

**Experiment Number:** 88038-01  
**Test Type:** 90-DAY  
**Route:** DOSED WATER  
**Species/Strain:** Rat/F 344/N

**P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL**  
**Test Compound:** Glyoxal  
**CAS Number:** 107-22-2

**Date Report Requested:** 10/17/2014  
**Time Report Requested:** 13:29:40  
**First Dose M/F:** NA / NA  
**Lab:** SRI

<b>C Number:</b>	C88038
<b>Lock Date:</b>	01/24/1992
<b>Cage Range:</b>	All
<b>Date Range:</b>	All
<b>Reasons For Removal:</b>	All
<b>Removal Date Range:</b>	All
<b>Treatment Groups:</b>	All
<b>Study Gender:</b>	Both
<b>PWG Approval Date</b>	NONE

Experiment Number: 88038-01

Test Type: 90-DAY

Route: DOSED WATER

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Glyoxal

CAS Number: 107-22-2

Date Report Requested: 10/17/2014

Time Report Requested: 13:29:40

First Dose M/F: NA / NA

Lab: SRI

F 344/N Rat Male VEHICLE CONTROL	DAY ON TEST	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
		9	9	9	9	9	9	9	9	9	9	
		2	2	2	2	2	2	2	2	2	2	
	ANIMAL ID	0	0	0	0	0	0	0	0	0	0	*TOTALS
	0	0	0	0	0	0	0	0	0	0		
	0	0	0	0	0	0	0	0	0	0		
	0	0	0	0	0	0	0	0	0	1		
	1	2	3	4	5	6	7	8	9	0		

Alimentary System

Esophagus	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	M	9
Intestine Large, Colon	+	+	+	+	+	+	+	M	+	+	9
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	M	+	+	+	+	9
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	10
Hepatodiaphragmatic Nodule				X							1
Pancreas	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	10
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10

Cardiovascular System

Blood Vessel	+	+	+	+	+	+	+	+	+	+	10
Heart	+	+	+	+	+	+	+	+	+	+	10
Cardiomyopathy	1	1					1	1			4 1.0

Endocrine System

Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	10
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	10

\* ..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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First Dose M/F: NA / NA

Lab: SRI

F 344/N Rat Male  
VEHICLE CONTROL

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	2	2	2	2	2	2	2	2	2	2
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	1	2	3	4	5	6	7	8	9	0
	<b>*TOTALS</b>									

Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	10
Parathyroid Gland	+	+	+	+	+	+	+	+	+	+	10
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	10
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	10
Ultimobranchial Cyst								X			1

General Body System

NONE

Genital System

Epididymis	+	+	+	+	+	+	+	+	+	+	10
Preputial Gland	+	+	+	+	+	+	+	+	+	+	10
Prostate	+	+	+	+	+	+	+	+	+	+	10
Fibrosis	2										1 2.0
Inflammation, Chronic	2								2		2 2.0
Inflammation, Suppurative							1	1			2 1.0
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	10
Testes	+	+	+	+	+	+	+	+	+	+	10

Hematopoietic System

Bone Marrow	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	10
Hemorrhage				1							1 1.0

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Test Compound: Glyoxal

CAS Number: 107-22-2

Date Report Requested: 10/17/2014

Time Report Requested: 13:29:40

First Dose M/F: NA / NA

Lab: SRI

F 344/N Rat Male VEHICLE CONTROL	DAY ON TEST										*TOTALS
	0	0	0	0	0	0	0	0	0	0	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	1	2	3	4	5	6	7	8	9	0	
Spleen	+	+	+	+	+	+	+	+	+	+	10
Fibrosis					1						1 1.0
Thymus	+	+	+	+	+	+	+	+	+	+	10
<b>Integumentary System</b>											
Mammary Gland	+	+	+	+	M	+	+	+	+	+	9
Skin	+	+	+	+	+	+	+	+	+	+	10
<b>Musculoskeletal System</b>											
Bone	+	+	+	+	+	+	+	+	+	+	10
<b>Nervous System</b>											
Brain	+	+	+	+	+	+	+	+	+	+	10
<b>Respiratory System</b>											
Lung	+	+	+	+	+	+	+	+	+	+	10
Nose	+	+	+	+	+	+	+	+	+	+	10
Trachea	+	+	+	+	+	+	+	+	+	+	10
<b>Special Senses System</b>											
NONE											
<b>Urinary System</b>											
Kidney	+	+	+	+	+	+	+	+	+	+	10
Nephropathy			2	1	1				1	1	5 1.2

