

**TDMS No.** 97003 - 07  
**Test Type:** CHRONIC  
**Route:** SKIN APPLICATION  
**Species/Strain:** RATS/F 344

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**

1,2-Dibromo-2,4-dicyanobutane

**CAS Number:** 35691-65-7

**Date Report Requested:** 08/21/2007  
**Time Report Requested:** 12:46:31  
**First Dose M/F:** 07/10/02 / 07/11/02  
**Lab:** BAT

F\_1.Rev.1\_R2

**C Number:** C97003D  
**Lock Date:** 03/23/2005  
**Cage Range:** ALL  
**Date Range:** ALL  
**Reasons For Removal:** ALL  
**Removal Date Range:** ALL  
**Treatment Groups:** Include ALL  
**TDMSE Version:** 1.8.0

TDMS No. 97003 - 07  
 Test Type: CHRONIC  
 Route: SKIN APPLICATION  
 Species/Strain: RATS/F 344

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**  
 1,2-Dibromo-2,4-dicyanobutane  
 CAS Number: 35691-65-7

Date Report Requested: 08/21/2007  
 Time Report Requested: 12:46:31  
 First Dose M/F: 07/10/02 / 07/11/02  
 Lab: BAT

FISCHER 344 RATS MALE	0 MG/KG	2 MG/KG	6 MG/KG	18 MG/KG
<b>Disposition Summary</b>				
Animals Initially in Study	50	50	50	50
Early Deaths				
Moribund Sacrifice	19	15	17	12
Natural Death	6	8	6	1
Survivors				
Terminal Sacrifice	25	27	27	37
Animals Examined Microscopically	50	50	50	50

**ALIMENTARY SYSTEM**

Esophagus	(50)	(50)	(50)	(50)
Inflammation	1 (2%)			1 (2%)
Intestine Large, Cecum	(50)	(50)	(50)	(50)
Inflammation	1 (2%)			
Intestine Large, Colon	(50)	(50)	(50)	(50)
Parasite Metazoan		1 (2%)	2 (4%)	3 (6%)
Serosa, Cyst, Focal	1 (2%)			
Intestine Large, Rectum	(50)	(50)	(50)	(50)
Parasite Metazoan	3 (6%)	8 (16%)	9 (18%)	4 (8%)
Muscularis, Hypertrophy				1 (2%)
Intestine Small, Duodenum	(50)	(50)	(50)	(50)
Erosion	1 (2%)			
Inflammation	1 (2%)			
Intestine Small, Ileum	(50)	(50)	(50)	(50)
Intestine Small, Jejunum	(50)	(50)	(50)	(50)
Liver	(50)	(50)	(50)	(50)
Angiectasis				1 (2%)
Basophilic Focus	24 (48%)	20 (40%)	22 (44%)	26 (52%)
Clear Cell Focus	17 (34%)	19 (38%)	19 (38%)	21 (42%)
Congestion				1 (2%)
Cyst		1 (2%)		
Degeneration, Cystic	6 (12%)	3 (6%)	4 (8%)	1 (2%)
Eosinophilic Focus			1 (2%)	
Fatty Change	6 (12%)		1 (2%)	2 (4%)
Hematopoietic Cell Proliferation	5 (10%)	5 (10%)	1 (2%)	1 (2%)
Hepatodiaphragmatic Nodule	6 (12%)	8 (16%)	9 (18%)	3 (6%)
Inflammation	32 (64%)	34 (68%)	32 (64%)	35 (70%)
Mixed Cell Focus	9 (18%)	8 (16%)	6 (12%)	11 (22%)
Necrosis	2 (4%)		1 (2%)	1 (2%)
Bile Duct, Cyst			1 (2%)	
Bile Duct, Hyperplasia	43 (86%)	45 (90%)	46 (92%)	46 (92%)

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

TDMS No. 97003 - 07  
 Test Type: CHRONIC  
 Route: SKIN APPLICATION  
 Species/Strain: RATS/F 344

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**

1,2-Dibromo-2,4-dicyanobutane

CAS Number: 35691-65-7

Date Report Requested: 08/21/2007  
 Time Report Requested: 12:46:31  
 First Dose M/F: 07/10/02 / 07/11/02  
 Lab: BAT

