

**TDMS No.** 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

**P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL**

ISOBUTYRALDEHYDE

**CAS Number:** 78-84-2

**Date Report Reqstd:** 06/07/2007

**Time Report Reqstd:** 11:43:39

**First Dose M/F:** 08/16/90 / 08/16/90

**Lab:** BNW

**C Number:** C60968B

**Lock Date:** 06/01/1994

**Cage Range:** ALL

**Date Range:** ALL

**Reasons For Removal:** ALL

**Removal Date Range:** ALL

**Treatment Groups:** Include ALL

**TDMSE Version:** 1.7.0









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Lab: BNW

## **INTEGUMENTARY SYSTEM**

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

+ .. Tissue examined microscopically

x ... Lesion present

.. Lesion present  
 Insufficient tissue

M .. Missing tissue

A - Autolysis precludes evaluation

**BLANK** Not examined microscopically

#### 1-4 .. Lesion qualified as

1-4: Less qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

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Lab: BNW

## MUSCULOSKELETAL SYSTEM

## **NERVOUS SYSTEM**

# **RESPIRATORY SYSTEM**

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

± .. Tissue examined microscopically

.. Lesion present

x .. Lesion present  
| .. Insufficient tissue

M Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

#### 1-4 Lesion qualified as

1-4 .. Lesion qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked



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**First Dose M/F:** 08/16/90 / 08/16/90

Lab: BNW

## **URINARY SYSTEM**

Kidney  
Nephropathy, Chronic  
Pelvis, Transitional Epithelium, Hyperplasia

Urinary Bladder  
Calculus Micro Observation Only  
Inflammation, Suppurative  
Transitional Epithelium, Hyperplasia

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

+ .. Tissue examined microscopically

x ... Lesion present

| Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

**BLANK** Not examined microscopically

#### 1-4 .. Lesion qualified as

.. Lesion qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

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| .. Insufficient tissue

M Missing tissue

A .. Autolysis precludes evaluation

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#### 1-4 Lesion qualified as:

+ .. Lesion qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

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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																																								
		5	6	7	4	6	6	6	6	6	5	7	6	7	4	7	5	5	6	7	7																																								
		4	7	3	2	9	1	7	9	8	9	6	3	0	0	6	3	7	4	8	3																																								
		7	8	3	1	2	4	8	8	1	5	6	3	4	5	5	3	9	9	7	3																																								
<b>FISCHER 344 RATS MALE</b>		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																								
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																								
<b>CONTROL</b>		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																								
		2	2	2	2	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4																																								
		6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5																																								
Hepatocyte, Necrosis		3	3																																																										
Mesentery																																																													
Fat, Inflammation, Granulomatous																																																													
Fat, Necrosis																																																													
		3																																																											
Pancreas																																																													
Atrophy																																																													
Salivary Glands																																																													
Stomach, Forestomach																																																													
Edema																																																													
Hyperplasia																																																													
Ulcer																																																													
Stomach, Glandular																																																													
Necrosis																																																													

## CARDIOVASCULAR SYSTEM

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

+ .. Tissue examined microscopically

x ... Lesion present

.. Lesion present  
 Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

**BLANK** Not examined microscopically

1-4 .. Lesion qualified as:

+ .. Lesion qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## **ENDOCRINE SYSTEM**

## GENERAL BODY SYSTEM

Peritoneum + + 2

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

+ Tissue examined microscopically

x Lesion present

.. Lesion present  
 Insufficient tissue

M Missing tissue

#### A Autolysis precludes evaluation

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#### 1-4 Lesion qualified as

1-4 .. Lesion qualified as:

1) Minimal      3) Moderate  
2) Mild            4) Marked

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## Lab: BNW

## **GENITAL SYSTEM**

## **HEMATOPOIETIC SYSTEM**

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

+ .. Tissue examined microscopically

x ... Lesion present

.. Lesion present  
 Insufficient tissue

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1) Minimal    3) Moderate  
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Lab: BNW

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

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## Lab: BNW

## MUSCULOSKELETAL SYSTEM

## **NERVOUS SYSTEM**

# **RESPIRATORY SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M Missing tissue

#### **A .. Autolysis precludes evaluation**

BLANK .. Not examined microscopically

#### 1-4 Lesion qualified as

1) Minimal 3) Moderate

2) Mild      4) Marked

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**Species/Strain:** RATS/F 344