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 Species/Strain: Rat/F 344/N

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Test Compound: Glyoxal  
 CAS Number: 107-22-2

Date Report Requested: 10/17/2014  
 Time Report Requested: 13:29:40  
 First Dose M/F: NA / NA  
 Lab: SRI

**F 344/N Rat Male**  
**VEHICLE CONTROL**

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	9	9	9	9	9	9	9	9	9	9	
	2	2	2	2	2	2	2	2	2	2	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	1	
	1	2	3	4	5	6	7	8	9	0	<b>*TOTALS</b>
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	10

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Test Type: 90-DAY

Test Compound: Glyoxal

Time Report Requested: 13:29:40

Route: DOSED WATER

CAS Number: 107-22-2

First Dose M/F: NA / NA

Species/Strain: Rat/F 344/N

Lab: SRI

F 344/N Rat Male  
1 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	2	2	2	2	2	2	2	2	2	2
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	1	1	2
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

Alimentary System

Salivary Glands + + + + + + + + + + 10

Cardiovascular System

NONE

Endocrine System

NONE

General Body System

NONE

Genital System

NONE

Hematopoietic System

Lymph Node, Mandibular + + + + + + + + + + 10

Lymph Node, Mesenteric + + + + + + + + + + 10

Integumentary System

NONE

Musculoskeletal System

NONE

Nervous System

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Test Compound: Glyoxal

Time Report Requested: 13:29:40

Route: DOSED WATER

CAS Number: 107-22-2

First Dose M/F: NA / NA

Species/Strain: Rat/F 344/N

Lab: SRI

F 344/N Rat Male  
1 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	2	2	2	2	2	2	2	2	2	2
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	1	1	2
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

NONE

Respiratory System

NONE

Special Senses System

NONE

Urinary System

Kidney + + + + + + + + + 10

Nephropathy 1 1 1 1 4 1.0

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Route: DOSED WATER

CAS Number: 107-22-2

First Dose M/F: NA / NA

Species/Strain: Rat/F 344/N

Lab: SRI

F 344/N Rat Male  
2 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	2	2	2	2	2	2	2	2	2	2
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	2	2	2	2	2	2	2	2	3	3
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

Alimentary System

Liver	+										1
Hepatodiaphragmatic Nodule	X										1
Mesentery		+									1
Accessory Spleen			X								1
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10

Cardiovascular System

NONE

Endocrine System

NONE

General Body System

NONE

Genital System

NONE

Hematopoietic System

Lymph Node, Mandibular	M	+	I	+	+	+	+	+	+	+	8
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	10
Hemorrhage		1						1			2 1.0

Integumentary System

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

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Date Report Requested: 10/17/2014

Test Type: 90-DAY

Test Compound: Glyoxal

Time Report Requested: 13:29:40

Route: DOSED WATER

CAS Number: 107-22-2

First Dose M/F: NA / NA

Species/Strain: Rat/F 344/N

Lab: SRI

F 344/N Rat Male  
2 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	9	9	9	9	9	9	9	9	9	9	
	2	2	2	2	2	2	2	2	2	2	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	2	2	2	2	2	2	2	2	2	3	
	1	2	3	4	5	6	7	8	9	0	*TOTALS

NONE  
Musculoskeletal System

NONE  
Nervous System

NONE  
Respiratory System

NONE  
Special Senses System

NONE  
Urinary System

Kidney	+	+	+	+	+	+	+	+	+	+	10
Nephropathy	1				1		1	1	1		5 1.0

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Date Report Requested: 10/17/2014

Test Type: 90-DAY

Test Compound: Glyoxal

Time Report Requested: 13:29:40

Route: DOSED WATER

CAS Number: 107-22-2

First Dose M/F: NA / NA

Species/Strain: Rat/F 344/N

Lab: SRI

F 344/N Rat Male  
4 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	2	2	2	2	2	2	2	2	2	2
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	3	3	3	3	3	3	3	3	3	4
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

Alimentary System

Salivary Glands + + + + + + + + + + 10

Cardiovascular System

NONE

Endocrine System

NONE

General Body System

NONE

Genital System

NONE

Hematopoietic System

Lymph Node, Mandibular + + + + + + + + + + 10

Lymph Node, Mesenteric + + + + + + + + + + 10

Integumentary System

NONE

Musculoskeletal System

NONE

Nervous System

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

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P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/17/2014