FISCHER 344 RATS MALE	0 MG/KG	2 MG/KG	6 MG/KG	18 MG/KG
Hepatocyte, Atypia Cellular		1 (2%)		
Hepatocyte, Hyperplasia	2 (4%)		1 (2%)	
Hepatocyte, Hypertrophy	1 (2%)	1 (2%)	1 (2%)	
Mesentery	(10)	(6)	(10)	(9)
Inflammation	1 (10%)			1 (11%)
Necrosis	9 (90%)	6 (100%)	7 (70%)	7 (78%)
Pancreas	(50)	(50)	(50)	(50)
Inflammation	1 (2%)			
Acinus, Atrophy	16 (32%)	18 (36%)	15 (30%)	18 (36%)
Acinus, Hyperplasia			1 (2%)	
Artery, Inflammation, Chronic Active				1 (2%)
Duct, Cyst	9 (18%)	9 (18%)	5 (10%)	7 (14%)
Salivary Glands	(50)	(50)	(50)	(50)
Basophilic Focus	1 (2%)			
Inflammation		1 (2%)		
Stomach, Forestomach	(50)	(50)	(50)	(50)
Edema	2 (4%)			1 (2%)
Erosion				1 (2%)
Inflammation	5 (10%)	2 (4%)	1 (2%)	2 (4%)
Ulcer	3 (6%)	2 (4%)	2 (4%)	3 (6%)
Epithelium, Hyperplasia			2 (4%)	1 (2%)
Serosa, Inflammation				1 (2%)
Stomach, Glandular	(50)	(50)	(50)	(50)
Edema	1 (2%)			1 (2%)
Erosion	4 (8%)			2 (4%)
Inflammation	4 (8%)	3 (6%)		2 (4%)
Pigmentation	1 (2%)			
Thrombosis	1 (2%)			
Ulcer		1 (2%)		
Glands, Hyperplasia		1 (2%)		
Tooth	(0)	(0)	(1)	(1)
Inflammation				1 (100%)
Peridontal Tissue, Malformation			1 (100%)	
<b>CARDIOVASCULAR SYSTEM</b>				
Heart	(50)	(50)	(50)	(50)
Cardiomyopathy	46 (92%)	46 (92%)	49 (98%)	46 (92%)
Atrium, Thrombosis	2 (4%)		1 (2%)	
Pericardium, Inflammation				1 (2%)
Valve, Inflammation				1 (2%)
<b>ENDOCRINE SYSTEM</b>				

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

TDMS No. 97003 - 07  
 Test Type: CHRONIC  
 Route: SKIN APPLICATION  
 Species/Strain: RATS/F 344

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**  
 1,2-Dibromo-2,4-dicyanobutane  
 CAS Number: 35691-65-7

Date Report Requested: 08/21/2007  
 Time Report Requested: 12:46:31  
 First Dose M/F: 07/10/02 / 07/11/02  
 Lab: BAT

FISCHER 344 RATS MALE	0 MG/KG	2 MG/KG	6 MG/KG	18 MG/KG
Adrenal Cortex	(50)	(50)	(50)	(50)
Angiectasis				1 (2%)
Atrophy				1 (2%)
Degeneration, Cystic	4 (8%)			1 (2%)
Hyperplasia	9 (18%)	7 (14%)	6 (12%)	14 (28%)
Hypertrophy	12 (24%)	9 (18%)	4 (8%)	14 (28%)
Vacuolization Cytoplasmic	29 (58%)	25 (50%)	28 (56%)	26 (52%)
Adrenal Medulla	(50)	(50)	(50)	(50)
Hyperplasia	13 (26%)	12 (24%)	14 (28%)	13 (26%)
Hypertrophy	1 (2%)		1 (2%)	
Mineralization	1 (2%)			
Necrosis	1 (2%)			
Islets, Pancreatic	(50)	(50)	(50)	(50)
Hyperplasia	1 (2%)	2 (4%)	3 (6%)	3 (6%)
Parathyroid Gland	(49)	(47)	(49)	(46)
Hyperplasia				1 (2%)
Pituitary Gland	(50)	(50)	(50)	(50)
Pars Distalis, Cyst	3 (6%)	4 (8%)	2 (4%)	3 (6%)
Pars Distalis, Hyperplasia	17 (34%)	15 (30%)	19 (38%)	16 (32%)
Pars Distalis, Pigmentation, Hemosiderin	1 (2%)			
Thyroid Gland	(50)	(50)	(50)	(50)
Hemorrhage		1 (2%)		
Infiltration Cellular, Mononuclear Cell	1 (2%)			
Inflammation				1 (2%)
Thrombosis		1 (2%)		
C-cell, Hyperplasia	9 (18%)	16 (32%)	15 (30%)	13 (26%)
Follicular Cell, Hyperplasia	1 (2%)		1 (2%)	1 (2%)