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## Lab: BNW

## **SPECIAL SENSES SYSTEM**

Eye	+	4
Cataract		3 3.0
Cornea, Mineralization	3	1 3.0
Lens, Mineralization		1 4.0
.....		
Lacrimal Gland		1
.....		
Zymbal's Gland	+	2

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

+ .. Tissue examined microscopically

x ... Lesion present

| Insufficient tissue

M.. Missing tissue

A .. Autolysis precludes evaluation

**BLANK** Not examined microscopically

1-4 .. Lesion qualified as:

.. Lesion qualified as:

1) Minimal    3) Moderate  
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## Lab: BNW

## **URINARY SYSTEM**

Kidney  
Nephropathy, Chronic  
Pelvis, Transitional Epithelium, Hyperplasia

+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
4	1	3		2	1	3	3	4	3	2	3	1	4	3	4	3	2	3	2	3	2	1	47 2.7
																						1	

Urinary Bladder  
Calculus Micro Observation Only  
Inflammation, Suppurative  
Transitional Epithelium, Hyperplasia

2

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

+ .. Tissue examined microscopically

x ... Lesion present

| Insufficient tissue

M .. Missing tissue

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#### 1-4 .. Lesion qualified as

1) Minimal 3) Moderate

1) Minimal    3) Moderate  
2) Mild        4) Marked









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## Lab: BNW

## **HEMATOPOIETIC SYSTEM**

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

+ .. Total animals with tissue examined

x .. Lesion present

.. Lesion present  
 Insufficient tissue

M Missing tissue

A .. Autolysis precludes evaluation

**BLANK** Not examined microscopically

#### 1-4 Lesion qualified as:

1) Minimal 3) Moderate

1) Minimal    3) Moderate  
2) Mild        4) Marked







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**Species/Strain:** RATS/F 344

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M Missing tissue

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+ .. Lesion qualified as:

1) Minimal    3) Moderate  
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1-4 .. Lesion qualified as:

+ .. Lesion qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

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Lab: BNW

## CARDIOVASCULAR SYSTEM

# **ENDOCRINE SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M Missing tissue

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## Lab: BNW

## **GENERAL BODY SYSTEM**

NONE

## **GENITAL SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M.. Missing tissue

A .. Autolysis precludes evaluation

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1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild      4) Marked

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## Lab: BNW

## HEMATOPOIETIC SYSTEM

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

± .. Tissue examined microscopically

x ... Lesion present

| Insufficient tissue

M Missing tissue

A .. Autolysis precludes evaluation

**BLANK** Not examined microscopically

#### 1-4 Lesion qualified as:

1) Minimal 3) Moderate

1) Minimal    3) Moderate  
2) Mild        4) Marked



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## Lab: BNW

## **RESPIRATORY SYSTEM**

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

± .. Tissue examined microscopically

x ... Lesion present

x .. Lesion present  
| .. Insufficient tissue

M Missing tissue

A .. Autolysis precludes evaluation

BLANK - Not examined microscopically

#### 1-4 Lesion qualified as:

1-4: Lesion qualified as:

1) Minimal      3) Moderate  
2) Mild          4) Marked





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Lab: BNW

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

+ .. Tissue examined microscopically

x ... Lesion present

.. Lesion present  
 Insufficient tissue

M Missing tissue

A .. Autolysis precludes evaluation

**BLANK** Not examined microscopically

#### 1-4 Lesion qualified as

1-4: Lesion qualified as:

1) Minimal      3) Moderate  
2) Mild          4) Marked







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Lab: BNW

# **INTEGUMENTARY SYSTEM**

## MUSCULOSKELETAL SYSTEM

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

#### 1-4 .. Lesion qualified as:

1-4: Ejection qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked





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Lab: BNW

#### Artery, Necrosis, Fibrinoid

### Cortex, Cyst

#### **Renal Tubule, Hyperplasia, Atypical**

4

**males  
(cont...)**

## Urinary Bladder

### **Calculus Micro Observation Only**

### **Hemorrhage**

2

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

#### 1-4 .. Lesion qualified as

1) Minimal 3) Moderate

2) Mild      4) Marked

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| .. Insufficient tissue

M Missing tissue

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#### 1-4 Lesion qualified as:

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x .. Lesion present

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 Insufficient tissue

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1-4 .. Lesion qualified as:

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Lab: BNW

Tooth  
Inflammation, Suppurative

1 4.0

## CARDIOVASCULAR SYSTEM

# **ENDOCRINE SYSTEM**

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

+ ... Tissue examined microscopically

x ... Lesion present

X .. Essien present  
I .. Insufficient tissue

M Missing tissue

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#### 1-4 Lesion qualified as

1-4 ... Lesion qualified as:

1) Minimal 3) Moderate  
2) Mild 4) Marked

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## Lab: BNW

## **GENERAL BODY SYSTEM**

NONE

## **GENITAL SYSTEM**

Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	1	4.0	
Inflammation, Granulomatous																					4			
Epithelium, Hyperplasia																					3		1 3.0	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....			
Penis							+															1		
Hemorrhage							4															1	4.0	
Thrombosis, Acute							4															1	4.0	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....			
Preputial Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50			
Cyst	3						2															11	3.2	
Hyperplasia							4															2	4.0	
Inflammation, Suppurative	3		3																			8	3.4	
Inflammation, Chronic																						1	4.0	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....			
Prostate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50			
Inflammation, Suppurative																					2		4 2.5	

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

#### 1-4 Lesion qualified as:

1) Minimal 3) Moderate

2) Mild      4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

Date Report Requested: 06/07/2007

Time Report Requested: 11:43:39

**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## **HEMATOPOIETIC SYSTEM**

Bone Marrow Hyperplasia, Reticulum Cell	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	1	4.0
Lymph Node																						6		
Lymph Node, Bronchial Fibrosis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49	1	3.0
Lymph Node, Mandibular	+	+	+	+	+	+	+	M	+	M	+	+	+	+	+	+	+	+	+	+	M	+	+	44
Lymph Node, Mediastinal Fibrosis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	1	2.0
Lymph Node, Mesenteric Fibrosis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	1	2.0

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

+ .. Tissue examined microscopically

x ... Lesion present

| Insufficient tissue

M.. Missing tissue

A .. Autolysis precludes evaluation

**BLANK** Not examined microscopically

1-4 .. Lesion qualified as:

1-4: Less qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

Date Report Requested: 06/07/2007

Time Report Requested: 11:43:39

**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

# **INTEGUMENTARY SYSTEM**

## MUSCULOSKELETAL SYSTEM

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M., Missing tissue

#### A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild      4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

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Time Report Requested: 11:43:39

**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## **NERVOUS SYSTEM**

## Spinal Cord

# **RESPIRATORY SYSTEM**

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

± .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

#### 1-4 Lesion qualified as:

+ .. Lesion qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

Date Report Requested: 06/07/2007

Time Report Requested: 11:43:39

**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## **SPECIAL SENSES SYSTEM**

Eye	+	+	+			5
Cataract		4		+		2 3.5
Lens, Cataract				3		1 3.0
<hr/>						
Harderian Gland			+			1
Hyperplasia			3			1 3.0
<hr/>						
Zymbal's Gland				+		1

# **URINARY SYSTEM**

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

+ .. Tissue examined microscopically

x ... Lesion present

| Insufficient tissue

M .. Missing tissue

A - Autolysis precludes evaluation

**BLANK** Not examined microscopically

1-4 .. Lesion qualified as:

+ .. Lesion qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

Date Report Requested: 06/07/2007

Time Report Requested: 11:43:39

**First Dose M/F:** 08/16/90 / 08/16/90

Lab: BNW

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

† .. Tissue examined microscopically

x ... Lesion present

X .. Lesion present  
| .. Insufficient tissue

M Missing tissue

A - Autolysis precludes evaluation

BLANK - Not examined microscopically

#### 1-4 Lesion qualified as:

+ .. Lesion qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked







TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

Date Report Requested: 06/07/2007

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## **GENERAL BODY SYSTEM**

## Peritoneum

## **GENITAL SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

#### 1-4 .. Lesion qualified as

1) Minimal 3) Moderate

2) Mild      4) Marked



TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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Date Report Requested: 06/07/2007