Test Type: 90-DAY

Test Compound: Glyoxal

Time Report Requested: 13:29:41

Route: DOSED WATER

CAS Number: 107-22-2

First Dose M/F: NA / NA

Species/Strain: Rat/F 344/N

Lab: SRI

F 344/N Rat Male  
4 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	2	2	2	2	2	2	2	2	2	2
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	3	3	3	3	3	3	3	3	3	4
	1	2	3	4	5	6	7	8	9	0

\*TOTALS

NONE

Respiratory System

NONE

Special Senses System

NONE

Urinary System

Kidney	+	+	+	+	+	+	+	+	+	+	10
Inflammation, Chronic								1			1 1.0
Mineralization				1							1 1.0
Nephropathy							1	1	1	1	4 1.0
Papilla, Cytoplasmic Alteration				1							1 1.0
Renal Tubule, Dilatation	1										1 1.0

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Test Type: 90-DAY

Test Compound: Glyoxal

Time Report Requested: 13:29:41

Route: DOSED WATER

CAS Number: 107-22-2

First Dose M/F: NA / NA

Species/Strain: Rat/F 344/N

Lab: SRI

F 344/N Rat Male  
8 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	2	2	2	2	2	2	2	2	2	2
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	4	4	4	4	4	4	4	4	4	5
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

Alimentary System

Esophagus	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	M	9
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	10
Mesentery		+									1
Accessory Spleen		X									1
Pancreas	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10
Atrophy	3	3	3	3	3	2	1	1	3	3	10 2.5
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	10
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10

Cardiovascular System

Blood Vessel	+	+	+	+	+	+	+	+	+	+	10
Heart	+	+	+	+	+	+	+	+	+	+	10
Cardiomyopathy		1				1	1		1	2	5 1.2

Endocrine System

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CAS Number: 107-22-2

First Dose M/F: NA / NA

Species/Strain: Rat/F 344/N

Lab: SRI

F 344/N Rat Male  
8 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	*TOTALS
	0	0	0	0	0	0	0	0	0	0	
ANIMAL ID	9	9	9	9	9	9	9	9	9	9	
	2	2	2	2	2	2	2	2	2	2	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	4	4	4	4	4	4	4	4	4	5	
	1	2	3	4	5	6	7	8	9	0	
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	10
Accessory Adrenal Cortical Nodule										X	1
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	10
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	10
Parathyroid Gland	+	+	+	+	+	+	+	+	+	+	10
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	10
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	10
<b>General Body System</b>											
NONE											
<b>Genital System</b>											
Epididymis	+	+	+	+	+	+	+	+	+	+	10
Preputial Gland	+	+	+	+	+	+	+	+	+	+	10
Prostate	+	+	+	+	+	+	+	+	+	+	10
Inflammation, Suppurative				1	1						2 1.0
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	10
Testes	+	+	+	+	+	+	+	+	+	+	10
<b>Hematopoietic System</b>											
Bone Marrow	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	10
Hemorrhage	3	2		2							3 2.3

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 88038-01

Test Type: 90-DAY

Route: DOSED WATER

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Glyoxal

CAS Number: 107-22-2

Date Report Requested: 10/17/2014

Time Report Requested: 13:29:41

First Dose M/F: NA / NA

Lab: SRI

F 344/N Rat Male  
8 MG/ML

	DAY ON TEST										
	0	0	0	0	0	0	0	0	0	0	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	9	9	9	9	9	9	9	9	9	9	
	2	2	2	2	2	2	2	2	2	2	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	4	4	4	4	4	4	4	4	4	5	
	1	2	3	4	5	6	7	8	9	0	<b>*TOTALS</b>
Spleen	+	+	+	+	+	+	+	+	+	+	10
Thymus	+	+	+	+	+	+	+	+	+	+	10
<b>Integumentary System</b>											
Mammary Gland	+	+	+	+	+	M	+	+	M	M	7
Skin	+	+	+	+	+	+	+	+	+	+	10
Acanthosis										1	1 1.0
<b>Musculoskeletal System</b>											
Bone	+	+	+	+	+	+	+	+	+	+	10
<b>Nervous System</b>											
Brain	+	+	+	+	+	+	+	+	+	+	10
<b>Respiratory System</b>											
Lung	+	+	+	+	+	+	+	+	+	+	10
Alveolar Epith, Hyperplasia			1								1 1.0
Infiltration Cellular, Histiocyte			2								1 2.0
Nose	+	+	+	+	+	+	+	+	+	+	10
Trachea	+	+	+	+	+	+	+	+	+	+	10
<b>Special Senses System</b>											
NONE											
<b>Urinary System</b>											