**GENERAL BODY SYSTEM**

None

**GENITAL SYSTEM**

Epididymis	(50)	(50)	(50)	(50)
Inflammation		1 (2%)	1 (2%)	1 (2%)
Preputial Gland	(50)	(50)	(50)	(50)
Hyperplasia		1 (2%)	1 (2%)	1 (2%)
Inflammation	1 (2%)			1 (2%)
Duct, Cyst	2 (4%)			
Prostate	(50)	(50)	(50)	(50)
Cyst				1 (2%)
Fibrosis	1 (2%)			
Inflammation	40 (80%)	36 (72%)	37 (74%)	39 (78%)

TDMS No. 97003 - 07  
 Test Type: CHRONIC  
 Route: SKIN APPLICATION  
 Species/Strain: RATS/F 344

**PO3: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**  
 1,2-Dibromo-2,4-dicyanobutane  
 CAS Number: 35691-65-7

Date Report Requested: 08/21/2007  
 Time Report Requested: 12:46:31  
 First Dose M/F: 07/10/02 / 07/11/02  
 Lab: BAT

FISCHER 344 RATS MALE	0 MG/KG	2 MG/KG	6 MG/KG	18 MG/KG
Epithelium, Hyperplasia	18 (36%)	19 (38%)	11 (22%)	19 (38%)
Seminal Vesicle	(50)	(50)	(50)	(50)
Inflammation	1 (2%)			
Epithelium, Hyperplasia				1 (2%)
Testes	(50)	(50)	(50)	(50)
Atrophy	10 (20%)	7 (14%)	3 (6%)	14 (28%)
Inflammation			1 (2%)	1 (2%)
Interstitial Cell, Hyperplasia	15 (30%)	19 (38%)	16 (32%)	20 (40%)
<b>HEMATOPOIETIC SYSTEM</b>				
Bone Marrow	(50)	(50)	(50)	(50)
Hemorrhage				1 (2%)
Hyperplasia	20 (40%)	23 (46%)	23 (46%)	18 (36%)
Lymph Node	(6)	(4)	(5)	(6)
Deep Cervical, Ectasia				1 (17%)
Mediastinal, Infiltration Cellular, Histiocyte			1 (20%)	
Lymph Node, Mesenteric	(50)	(50)	(50)	(50)
Ectasia		1 (2%)		1 (2%)
Hyperplasia, Lymphoid				1 (2%)
Hyperplasia, Plasma Cell	1 (2%)			
Spleen	(50)	(50)	(50)	(50)
Fibrosis				1 (2%)
Hematopoietic Cell Proliferation	3 (6%)			
Hemorrhage		2 (4%)	2 (4%)	1 (2%)
Hyperplasia, Lymphoid	2 (4%)	1 (2%)	4 (8%)	1 (2%)
Infarct	1 (2%)	2 (4%)		
Thymus	(49)	(46)	(48)	(44)
Mineralization	1 (2%)			
<b>INTEGUMENTARY SYSTEM</b>				
Mammary Gland	(50)	(49)	(49)	(50)
Cyst				1 (2%)
Hyperplasia		2 (4%)		
Inflammation	3 (6%)		2 (4%)	2 (4%)
Skin	(50)	(50)	(50)	(50)
Cyst				1 (2%)
Dermis, Inflammation	1 (2%)			
Epidermis, Hyperplasia	1 (2%)			
Hair Follicle, Cyst		1 (2%)		1 (2%)
Site Of Application - Dermis, Fibrosis				4 (8%)
Site Of Application - Dermis, Inflammation		2 (4%)	11 (22%)	45 (90%)
Site Of Application - Epidermis,		9 (18%)	47 (94%)	50 (100%)