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## **INTEGUMENTARY SYSTEM**

## MUSCULOSKELETAL SYSTEM

## **NERVOUS SYSTEM**

## RESPIRATORY SYSTEM

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

† Tissue examined microscopically

.. Lesion present

X .. Lesion present  
I .. Insufficient tissue

M Missing tissue

A - Autolysis precludes evaluation

BLANK - Not examined microscopically

#### 1-4 Lesion qualified as

1-4 .. Lesion qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

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**First Dose M/F:** 08/16/90 / 08/16/90

Lab: BNW

## **males (cont...)**

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

† .. Total animals with tissue examined

x ... Lesion present

X .. Essien present  
I .. Insufficient tissue

M Missing tissue

A - Autolysis precludes evaluation

BLANK - Not examined microscopically

#### 1-4 Lesion qualified as

1-4 :: Lesion qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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Time Report Requested: 11:43:39

**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## **SPECIAL SENSES SYSTEM**

**Eye**  
Cataract  
Cornea, Lens, Mineralization

4

4

## **males (cont...)**

## Zymbal's Gland

## **URINARY SYSTEM**

Kidney  
Nephropathy, Chronic  
Cortex, Necrosis  
Renal Tubule, Hyperplasia  
Renal Tubule, Mineralization

Urinary Bladder  
Hemorrhage

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

† .. Tissue examined microscopically

x ... Lesion present

| .. Insufficient tissue

M Missing tissue

A - Autolysis precludes evaluation

BLANK - Not examined microscopically

#### 1-4 Lesion qualified as

1-4: Less qualified as:

1) Minimal      3) Moderate  
2) Mild          4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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**First Dose M/F:** 08/16/90 / 08/16/90

Lab: BNW

## **ALIMENTARY SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild      4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

Date Report Requested: 06/07/2007

Time Report Requested: 11:43:39

**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## CARDIOVASCULAR SYSTEM

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M .. Missing tissue

A.. Autolysis precludes evaluation

BLANK .. Not examined microscopically

#### 1-4 .. Lesion qualified as

1) Minimal 3) Moderate

2) Mild      4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

Date Report Requested: 06/07/2007

Time Report Requested: 11:43:39

**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## **ENDOCRINE SYSTEM**

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

+ .. Tissue examined microscopically

x ... Lesion present

.. Lesion present  
 Insufficient tissue

M Missing tissue

A .. Autolysis precludes evaluation

BLANK - Not examined microscopically

#### 1-4 Lesion qualified as:

+ .. Lesion qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

Date Report Requested: 06/07/2007

Time Report Requested: 11:43:39

**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## **GENERAL BODY SYSTEM**

Peritoneum + 1

## **GENITAL SYSTEM**

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

+ .. Tissue examined microscopically

x ... Lesion present

.. Lesion present  
 Insufficient tissue

M.. Missing tissue

A .. Autolysis precludes evaluation

**BLANK** Not examined microscopically

1-4 .. Lesion qualified as:

+ .. Lesion qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

Date Report Requested: 06/07/2007

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## **HEMATOPOIETIC SYSTEM**

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

+ .. Tissue examined microscopically

x ... Lesion present

| Insufficient tissue

M.. Missing tissue

A - Autolysis precludes evaluation

**BLANK** Not examined microscopically

1-4 .. Lesion qualified as:

.. Lesion qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

**Date Report Requested:** 06/07/2007

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## **INTEGUMENTARY SYSTEM**

## MUSCULOSKELETAL SYSTEM

## **NERVOUS SYSTEM**

Spinal Cord  
Hemorrhage 1 4.0

## RESPIRATORY SYSTEM

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

† Tissue examined microscopically

- ✗ Lesion present

.. Lesion present  
 Insufficient tissue

M Missing tissue

A Autolysis precludes evaluation

**BLANK** Not examined microscopically

#### 1-1 Lesion qualified as:

.. Lesion qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

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

† Tissue examined microscopically

- ✗ Lesion present

.. Lesion present  
 Insufficient tissue

M Missing tissue

A Autolysis precludes evaluation

**BLANK** Not examined microscopically

1-1 Lesion qualified as:

4 .. Lesion qualified as:

1) Minimal      3) Moderate  
2) Mild          4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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Time Report Requested: 11:43:39

**First Dose M/F:** 08/16/90 / 08/16/90

Lab: BNW

## **SPECIAL SENSES SYSTEM**

Eye + 3  
Cataract 4 3 4.0  
Cornea, Lens, Mineralization X 1

Zymbal's Gland + 1

## **URINARY SYSTEM**

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

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

† .. Tissue examined microscopically

x ... Lesion present

| .. Insufficient tissue

M Missing tissue

A - Autolysis precludes evaluation

BLANK - Not examined microscopically

#### 1-4 Lesion qualified as:

1) Minimal 3) Moderate

1) Minimal    3) Moderate  
2) Mild        4) Marked



TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

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

† .. Tissue examined microscopically

x .. Lesion present

X .. Essien present  
I .. Insufficient tissue

M Missing tissue

A - Autolysis precludes evaluation

BLANK - Not examined microscopically

#### 1-4 Lesion qualified as

1-4 ... lesion qualified as:

2) Mild      4) Marked









TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

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Lab: BNW

## SPECIAL SENSES SYSTEM

Eye + +

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

† .. Tissue examined microscopically

x ... Lesion present

X .. Essien present  
I .. Insufficient tissue

M Missing tissue

A - Autolysis precludes evaluation

BLANK - Not examined microscopically

#### 1-4 Lesion qualified as

1-4: Lesion qualified as:

1) Minimal 3) Moderate  
2) Mild 4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## Lens, Cataract

3

## **URINARY SYSTEM**

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

+ .. Tissue examined microscopically

x ... Lesion present

| Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

**BLANK** Not examined microscopically

#### 1-4 .. Lesion qualified as

1) Minimal 3) Moderate

1) Minimal    3) Moderate  
2) Mild        4) Marked



TDMS No. 60968 - 01

**Test Type: CHRONIC**

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

#### 1-4 Lesion qualified as

1-4: Ejection qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

**Test Type: CHRONIC**

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## Epithelium, Hyperplasia

14.0

Tooth  
Developmental Malformation

1

## CARDIOVASCULAR SYSTEM

## **ENDOCRINE SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

#### I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

#### 1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild      4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## **GENERAL BODY SYSTEM**

Peritoneum + 1

## **GENITAL SYSTEM**

## **HEMATOPOIETIC SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M.. Missing tissue

#### **M: Missing teeth**

BLANK .. Not examined microscopically

#### 1-4 .. Lesion qualified as

1) Minimal 3) Moderate

2) Mild      4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

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**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

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## INTEGUMENTARY SYSTEM

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

+ .. Tissue examined microscopically

x .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild      4) Marked



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**Test Type:** CHRONIC

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## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

Pleura + 1  
Inflammation 3 1 3.0

## SPECIAL SENSES SYSTEM

Eve + 3

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

† .. Tissue examined microscopically

x ... Lesion present

X .. Essien present  
I .. Insufficient tissue

M Missing tissue

A .. Autolysis precludes evaluation

BLANK - Not examined microscopically

#### 1-4 Lesion qualified as

1-4: Lesion qualified as:

1) Minimal 3) Moderate  
2) Mild 4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

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

† .. Tissue examined microscopically

x ... Lesion present

X .. Essien present  
I .. Insufficient tissue

M Missing tissue

A - Autolysis precludes evaluation

BLANK - Not examined microscopically

#### 1-4 Lesion qualified as:

1) Minimal 3) Moderate

1) Minimal    3) Moderate  
2) Mild        4) Marked





TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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Date Report Registered: 06/07/2007

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**First Dose M/F:** 08/16/90 / 08/16/90

Lab: BNW

	DAY ON TEST																				
FISCHER 344 RATS FEMALE 500 PPM	ANIMAL ID																				females (cont...)
Adrenal Cortex Vacuolization Cytoplasmic	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adrenal Medulla Hyperplasia	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+
Islets, Pancreatic Hyperplasia	+	+	+	A	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+
Parathyroid Gland	+	+	+	+	+	+	+	+	+	+	M	M	+	+	+	+	+	M	M	+	+
Pituitary Gland Cyst Hemorrhage Pars Distalis, Hyperplasia	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	3
Thyroid Gland C-cell, Hyperplasia	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	1	+	+	+