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 88038-01  
 Test Type: 90-DAY  
 Route: DOSED WATER  
 Species/Strain: Rat/F 344/N

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

Test Compound: Glyoxal  
 CAS Number: 107-22-2

Date Report Requested: 10/17/2014  
 Time Report Requested: 13:29:41  
 First Dose M/F: NA / NA  
 Lab: SRI

**F 344/N Rat Male**  
**8 MG/ML**

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	2	2	2	2	2	2	2	2	2	2
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	4	4	4	4	4	4	4	4	4	5
	1	2	3	4	5	6	7	8	9	0

**\*TOTALS**

Kidney	+	+	+	+	+	+	+	+	+	+	10	
Nephropathy	1	1	1	1	1						5	1.0
Papilla, Cytoplasmic Alteration		2	1	2		1			2	2	6	1.7
Renal Tubule, Dilatation		2					2		2		3	2.0
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	10	

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 88038-01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/17/2014

Test Type: 90-DAY

Test Compound: Glyoxal

Time Report Requested: 13:29:41

Route: DOSED WATER

CAS Number: 107-22-2

First Dose M/F: NA / NA

Species/Strain: Rat/F 344/N

Lab: SRI

F 344/N Rat Male  
16 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	1	1	1
	2	2	2	2	2	2	2	2	2	2
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	5	5	5	5	5	5	5	5	5	6
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

Alimentary System

Esophagus	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	M	+	+	+	+	+	+	+	9
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	10
Hepatodiaphragmatic Nodule									X		1
Pancreas	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10
Atrophy	3	3	3	3		3	3	3	3	2	9 2.9
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	10
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10

Cardiovascular System

Blood Vessel	+	+	+	+	+	+	+	+	+	+	10
Heart	+	+	+	+	+	+	+	+	+	+	10

Endocrine System

Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	10
Accessory Adrenal Cortical Nodule		X		X				X			3

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked



Experiment Number: 88038-01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/17/2014

Test Type: 90-DAY

Test Compound: Glyoxal

Time Report Requested: 13:29:41

Route: DOSED WATER

CAS Number: 107-22-2

First Dose M/F: NA / NA

Species/Strain: Rat/F 344/N

Lab: SRI

F 344/N Rat Male  
16 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	1	1	1
	2	2	2	2	2	2	2	2	2	2
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	5	5	5	5	5	5	5	5	5	6
	1	2	3	4	5	6	7	8	9	0

\*TOTALS

Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	10
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	10
Parathyroid Gland	+	+	+	+	+	+	+	+	+	+	10
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	10
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	10

General Body System

NONE

Genital System

Epididymis	+	+	+	+	+	+	+	+	+	+	10
Atypia Cellular	X	X	X	X	X	X	X	X	X	X	10
Hypospermia	X	X	X	X	X	X	X	X	X	X	10
Preputial Gland	+	+	+	+	+	+	+	+	+	+	10
Prostate	+	+	+	+	+	+	+	+	+	+	10
Inflammation, Chronic				3			2	1			3 2.0
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	10
Inflammation, Chronic									2		1 2.0
Testes	+	+	+	+	+	+	+	+	+	+	10
Degeneration										2	1 2.0

Hematopoietic System

Bone Marrow	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	10

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

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1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 88038-01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/17/2014

Test Type: 90-DAY

Test Compound: Glyoxal

Time Report Requested: 13:29:41

Route: DOSED WATER

CAS Number: 107-22-2

First Dose M/F: NA / NA

Species/Strain: Rat/F 344/N

Lab: SRI

F 344/N Rat Male  
16 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	ANIMAL ID	*TOTALS
	0	0	0	0	0	0	0	0	0	0		
	1	1	1	1	1	1	1	1	1	1		
	2	2	2	2	2	2	2	2	2	2		
Hemorrhage	0	0	0	0	0	0	0	0	0	0	1	1 1.0
Lymph Node, Mesenteric Hemorrhage	+	+	+	+	+	+	+	+	+	+	10	
Spleen Hemorrhage	1						1	1			3 1.0	
Thymus Hemorrhage	+	+	+	+	+	+	+	+	+	+	10	
Integumentary System		2									1 2.0	
Mammary Gland	+	+	+	I	M	M	+	+	+	+	7	
Skin	+	+	+	+	+	+	+	+	+	+	10	
Musculoskeletal System												
Bone	+	+	+	+	+	+	+	+	+	+	10	
Nervous System												
Brain	+	+	+	+	+	+	+	+	+	+	10	
Respiratory System												
Lung	+	+	+	+	+	+	+	+	+	+	10	
Nose	+	+	+	+	+	+	+	+	+	+	10	
Trachea	+	+	+	+	+	+	+	+	+	+	10	
Special Senses System												
NONE												