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

TDMS No. 97003 - 07  
 Test Type: CHRONIC  
 Route: SKIN APPLICATION  
 Species/Strain: RATS/F 344

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**

1,2-Dibromo-2,4-dicyanobutane

CAS Number: 35691-65-7

Date Report Requested: 08/21/2007  
 Time Report Requested: 12:46:31  
 First Dose M/F: 07/10/02 / 07/11/02  
 Lab: BAT

FISCHER 344 RATS MALE	0 MG/KG	2 MG/KG	6 MG/KG	18 MG/KG
Hyperkeratosis				
Site Of Application - Epidermis, Hyperplasia	1 (2%)	5 (10%)	10 (20%)	50 (100%)
Site Of Application - Epidermis, Necrosis				3 (6%)
<b>MUSCULOSKELETAL SYSTEM</b>				
Bone	(50)	(50)	(50)	(50)
Osteosclerosis				1 (2%)
Skeletal Muscle	(0)	(0)	(0)	(1)
<b>NERVOUS SYSTEM</b>				
Brain	(50)	(50)	(50)	(50)
Hemorrhage	1 (2%)	4 (8%)	6 (12%)	1 (2%)
Hydrocephalus	1 (2%)	2 (4%)		1 (2%)
Infiltration Cellular, Lymphocyte				1 (2%)
Cerebrum, Developmental Malformation, Focal	1 (2%)			
Cerebrum, Edema	1 (2%)			
Cerebrum, Hemorrhage	1 (2%)			
Spinal Cord	(2)	(0)	(0)	(0)
<b>RESPIRATORY SYSTEM</b>				
Lung	(50)	(50)	(50)	(50)
Hemorrhage			1 (2%)	
Inflammation	13 (26%)	4 (8%)	10 (20%)	13 (26%)
Metaplasia, Squamous			1 (2%)	
Thrombosis		1 (2%)		
Alveolar Epithelium, Hyperplasia	6 (12%)	8 (16%)	8 (16%)	5 (10%)
Alveolus, Infiltration Cellular, Histiocyte	14 (28%)	24 (48%)	25 (50%)	19 (38%)
Serosa, Fibrosis	1 (2%)			1 (2%)
Nose	(50)	(50)	(50)	(50)
Fibrosis			1 (2%)	1 (2%)
Inflammation	12 (24%)	21 (42%)	23 (46%)	25 (50%)
Thrombosis	1 (2%)	1 (2%)		
Respiratory Epithelium, Hyperplasia				1 (2%)
Trachea	(50)	(50)	(50)	(50)
Fibrosis	1 (2%)			
Infiltration Cellular, Mononuclear Cell	1 (2%)			
Inflammation	2 (4%)			

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

TDMS No. 97003 - 07  
 Test Type: CHRONIC  
 Route: SKIN APPLICATION  
 Species/Strain: RATS/F 344

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**

1,2-Dibromo-2,4-dicyanobutane

CAS Number: 35691-65-7

Date Report Requested: 08/21/2007  
 Time Report Requested: 12:46:31  
 First Dose M/F: 07/10/02 / 07/11/02  
 Lab: BAT