## **GENERAL BODY SYSTEM**

## Tissue NOS

## **GENITAL SYSTEM**

**Clitoral Gland  
Cyst**

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

+ .. Tissue examined microscopically

x .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified a

1) Minimal 3) Moderate

2) Mild      4) Marked



TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

**Date Report Requested:** 06/07/2007

Time Report Requested: 11:43:39

**First Dose M/F:** 08/16/90 / 08/16/90

Lab: BNW

# **INTEGUMENTARY SYSTEM**

## MUSCULOSKELETAL SYSTEM

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

+ .. Tissue examined microscopically

x .. Lesion present

I .. Insufficient tissue

M.. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild      4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## **NERVOUS SYSTEM**

# **RESPIRATORY SYSTEM**

Larynx	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Foreign Body																							
Inflammation, Suppurative																							
Epithelium, Hyperplasia																							
Epithelium, Metaplasia, Squamous																							
Glands, Inflammation, Suppurative	1	1			1											1	1				2		1

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

+ .. Tissue examined microscopically

x .. Lesion present

I .. Insufficient tissue

M.. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

#### 1-4 .. Lesion qualified as

1) Minimal 3) Moderate

2) Mild      4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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## Lab: BNW

## Respiratory Epithelium, Metaplasia, Squamous

2

Pleura

### Trachea

## SPECIAL SENSES SYSTEM

**Eye**  
Cornea, Mineralization  
Lens, Cataract

## URINARY SYSTEM

Kidney  
Nephropathy, Chronic  
Renal Tubule, Mineralization

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

#### 1-4 .. Lesion qualified as

1) Minimal 3) Moderate

2) Mild      4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

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## Lab: BNW

## **ALIMENTARY SYSTEM**

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

+ .. Tissue examined microscopically

x ... Lesion present

.. Lesion present  
 Insufficient tissue

M .. Missing tissue

A - Autolysis precludes evaluation

**BLANK** Not examined microscopically

#### 1-4 .. Lesion qualified as

1-4: Lesion qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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Date Report Requested: 06/07/2007

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## CARDIOVASCULAR SYSTEM

# **ENDOCRINE SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

#### I .. Insufficient tissue

M .. Missing tissue

#### A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

#### 1-4 .. Lesion qualified as

1) Minimal 3) Moderate

2) Mild      4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

**CAS Number:** 78-84-2

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**First Dose M/F:** 08/16/90 / 08/16/90

Lab: BNW

## **GENERAL BODY SYSTEM**

## Tissue NOS

+

## **GENITAL SYSTEM**

**Clitoral Gland Cyst**

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

† .. Tissue examined microscopically

x ... Lesion present

X .. Essien present  
I .. Insufficient tissue

M Missing tissue

M .. Missing tissue  
A .. Autolysis precludes evaluation

BLANK - Not examined microscopically

#### 1-4 Lesion qualified a

.. Lesion qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

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Time Report Requested: 11:43:39

**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## **HEMATOPOIETIC SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M.. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

#### 1-4 .. Lesion qualified as

1) Minimal 3) Moderate

2) Mild      4) Marked

TDMS No. 60968 - 01

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

Date Report Registered: 06/07/2007

Time Report Requested: 11:43:39

**First Dose M/F:** 08/16/90 / 08/16/90

Lab: BNW

# **INTEGUMENTARY SYSTEM**

Mammary Gland Epithelium, Hyperplasia	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	1	3.0
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50		
Hyperkeratosis																						4	4	3.0
Inflammation, Suppurative																						1	1	2.0
Ulcer																						3	3	3.3
Epidermis, Cyst																						2	2	3.5
																						3		

## MUSCULOSKELETAL SYSTEM

Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Cranium, Fracture																						1 4.0
Cranium, Femur, Osteopetrosis																						1 4.0
Maxilla, Fracture																						1
															X							

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M.. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild      4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## **NERVOUS SYSTEM**