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 88038-01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/17/2014

Test Type: 90-DAY

Test Compound: Glyoxal

Time Report Requested: 13:29:41

Route: DOSED WATER

CAS Number: 107-22-2

First Dose M/F: NA / NA

Species/Strain: Rat/F 344/N

Lab: SRI

F 344/N Rat Male  
16 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	1	1	1
	2	2	2	2	2	2	2	2	2	2
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	5	5	5	5	5	5	5	5	5	6
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

Urinary System

Kidney	+	+	+	+	+	+	+	+	+	+	10
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	10

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

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 88038-01

Test Type: 90-DAY

Route: DOSED WATER

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Glyoxal

CAS Number: 107-22-2

Date Report Requested: 10/17/2014

Time Report Requested: 13:29:41

First Dose M/F: NA / NA

Lab: SRI

F 344/N Rat Female  
VEHICLE CONTROL

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	3	3	3	3	3	3	3	3	3	3
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	6	6	6	6	6	6	6	6	6	7
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

Alimentary System

Esophagus	+	+	M	+	+	+	+	+	+	+	9
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	M	+	+	+	+	+	9
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	10
Inflammation, Chronic					2						1 2.0
Pancreas	+	+	+	+	+	+	+	+	+	+	10
Atrophy	1										1 1.0
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	10
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10

Cardiovascular System

Blood Vessel	+	+	+	+	+	+	+	+	+	+	10
Heart	+	+	+	+	+	+	+	+	+	+	10

Endocrine System

Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	10
Accessory Adrenal Cortical Nodule				X				X		X	3

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 88038-01

Test Type: 90-DAY

Route: DOSED WATER

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Glyoxal

CAS Number: 107-22-2

Date Report Requested: 10/17/2014

Time Report Requested: 13:29:41

First Dose M/F: NA / NA

Lab: SRI

F 344/N Rat Female  
VEHICLE CONTROL

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	3	3	3	3	3	3	3	3	3	3
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	6	6	6	6	6	6	6	6	6	7
	1	2	3	4	5	6	7	8	9	0

\*TOTALS

Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	10		
Inflammation, Chronic					3							1	3.0
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	10		
Parathyroid Gland	+	+	+	+	+	+	+	+	+	+	10		
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	10		
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	10		
Ultimobranchial Cyst									X			1	
<b>General Body System</b>													
NONE													
<b>Genital System</b>													
Clitoral Gland	+	+	+	+	+	+	+	+	+	+	10		
Inflammation, Chronic					1							1	1.0
Ovary	+	+	+	+	+	+	+	+	+	+	10		
Uterus	+	+	+	+	+	+	+	+	+	+	10		
Hydrometra		2			1							2	1.5
<b>Hematopoietic System</b>													
Bone Marrow	+	+	+	+	+	+	+	+	+	+	10		
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	10		
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	10		
Spleen	+	+	+	+	+	+	+	+	+	+	10		
Thymus	+	+	+	+	+	+	+	+	+	+	10		

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 88038-01  
 Test Type: 90-DAY  
 Route: DOSED WATER  
 Species/Strain: Rat/F 344/N

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

Test Compound: Glyoxal  
 CAS Number: 107-22-2

Date Report Requested: 10/17/2014  
 Time Report Requested: 13:29:41  
 First Dose M/F: NA / NA  
 Lab: SRI

**F 344/N Rat Female  
 VEHICLE CONTROL**

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	3	3	3	3	3	3	3	3	3	3
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	6	6	6	6	6	6	6	6	6	7
	1	2	3	4	5	6	7	8	9	0
	<b>*TOTALS</b>									

**Integumentary System**

Mammary Gland	+	+	+	+	+	+	+	+	+	+	10
Skin	+	+	+	+	+	+	+	+	+	+	10

**Musculoskeletal System**

Bone	+	+	+	+	+	+	+	+	+	+	10
------	---	---	---	---	---	---	---	---	---	---	----

**Nervous System**

Brain	+	+	+	+	+	+	+	+	+	+	10
Inflammation, Chronic					1						1 1.0

**Respiratory System**

Lung	+	+	+	+	+	+	+	+	+	+	10
Nose	+	+	+	+	+	+	+	+	+	+	10
Exudate									X		1
Trachea	+	+	+	+	+	+	+	+	+	+	10