FISCHER 344 RATS MALE	0 MG/KG	2 MG/KG	6 MG/KG	18 MG/KG
<b>SPECIAL SENSES SYSTEM</b>				
Eye	(50)	(50)	(50)	(50)
Cataract	1 (2%)	2 (4%)	1 (2%)	
Retinal Detachment		1 (2%)		
Synechia		2 (4%)		
Retina, Atrophy	1 (2%)	2 (4%)	1 (2%)	2 (4%)
Retina, Dysplasia		1 (2%)	1 (2%)	
Harderian Gland	(50)	(50)	(50)	(50)
Hyperplasia	1 (2%)	1 (2%)		2 (4%)
Inflammation	1 (2%)	1 (2%)	1 (2%)	
Zymbal's Gland	(0)	(1)	(1)	(0)
<b>URINARY SYSTEM</b>				
Kidney	(50)	(50)	(50)	(50)
Cyst	1 (2%)		2 (4%)	4 (8%)
Hydronephrosis		2 (4%)	1 (2%)	1 (2%)
Infarct		1 (2%)		
Mineralization	32 (64%)	41 (82%)	38 (76%)	26 (52%)
Necrosis				1 (2%)
Nephropathy	46 (92%)	44 (88%)	39 (78%)	47 (94%)
Transitional Epithelium, Hyperplasia	1 (2%)		1 (2%)	1 (2%)
Urinary Bladder	(50)	(50)	(50)	(50)
Inflammation	1 (2%)			
Transitional Epithelium, Hyperplasia	1 (2%)			

\*\*\* END OF MALE \*\*\*

TDMS No. 97003 - 07  
 Test Type: CHRONIC  
 Route: SKIN APPLICATION  
 Species/Strain: RATS/F 344

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**

1,2-Dibromo-2,4-dicyanobutane

CAS Number: 35691-65-7

Date Report Requested: 08/21/2007  
 Time Report Requested: 12:46:31  
 First Dose M/F: 07/10/02 / 07/11/02  
 Lab: BAT

FISCHER 344 RATS FEMALE	0 MG/KG	2 MG/KG	6 MG/KG	18 MG/KG
<b>Disposition Summary</b>				
Animals Initially in Study	50	50	50	50
Early Deaths				
Moribund Sacrifice	17	16	17	14
Natural Death	4	2	9	5
Survivors				
Terminal Sacrifice	29	32	24	31
Animals Examined Microscopically	50	50	50	50

**ALIMENTARY SYSTEM**

Intestine Large, Colon	(50)	(50)	(50)	(50)
Erosion	1 (2%)			
Parasite Metazoan	1 (2%)	2 (4%)	2 (4%)	1 (2%)
Intestine Large, Rectum	(50)	(50)	(50)	(50)
Diverticulum		1 (2%)		
Parasite Metazoan	8 (16%)	9 (18%)	10 (20%)	9 (18%)
Liver	(50)	(50)	(50)	(50)
Angiectasis		1 (2%)		
Basophilic Focus	43 (86%)	35 (70%)	40 (80%)	39 (78%)
Clear Cell Focus	4 (8%)	7 (14%)	3 (6%)	1 (2%)
Fatty Change	1 (2%)	3 (6%)	2 (4%)	1 (2%)
Hematopoietic Cell Proliferation	5 (10%)	3 (6%)	2 (4%)	3 (6%)
Hemorrhage		1 (2%)		1 (2%)
Hepatodiaphragmatic Nodule	7 (14%)	5 (10%)	5 (10%)	7 (14%)
Inflammation	43 (86%)	33 (66%)	34 (68%)	30 (60%)
Mixed Cell Focus	5 (10%)	1 (2%)	1 (2%)	6 (12%)
Necrosis	1 (2%)	2 (4%)	2 (4%)	1 (2%)
Bile Duct, Hyperplasia	16 (32%)	11 (22%)	10 (20%)	15 (30%)
Hepatocyte, Atypia Cellular			1 (2%)	
Hepatocyte, Hyperplasia			1 (2%)	
Hepatocyte, Hypertrophy	4 (8%)	1 (2%)	1 (2%)	
Hepatocyte, Regeneration				1 (2%)
Portal, Fibrosis	1 (2%)			
Mesentery	(14)	(12)	(12)	(12)
Inflammation				1 (8%)
Necrosis	14 (100%)	12 (100%)	12 (100%)	10 (83%)
Pancreas	(50)	(50)	(50)	(50)
Basophilic Focus			1 (2%)	
Inflammation				1 (2%)
Acinus, Atrophy	9 (18%)	9 (18%)	17 (34%)	11 (22%)
Acinus, Hyperplasia	1 (2%)			

