [1.5]
Respiratory Epithelium, Hyperplasia		1 [1.0]		1 [1.0]
Lung	(50)	(50)	(50)	(50)
Cyst, Squamous				1
Hemorrhage	2 [2.0]	1 [1.0]	2 [2.0]	
Inflammation, Suppurative	1 [1.0]			
Inflammation, Chronic	11 [1.6]	10 [1.5]	8 [1.8]	16 [1.9]
Thrombosis			1 [4.0]	

a - Number of animals examined microscopically at site and number of animals with lesion

b - Average severity grade (1-minimal; 2-mild; 3-moderate; 4-marked)

Test Type: CHRONIC

CUMENE

Time Report Requested: 09:48:09

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 98-82-8

First Dose M/F: 06/04/01 / 06/04/01

Species/Strain: RATS/F 344

Pathologist: PIERCE, J. - RENNE, R.

Lab: BNW

FISCHER 344 RATS FEMALE	CONTROL	250 PPM	500 PPM	1000 PPM
Alveolar Epithelium, Hyperplasia	3 [2.7]	1 [1.0]	5 [2.4]	7 [2.1]
Alveolar Epithelium, Metaplasia, Squamous				1 [4.0]
Alveolus, Infiltration Cellular, Histiocyte	16 [1.1]	6 [1.3]	11 [1.6]	14 [1.6]
Alveolus, Proteinosis				2 [2.5]
Bronchiole, Hyperplasia		3 [2.3]		1 [2.0]
Bronchiole, Inflammation, Chronic	1 [4.0]	1 [3.0]		3 [2.0]
Interstitial, Fibrosis	1 [2.0]			
Nose	(50)	(48)	(50)	(50)
Foreign Body		4	2	3
Hyperplasia, Basal Cell				1 [1.0]
Inflammation, Suppurative	1 [3.0]	3 [3.3]	1 [2.0]	2 [1.5]
Inflammation, Chronic	1 [1.0]	3 [2.0]	4 [1.3]	1 [2.0]
Inflammation, Chronic Active			1 [4.0]	
Glands, Respiratory Epithelium, Dilatation	1 [3.0]			
Goblet Cell, Hyperplasia	4 [1.0]	6 [2.3]	1 [4.0]	5 [2.0]
Nasolacrimal Duct, Inflammation, Suppurative	4 [2.3]	3 [2.0]	2 [2.5]	1 [3.0]
Nasolacrimal Duct, Inflammation, Chronic	1 [3.0]			
Olfactory Epithelium, Degeneration, Hyaline	2 [1.5]	1 [2.0]		
Olfactory Epithelium, Hyperplasia			1 [1.0]	
Olfactory Epithelium, Hyperplasia, Basal Cell		14 [1.0]	25 [1.0]	31 [1.1]
Olfactory Epithelium, Inflammation, Granulomatous		1 [3.0]		
Olfactory Epithelium, Metaplasia		1 [3.0]		2 [2.0]
Olfactory Epithelium, Necrosis			1 [1.0]	
Respiratory Epithelium, Degeneration, Hyaline	1 [1.0]		3 [1.0]	
Respiratory Epithelium, Hyperplasia			4 [3.0]	6 [2.3]
Respiratory Epithelium, Metaplasia, Squamous		1 [1.0]		
Turbinates, Necrosis			1 [4.0]	
Pleura	(15)	(16)	(16)	(20)
Inflammation, Chronic	15 [1.4]	15 [1.2]	14 [1.4]	20 [1.8]
Mesothelium, Hyperplasia		1 [1.0]		
Trachea	(50)	(49)	(50)	(50)
Glands, Cyst			1 [2.0]	

a - Number of animals examined microscopically at site and number of animals with lesion

b - Average severity grade (1-minimal; 2-mild; 3-moderate; 4-marked)

Test Type: CHRONIC

CUMENE

Time Report Requested: 09:48:09

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 98-82-8

First Dose M/F: 06/04/01 / 06/04/01

Species/Strain: RATS/F 344

Pathologist: PIERCE, J. - RENNE, R.

Lab: BNW

FISCHER 344 RATS FEMALE	CONTROL	250 PPM	500 PPM	1000 PPM
SPECIAL SENSES SYSTEM				
Eye	(50)	(49)	(50)	(50)
Bilateral, Lens, Cataract	1 [4.0]			
Bilateral, Retina, Atrophy	1 [3.0]	1 [2.0]	1 [3.0]	
Cornea, Epithelium, Hyperplasia				1 [2.0]
Cornea, Inflammation				1 [1.0]
Cornea, Inflammation, Suppurative	1 [4.0]			
Lens, Cataract	5 [2.2]	2 [3.0]	5 [3.0]	3 [2.0]
Retina, Atrophy	3 [2.0]	5 [2.2]	8 [2.1]	2 [2.0]
Harderian Gland	(50)	(49)	(50)	(50)
Inflammation, Chronic	1 [1.0]		1 [2.0]	1 [1.0]
Zymbal's Gland	(1)	(0)	(1)	(1)
URINARY SYSTEM				
Kidney	(50)	(50)	(50)	(50)
Infarct, Multiple			1 [2.0]	
Nephropathy	38 [1.4]	37 [1.5]	41 [1.9]	44 [1.9]
Artery, Inflammation, Chronic Active				1 [2.0]
Papilla, Mineralization	6 [1.0]	3 [1.3]	4 [1.0]	6 [1.0]
Pelvis, Transitional Epithelium, Hyperplasia	1 [1.0]	1 [2.0]	6 [1.3]	1 [1.0]
Pelvis, Transitional Epithelium, Mineralization	23 [1.3]	27 [1.1]	27 [1.1]	22 [1.3]
Pelvis, Dilatation	1 [2.0]			
Renal Tubule, Accumulation, Hyaline Droplet	1 [4.0]		1 [4.0]	
Renal Tubule, Cyst	1		1	1
Renal Tubule, Pigmentation	1 [4.0]			
Urinary Bladder	(50)	(49)	(50)	(50)
Transitional Epithelium, Hyperplasia	1 [2.0]	2 [2.0]	2 [2.0]	1 [2.0]

*** END OF REPORT ***

a - Number of animals examined microscopically at site and number of animals with lesion

b - Average severity grade (1-minimal; 2-mild; 3-moderate; 4-marked)