**Special Senses System**

NONE

**Urinary System**

Kidney	+	+	+	+	+	+	+	+	+	+	10
Inflammation, Chronic					2						1 2.0
Mineralization		2	1	2	1	3	3	1			7 1.9

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 88038-01  
 Test Type: 90-DAY  
 Route: DOSED WATER  
 Species/Strain: Rat/F 344/N

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

Test Compound: Glyoxal  
 CAS Number: 107-22-2

Date Report Requested: 10/17/2014  
 Time Report Requested: 13:29:41  
 First Dose M/F: NA / NA  
 Lab: SRI

**F 344/N Rat Female  
 VEHICLE CONTROL**

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	9	9	9	9	9	9	9	9	9	9	
	3	3	3	3	3	3	3	3	3	3	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	6	6	6	6	6	6	6	6	6	7	
	1	2	3	4	5	6	7	8	9	0	<b>*TOTALS</b>
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	10

\* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade  
 + ..Tissue examined microscopically  
 X ..Lesion present  
 I ..Insufficient tissue

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

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

Experiment Number: 88038-01

Test Type: 90-DAY

Route: DOSED WATER

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Glyoxal

CAS Number: 107-22-2

Date Report Requested: 10/17/2014

Time Report Requested: 13:29:41

First Dose M/F: NA / NA

Lab: SRI

F 344/N Rat Female  
1 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	9	9	9	9	9	9	9	9	9	9	
	3	3	3	3	3	3	3	3	3	3	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	7	7	7	7	7	7	7	7	8	8	
	1	2	3	4	5	6	7	8	9	0	*TOTALS

Alimentary System

Liver			+	+	2
Hepatodiaphragmatic Nodule			X	X	2

Cardiovascular System

NONE

Endocrine System

NONE

General Body System

NONE

Genital System

Ovary								+	1
Cyst								X	1
Uterus			+					+	2
Hydrometra			3					3	2 3.0

Hematopoietic System

Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	10
------------------------	---	---	---	---	---	---	---	---	---	---	----

Integumentary System

NONE

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked



Experiment Number: 88038-01

Test Type: 90-DAY

Route: DOSED WATER

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Glyoxal

CAS Number: 107-22-2

Date Report Requested: 10/17/2014

Time Report Requested: 13:29:42

First Dose M/F: NA / NA

Lab: SRI

F 344/N Rat Female  
1 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	3	3	3	3	3	3	3	3	3	3
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	7	7	7	7	7	7	7	7	8	8
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

**Musculoskeletal System**

NONE

**Nervous System**

NONE

**Respiratory System**

NONE

**Special Senses System**

NONE

**Urinary System**

NONE

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 88038-01

Test Type: 90-DAY

Route: DOSED WATER

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Glyoxal

CAS Number: 107-22-2

Date Report Requested: 10/17/2014

Time Report Requested: 13:29:42

First Dose M/F: NA / NA

Lab: SRI

F 344/N Rat Female  
2 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	9	9	9	9	9	9	9	9	9	9	
	3	3	3	3	3	3	3	3	3	3	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	8	8	8	8	8	8	8	8	8	9	
	1	2	3	4	5	6	7	8	9	0	*TOTALS

Alimentary System

Liver	+	1	
Hepatodiaphragmatic Nodule	X	1	

Cardiovascular System

NONE

Endocrine System

NONE

General Body System

NONE

Genital System

Ovary	+	1	
Cyst	X	1	
Uterus		+	1
Hydrometra		4	1 4.0

Hematopoietic System

Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	10
Hemorrhage		1		1				1	1		4 1.0

Integumentary System

NONE

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 88038-01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/17/2014

Test Type: 90-DAY

Test Compound: Glyoxal

Time Report Requested: 13:29:42

Route: DOSED WATER

CAS Number: 107-22-2

First Dose M/F: NA / NA

Species/Strain: Rat/F 344/N

Lab: SRI

F 344/N Rat Female  
2 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	3	3	3	3	3	3	3	3	3	3
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	8	8	8	8	8	8	8	8	8	9
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