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



TDMS No. 97003 - 07  
 Test Type: CHRONIC  
 Route: SKIN APPLICATION  
 Species/Strain: RATS/F 344

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**

1,2-Dibromo-2,4-dicyanobutane

CAS Number: 35691-65-7

Date Report Requested: 08/21/2007  
 Time Report Requested: 12:46:31  
 First Dose M/F: 07/10/02 / 07/11/02  
 Lab: BAT

FISCHER 344 RATS FEMALE	0 MG/KG	2 MG/KG	6 MG/KG	18 MG/KG
Duct, Cyst	5 (10%)	3 (6%)	2 (4%)	6 (12%)
Salivary Glands	(50)	(50)	(50)	(50)
Basophilic Focus	1 (2%)			
Inflammation				1 (2%)
Stomach, Forestomach	(50)	(50)	(50)	(50)
Edema	1 (2%)			
Fibrosis			1 (2%)	
Inflammation	1 (2%)	1 (2%)	1 (2%)	2 (4%)
Ulcer	3 (6%)		1 (2%)	2 (4%)
Stomach, Glandular	(50)	(50)	(50)	(50)
Erosion	2 (4%)	1 (2%)	2 (4%)	
Inflammation	1 (2%)		1 (2%)	
Glands, Hyperplasia	1 (2%)			
Tooth	(1)	(0)	(0)	(0)

**CARDIOVASCULAR SYSTEM**

Blood Vessel	(50)	(50)	(50)	(50)
Heart	(50)	(50)	(50)	(50)
Cardiomyopathy	50 (100%)	44 (88%)	46 (92%)	43 (86%)
Inflammation				1 (2%)
Atrium, Thrombosis		1 (2%)		

**ENDOCRINE SYSTEM**

Adrenal Cortex	(50)	(50)	(50)	(50)
Accessory Adrenal Cortical Nodule			1 (2%)	
Angiectasis	1 (2%)			
Degeneration, Cystic	1 (2%)	5 (10%)	5 (10%)	4 (8%)
Hyperplasia	7 (14%)	12 (24%)	3 (6%)	4 (8%)
Hypertrophy	12 (24%)	16 (32%)	18 (36%)	16 (32%)
Necrosis		1 (2%)	1 (2%)	
Vacuolization Cytoplasmic	17 (34%)	11 (22%)	17 (34%)	18 (36%)
Bilateral, Atrophy	1 (2%)			
Adrenal Medulla	(50)	(50)	(50)	(50)
Hyperplasia	4 (8%)	3 (6%)		2 (4%)
Hypertrophy		1 (2%)		
Vacuolization Cytoplasmic		1 (2%)		
Islets, Pancreatic	(50)	(50)	(50)	(50)
Hyperplasia	1 (2%)		1 (2%)	
Inflammation	1 (2%)			1 (2%)
Parathyroid Gland	(46)	(48)	(48)	(48)
Hyperplasia		1 (2%)		
Pituitary Gland	(50)	(50)	(50)	(50)

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

TDMS No. 97003 - 07  
 Test Type: CHRONIC  
 Route: SKIN APPLICATION  
 Species/Strain: RATS/F 344

**PO3: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**

1,2-Dibromo-2,4-dicyanobutane

CAS Number: 35691-65-7

Date Report Requested: 08/21/2007  
 Time Report Requested: 12:46:31  
 First Dose M/F: 07/10/02 / 07/11/02  
 Lab: BAT

FISCHER 344 RATS FEMALE	0 MG/KG	2 MG/KG	6 MG/KG	18 MG/KG
Hemorrhage	1 (2%)			
Pars Distalis, Cyst	7 (14%)	15 (30%)	11 (22%)	14 (28%)
Pars Distalis, Hyperplasia	17 (34%)	26 (52%)	20 (40%)	18 (36%)
Thyroid Gland	(50)	(50)	(50)	(50)
C-cell, Hyperplasia	33 (66%)	30 (60%)	20 (40%)	24 (48%)
Follicular Cell, Hyperplasia		1 (2%)		