## RESPIRATORY SYSTEM

Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	1	2	1.5
Alveolar Epithelium, Fibrosis																							1	6	2.0	
Alveolar Epithelium, Hyperplasia																							1			
Alveolar Epithelium, Infiltration Cellular, Histiocyte																							1	10	1.6	

Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	2	1.0	
Cyst																							1			
Foreign Body																								2		
Hemorrhage																								1	4.0	
Inflammation, Suppurative																								3	2.0	

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M.. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild      4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## **SPECIAL SENSES SYSTEM**

Eye + 2  
Cornea, Mineralization 1 2.0  
Lens, Cataract 1 3.0

## **URINARY SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild      4) Marked



TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## CARDIOVASCULAR SYSTEM

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M.. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild      4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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## Lab: BNW

## **ENDOCRINE SYSTEM**

## **GENERAL BODY SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

x .. Eosin present  
| .. Insufficient tissue

M .. Missing tissue

A.. Autolysis precludes evaluation

BLANK - Not examined microscopically

#### 1-4 .. Lesion qualified as

1) Minimal 3) Moderate

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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## Lab: BNW

## Tissue NOS

•

## **GENITAL SYSTEM**

## **HEMATOPOIETIC SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

x .. Lesion present  
| .. Insufficient tissue

M.. Missing tissue

A .. Autolysis precludes evaluation

BLANK - Not examined microscopically

#### 1-4 .. Lesion qualified as:

.. Lesion qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## **INTEGUMENTARY SYSTEM**

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

+ .. Tissue examined microscopically

x ... Lesion present

| Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

**BLANK** Not examined microscopically

#### 1-4 .. Lesion qualified as

1-4: Ejection qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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Lab: BNW

## MUSCULOSKELETAL SYSTEM

## **NERVOUS SYSTEM**

## **RESPIRATORY SYSTEM**

Lung	+	+	+	+	+	+	+	+	+	2	+	+	+	+	+	+	+	+	+	+	2	
Hemorrhage																						
Alveolar Epithelium, Fibrosis																					2	3
Alveolar Epithelium, Hyperplasia																					3	4
Alveolar Epithelium, Infiltration Cellular, Histiocyte										1	3				2	1	1	1			2	

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as

+ .. Lesion qualified as:

1) Minimal      3) Moderate  
2) Mild          4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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## Lab: BNW

Cyst	
Foreign Body	>
Inflammation, Suppurative	<

$$\begin{array}{cccc} 1 & & 1 & \\ & & x & \\ & & & x \end{array}$$

**females  
(cont...)**

Cyst  
Foreign Body  
Inflammation, Suppurative  
Olfactory Epithelium, Degeneration  
Respiratory Epithelium, Hyperplasia  
Respiratory Epithelium, Metaplasia,  
Squamous

## SPECIAL SENSES SYSTEM

Eye  
Lens, Cataract

## **URINARY SYSTEM**

Kidney  
Nephropathy, Chronic  
Pelvis, Dilatation  
Renal Tubule, Inflammation, Suppurative  
Renal Tubule, Mineralization

$$\begin{array}{ccccccccccccccccccccccccc}
 + & + \\
 1 & 2 & 1 & 1 & & 1 & 2 & & 1 & & 2 & 1 & & 1 & 2 & 2 & 2 & & + & + & + & + & + & + & + & + & 1
 \end{array}$$

3

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

† .. Tissue examined microscopically

x ... Lesion present

| .. Insufficient tissue

M Missing tissue

A - Autolysis precludes evaluation

BLANK - Not examined microscopically

#### 1-4 Lesion qualified as

1-4: Less qualified as:

1) Minimal      3) Moderate  
2) Mild          4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

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Lab: BNW

## **ALIMENTARY SYSTEM**

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

+ .. Tissue examined microscopically

x ... Lesion present

.. Lesion present  
 Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

**BLANK** Not examined microscopically

1-4 .. Lesion qualified as:

14. Eosinophils qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

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## Lab: BNW

## CARDIOVASCULAR SYSTEM

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild      4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## **ENDOCRINE SYSTEM**

## **GENERAL BODY SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M., Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

#### 1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild      4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## **GENITAL SYSTEM**