Musculoskeletal System

NONE

Nervous System

NONE

Respiratory System

NONE

Special Senses System

NONE

Urinary System

NONE

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 88038-01

Test Type: 90-DAY

Route: DOSED WATER

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Glyoxal

CAS Number: 107-22-2

Date Report Requested: 10/17/2014

Time Report Requested: 13:29:42

First Dose M/F: NA / NA

Lab: SRI

F 344/N Rat Female  
4 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	9	9	9	9	9	9	9	9	9	9	
	3	3	3	3	3	3	3	3	3	3	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	1	
	9	9	9	9	9	9	9	9	9	0	
	1	2	3	4	5	6	7	8	9	0	*TOTALS

Alimentary System

NONE

Cardiovascular System

NONE

Endocrine System

NONE

General Body System

NONE

Genital System

Uterus			+	+						+	3	
Hydrometra			3	3						3	3	3.0

Hematopoietic System

Lymph Node, Mesenteric			+	+	+	+	+	+	+	+	+	10	
Hemorrhage			1	1	1	1	1		1	1	7	1.0	

Integumentary System

NONE

Musculoskeletal System

NONE

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 88038-01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/17/2014

Test Type: 90-DAY

Test Compound: Glyoxal

Time Report Requested: 13:29:42

Route: DOSED WATER

CAS Number: 107-22-2

First Dose M/F: NA / NA

Species/Strain: Rat/F 344/N

Lab: SRI

F 344/N Rat Female  
4 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	3	3	3	3	3	3	3	3	3	3
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	1
	9	9	9	9	9	9	9	9	9	0
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

**Nervous System**

NONE

**Respiratory System**

Lung

+ 1

**Special Senses System**

NONE

**Urinary System**

NONE

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 88038-01

Test Type: 90-DAY

Route: DOSED WATER

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Glyoxal

CAS Number: 107-22-2

Date Report Requested: 10/17/2014

Time Report Requested: 13:29:42

First Dose M/F: NA / NA

Lab: SRI

F 344/N Rat Female  
8 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	3	3	3	3	3	3	3	3	3	3
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	1	1	1
	0	0	0	0	0	0	0	0	0	1
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

Alimentary System

Esophagus	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	+	M	+	+	+	+	9
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	10
Hepatodiaphragmatic Nodule						X					1
Inflammation, Chronic						1					1 1.0
Pancreas	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	10
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10

Cardiovascular System

Blood Vessel	+	+	+	+	+	+	+	+	+	+	10
Heart	+	+	+	+	+	+	+	+	+	+	10

Endocrine System

Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	10
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	10

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 88038-01

Test Type: 90-DAY

Route: DOSED WATER

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Glyoxal

CAS Number: 107-22-2

Date Report Requested: 10/17/2014

Time Report Requested: 13:29:42

First Dose M/F: NA / NA

Lab: SRI

F 344/N Rat Female  
8 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	9	9	9	9	9	9	9	9	9	9	
	3	3	3	3	3	3	3	3	3	3	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	1	1	1	1	1	1	1	1	1	1	
	0	0	0	0	0	0	0	0	0	1	
	1	2	3	4	5	6	7	8	9	0	*TOTALS

Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	10
Parathyroid Gland	+	+	+	+	+	M	+	+	+	+	9
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	10
Pars Distalis, Cyst				X							1
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	10
Ultimobranchial Cyst		X	X		X						3
<b>General Body System</b>											
NONE											
<b>Genital System</b>											
Clitoral Gland	+	+	+	+	+	+	+	+	+	+	10
Ovary	+	+	+	+	+	+	+	+	+	+	10
Cyst							X				1
Uterus	+	+	+	+	+	+	+	+	+	+	10
Hydrometra			3	2		3			3		4 2.8
<b>Hematopoietic System</b>											
Bone Marrow	+	+	+	+	+	+	+	+	+	+	10
Myelofibrosis			1								1 1.0
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	10
Hemorrhage			1		2		1	1	1	1	6 1.2
Spleen	+	+	+	+	+	+	+	+	+	+	10