**GENERAL BODY SYSTEM**

None

**GENITAL SYSTEM**

Clitoral Gland	(50)	(50)	(50)	(49)
Hyperplasia			1 (2%)	4 (8%)
Inflammation	1 (2%)		1 (2%)	2 (4%)
Duct, Cyst	3 (6%)	1 (2%)	2 (4%)	1 (2%)
Ovary	(50)	(50)	(50)	(50)
Congestion			1 (2%)	
Cyst	6 (12%)	7 (14%)	6 (12%)	7 (14%)
Uterus	(50)	(50)	(50)	(50)
Hemorrhage	1 (2%)		2 (4%)	
Hydrometra	1 (2%)		1 (2%)	1 (2%)
Inflammation	2 (4%)			
Endometrium, Hyperplasia, Cystic	2 (4%)	1 (2%)	2 (4%)	3 (6%)

**HEMATOPOIETIC SYSTEM**

Bone Marrow	(50)	(50)	(50)	(50)
Hyperplasia	15 (30%)	15 (30%)	14 (28%)	18 (36%)
Lymph Node	(4)	(2)	(3)	(5)
Deep Cervical, Hemorrhage		1 (50%)		
Mediastinal, Hemorrhage	1 (25%)			
Pancreatic, Infiltration Cellular, Histiocyte	1 (25%)		1 (33%)	
Lymph Node, Mesenteric	(50)	(50)	(50)	(50)
Atrophy			1 (2%)	
Hemorrhage		1 (2%)		
Infiltration Cellular, Histiocyte			1 (2%)	
Inflammation				1 (2%)
Spleen	(50)	(50)	(50)	(50)
Accessory Spleen			1 (2%)	
Atrophy		1 (2%)		
Fibrosis				1 (2%)

TDMS No. 97003 - 07  
 Test Type: CHRONIC  
 Route: SKIN APPLICATION  
 Species/Strain: RATS/F 344

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**  
 1,2-Dibromo-2,4-dicyanobutane  
 CAS Number: 35691-65-7

Date Report Requested: 08/21/2007  
 Time Report Requested: 12:46:31  
 First Dose M/F: 07/10/02 / 07/11/02  
 Lab: BAT

FISCHER 344 RATS FEMALE	0 MG/KG	2 MG/KG	6 MG/KG	18 MG/KG
Hematopoietic Cell Proliferation	2 (4%)	2 (4%)	1 (2%)	
Hemorrhage				1 (2%)
Infarct		2 (4%)	1 (2%)	
Metaplasia, Lipocyte			1 (2%)	
Capsule, Inflammation	1 (2%)			
Thymus	(45)	(49)	(48)	(45)
Cyst				2 (4%)
Inflammation				1 (2%)
<b>INTEGUMENTARY SYSTEM</b>				
Mammary Gland	(50)	(50)	(50)	(50)
Cyst	2 (4%)	3 (6%)	2 (4%)	2 (4%)
Galactocele	1 (2%)			
Hyperplasia	4 (8%)	3 (6%)	1 (2%)	2 (4%)
Infiltration Cellular, Mononuclear Cell				1 (2%)
Inflammation	2 (4%)			1 (2%)
Skin	(50)	(50)	(50)	(50)
Dermis, Inflammation	1 (2%)			
Epidermis, Necrosis				1 (2%)
Epidermis, Ulcer	1 (2%)	1 (2%)		1 (2%)
Hair Follicle, Cyst				2 (4%)
Site Of Application - Dermis, Fibrosis		1 (2%)		1 (2%)
Site Of Application - Dermis, Inflammation		5 (10%)	12 (24%)	49 (98%)
Site Of Application - Epidermis, Hyperkeratosis		6 (12%)	49 (98%)	48 (96%)
Site Of Application - Epidermis, Hyperplasia	4 (8%)	6 (12%)	25 (50%)	49 (98%)
Site Of Application - Epidermis, Necrosis		4 (8%)		5 (10%)
Site Of Application - Epidermis, Ulcer		4 (8%)		1 (2%)
<b>MUSCULOSKELETAL SYSTEM</b>				
Bone	(50)	(50)	(50)	(50)
Skeletal Muscle	(1)	(0)	(0)	(1)
<b>NERVOUS SYSTEM</b>				
Brain	(50)	(50)	(50)	(50)
Hemorrhage	3 (6%)	1 (2%)	1 (2%)	3 (6%)
Hydrocephalus	2 (4%)	3 (6%)		3 (6%)
Peripheral Nerve	(2)	(0)	(0)	(1)
Spinal Cord	(1)	(0)	(0)	(1)
Hemorrhage				1 (100%)