## HEMATOPOIETIC SYSTEM

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

+ .. Tissue examined microscopically

x ... Lesion present

.. Lesion present  
 Insufficient tissue

M.. Missing tissue

A .. Autolysis precludes evaluation

**BLANK** Not examined microscopically

1-4 .. Lesion qualified as:

+ .. Lesion qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

Date Report Requested: 06/07/2007

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

# **INTEGUMENTARY SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M., Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild      4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

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**First Dose M/F:** 08/16/90 / 08/16/90

Lab: BNW

## MUSCULOSKELETAL SYSTEM

# **NERVOUS SYSTEM**

# **RESPIRATORY SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M.. Missing tissue

M .. Missing tissue  
A .. Autolysis precludes evaluation

BLANK - Not examined microscopically

1-4 .. Lesion qualified as:

+ .. Lesion qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

**Date Report Requested:** 06/07/2007

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**First Dose M/F:** 08/16/90 / 08/16/90

Lab: BNW

## **SPECIAL SENSES SYSTEM**

Eye + 1  
Lens, Cataract 3 1 3.0

## **URINARY SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M.. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild      4) Marked











TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

Date Report Requested: 06/07/2007

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**First Dose M/F:** 08/16/90 / 08/16/90

## Lab: BNW

## **SPECIAL SENSES SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

I .. Insufficient tissue

M.. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

2) Mild      4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

CAS Number: 78-84-2

Date Report Registered: 06/07/2007

Time Report Requested: 11:43:39

**First Dose M/F:** 08/16/90 / 08/16/90

Lab: BNW

**Eye**  
Lens, Cataract

## **URINARY SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 .. Lesion qualified as

1) Minimal 3) Moderate

2) Mild      4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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## Lab: BNW

## **ALIMENTARY SYSTEM**

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

† .. Tissue examined microscopically

x ... Lesion present

X .. Essien present  
I .. Insufficient tissue

M Missing tissue

A - Autolysis precludes evaluation

BLANK - Not examined microscopically

#### 1-4 Lesion qualified as:

1-4: Less qualified as:

2) Mild      4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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Lab: BNW

## CARDIOVASCULAR SYSTEM

## **ENDOCRINE SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

#### I .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

#### 1-4 .. Lesion qualified as

1) Minimal 3) Moderate

2) Mild      4) Marked



TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

## ISOBUTYRALDEHYDE

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## Lab: BNW

## **HEMATOPOIETIC SYSTEM**

Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
Lymph Node		+	+																				5	
Lymph Node, Bronchial	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	+	M	+	M	+	+	+	+	+	+	+	M	+	46
Lymph Node, Mediastinal	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
Fibrosis																						3	4	3.0
Hematopoietic Cell Proliferation																						4	1	4.0

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

+ .. Tissue examined microscopically

x ... Lesion present

| Insufficient tissue

M.. Missing tissue

A .. Autolysis precludes evaluation

**BLANK** Not examined microscopically

1-4 .. Lesion qualified as:

.. Lesion qualified as:

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

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## **INTEGUMENTARY SYSTEM**

## MUSCULOSKELETAL SYSTEM

## **NERVOUS SYSTEM**

Brain Hemorrhage 1 2.0  
Ventricle, Hydrocephalus 2 3.0

## **RESPIRATORY SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

X .. Essien present  
I .. Insufficient tissue

M .. Missing tissue

A.. Autolysis precludes evaluation

BLANK - Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

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## Lab: BNW

## **SPECIAL SENSES SYSTEM**

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

+ .. Tissue examined microscopically

x .. Lesion present

X .. Essien present  
I .. Insufficient tissue

M.. Missing tissue

#### A .. Autolysis precludes evaluation

BLANK - Not examined microscopically

1-4 .. Lesion qualified as:

1) Minimal 3) Moderate

1) Minimal    3) Moderate  
2) Mild        4) Marked

TDMS No. 60968 - 01

**Test Type:** CHRONIC

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** RATS/F 344

## P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

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## Lab: BNW

**Eye  
Lens, Cataract**

1

1 3.0

## **URINARY SYSTEM**

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

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

+ .. Tissue examined microscopically

x .. Lesion present

| .. Insufficient tissue

M .. Missing tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

#### 1-4 .. Lesion qualified as:

.. Easier qualified as:

2) Mild      4) Marked