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 88038-01

Test Type: 90-DAY

Route: DOSED WATER

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Glyoxal

CAS Number: 107-22-2

Date Report Requested: 10/17/2014

Time Report Requested: 13:29:42

First Dose M/F: NA / NA

Lab: SRI

F 344/N Rat Female  
8 MG/ML

	DAY ON TEST										
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	9	9	9	9	9	9	9	9	9	9	
	3	3	3	3	3	3	3	3	3	3	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	1	1	1	1	1	1	1	1	1	1	
	0	0	0	0	0	0	0	0	0	1	
	1	2	3	4	5	6	7	8	9	0	<b>*TOTALS</b>
Thymus	+	+	+	+	+	+	+	+	+	+	10
<b>Integumentary System</b>											
Mammary Gland	+	+	+	+	+	+	+	+	+	+	10
Skin	+	+	+	+	+	+	+	+	+	+	10
<b>Musculoskeletal System</b>											
Bone	+	+	+	+	+	+	+	+	+	+	10
<b>Nervous System</b>											
Brain	+	+	+	+	+	+	+	+	+	+	10
<b>Respiratory System</b>											
Lung	+	+	+	+	+	+	+	+	+	+	10
Nose	+	+	+	+	+	+	+	+	+	+	10
Trachea	+	+	+	+	+	+	+	+	+	+	10
<b>Special Senses System</b>											
NONE											
<b>Urinary System</b>											
Kidney	+	+	+	+	+	+	+	+	+	+	10
Mineralization			1		1		1	1	1	2	6 1.2
Nephropathy			1								1 1.0
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	10

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked



Experiment Number: 88038-01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/17/2014

Test Type: 90-DAY

Test Compound: Glyoxal

Time Report Requested: 13:29:42

Route: DOSED WATER

CAS Number: 107-22-2

First Dose M/F: NA / NA

Species/Strain: Rat/F 344/N

Lab: SRI

F 344/N Rat Female  
16 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	1	1	1
	2	2	2	2	2	2	2	2	2	2
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	1	1	1
	1	1	1	1	1	1	1	1	1	2
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

Alimentary System

Esophagus	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	10
Pancreas	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	10
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10

Cardiovascular System

Blood Vessel	+	+	+	+	+	+	+	+	+	+	10
Heart	+	+	+	+	+	+	+	+	+	+	10

Endocrine System

Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	10
Developmental Malformation	X										1
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	10
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	10

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 88038-01

Test Type: 90-DAY

Route: DOSED WATER

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Glyoxal

CAS Number: 107-22-2

Date Report Requested: 10/17/2014

Time Report Requested: 13:29:42

First Dose M/F: NA / NA

Lab: SRI

F 344/N Rat Female  
16 MG/ML

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	1	1	1	1
	2	2	2	2	2	2	2	2	2	2	2
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	1	1	1	1
	1	1	1	1	1	1	1	1	1	1	2
	1	2	3	4	5	6	7	8	9	0	

\*TOTALS

Parathyroid Gland	+	+	+	+	+	+	+	+	+	+	10
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	10
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	10

General Body System

NONE

Genital System

Clitoral Gland	+	+	+	+	+	+	+	+	+	+	10
Ovary	+	+	+	+	+	+	+	+	+	+	10
Uterus	+	+	+	+	+	+	+	+	+	+	10

Hematopoietic System

Bone Marrow	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	10
Spleen	+	+	+	+	+	+	+	+	+	+	10
Thymus	+	+	+	+	+	+	+	+	+	+	10
Atrophy		2		2							2 2.0

Integumentary System

Mammary Gland	+	+	+	+	+	M	+	+	+	M	8
Skin	+	+	+	+	+	+	+	+	+	+	10

Musculoskeletal System

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

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 88038-01

Test Type: 90-DAY

Route: DOSED WATER

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Glyoxal

CAS Number: 107-22-2

Date Report Requested: 10/17/2014

Time Report Requested: 13:29:42

First Dose M/F: NA / NA

Lab: SRI

F 344/N Rat Female  
16 MG/ML

	DAY ON TEST										
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	1	1	1	1	1	1	1	1	1	1	
	2	2	2	2	2	2	2	2	2	2	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	*TOTALS
	0	0	0	0	0	0	0	0	0	0	
	1	1	1	1	1	1	1	1	1	1	
	1	1	1	1	1	1	1	1	1	2	
	1	2	3	4	5	6	7	8	9	0	
Bone	+	+	+	+	+	+	+	+	+	+	10
<b>Nervous System</b>											
Brain	+	+	+	+	+	+	+	+	+	+	10
<b>Respiratory System</b>											
Lung	+	+	+	+	+	+	+	+	+	+	10
Nose	+	+	+	+	+	+	+	+	+	+	10
Trachea	+	+	+	+	+	+	+	+	+	+	10
<b>Special Senses System</b>											
NONE											
<b>Urinary System</b>											
Kidney	+	+	+	+	+	+	+	+	+	+	10
Mineralization	1	1		1		1		1		1	6 1.0
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	10

\*\* END OF REPORT \*\*

\* ..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