TDMS No. 97003 - 07  
 Test Type: CHRONIC  
 Route: SKIN APPLICATION  
 Species/Strain: RATS/F 344

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**  
 1,2-Dibromo-2,4-dicyanobutane  
 CAS Number: 35691-65-7

Date Report Requested: 08/21/2007  
 Time Report Requested: 12:46:31  
 First Dose M/F: 07/10/02 / 07/11/02  
 Lab: BAT

FISCHER 344 RATS FEMALE	0 MG/KG	2 MG/KG	6 MG/KG	18 MG/KG
<b>RESPIRATORY SYSTEM</b>				
Lung	(50)	(50)	(50)	(50)
Hematopoietic Cell Proliferation		1 (2%)		
Hemorrhage			1 (2%)	
Inflammation	14 (28%)	8 (16%)	9 (18%)	11 (22%)
Metaplasia, Squamous		1 (2%)		
Alveolar Epithelium, Hyperplasia	12 (24%)	8 (16%)	7 (14%)	8 (16%)
Alveolus, Infiltration Cellular, Histiocyte	37 (74%)	28 (56%)	26 (52%)	38 (76%)
Serosa, Inflammation				1 (2%)
Nose	(50)	(50)	(50)	(50)
Inflammation	7 (14%)	10 (20%)	11 (22%)	9 (18%)
Polyp, Inflammatory				1 (2%)
Trachea	(50)	(50)	(50)	(50)
Inflammation			1 (2%)	
<b>SPECIAL SENSES SYSTEM</b>				
Eye	(50)	(50)	(50)	(50)
Cataract	2 (4%)	3 (6%)	2 (4%)	7 (14%)
Cornea, Edema		1 (2%)		
Retina, Atrophy	3 (6%)	3 (6%)	2 (4%)	7 (14%)
Retina, Dysplasia				1 (2%)
Harderian Gland	(50)	(50)	(50)	(50)
Hyperplasia	1 (2%)			1 (2%)
Inflammation	3 (6%)	2 (4%)		5 (10%)
Zymbal's Gland	(0)	(2)	(1)	(0)
<b>URINARY SYSTEM</b>				
Kidney	(50)	(50)	(50)	(50)
Cyst	1 (2%)		1 (2%)	
Hydronephrosis	1 (2%)			
Infarct		1 (2%)		
Inflammation			1 (2%)	
Mineralization	39 (78%)	31 (62%)	34 (68%)	38 (76%)
Necrosis			1 (2%)	
Nephropathy	40 (80%)	46 (92%)	35 (70%)	37 (74%)
Thrombosis		1 (2%)	1 (2%)	
Renal Tubule, Hyperplasia	1 (2%)	1 (2%)		
Transitional Epithelium, Hyperplasia	1 (2%)	1 (2%)		
Urinary Bladder	(50)	(50)	(49)	(50)

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

**TDMS No.** 97003 - 07  
**Test Type:** CHRONIC  
**Route:** SKIN APPLICATION  
**Species/Strain:** RATS/F 344

**P03: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE(a)**

1,2-Dibromo-2,4-dicyanobutane

**CAS Number:** 35691-65-7

**Date Report Requested:** 08/21/2007  
**Time Report Requested:** 12:46:31  
**First Dose M/F:** 07/10/02 / 07/11/02  
**Lab:** BAT

---

FISCHER 344 RATS FEMALE	0 MG/KG	2 MG/KG	6 MG/KG	18 MG/KG
-------------------------	---------	---------	---------	----------

---

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