

**Experiment Number:** 20403 - 01  
**Test Type:** CHRONIC  
**Route:** DOSED FEED  
**Species/Strain:** RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**  
Zinc Carbonate, Basic  
**CAS Number:** 5263-02-5

**Date Report Requested:** 11/22/2015  
**Time Report Requested:** 18:28:05  
**First Dose M/F:** 09/03/09 / 09/04/09  
**Lab:** BAT

Custom Report - Zinc Deficiency

<b>NTP Study Number:</b>	C20403		
<b>Lock Date:</b>	04/05/2013		
<b>Cage Range:</b>	ALL		
<b>Date Range:</b>	ALL		
<b>Reasons For Removal:</b>	25021 TSAC	25020 NATD	25019 MSAC
<b>Removal Date Range:</b>	ALL		
<b>Treatment Groups:</b>	Include 001 Control (38ppm) Include 004 3.5ppm SevZnDef	Include 002 Control (38ppm) Include 005 7ppm ZnDef	Include 003 3.5ppm SevZnDef Include 006 7ppm ZnDef
<b>Study Gender:</b>	Both		
<b>TDMSE Version:</b>	2.5.0.0_sfh		
<b>PWG Approval Date:</b>	09/08/2015		

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**SUMMARY OF STATISTICALLY SIGNIFICANT ( $P \leq .05$ ) RESULTS IN THE ANALYSIS OF ZINC CARBONATE, BASIC**

**MALE RATS**

**Organ**

Blood Vessel  
Bone Marrow  
Bone  
Heart: Atrium  
Kidney  
Liver  
Liver: Hepatocyte  
Lymph Node: Mediastinal  
Nose  
Nose: Respiratory Epithelium  
Skin

Skin: Hair Follicle  
Spleen

Spleen: Lymphoid Follicle  
Stomach, Forestomach  
Testes: Bilateral, Germinal Epithelium  
Testes: Germinal Epithelium

**FEMALE RATS**

**Organ**

Lymph Node, Mandibular  
Thymus  
Thyroid Gland: C-Cell

**Morphology**

Mineralization  
Hyperplasia  
Fibrous Osteodystrophy  
Thrombosis  
Cyst  
Eosinophilic Focus  
Necrosis  
Hemorrhage  
Inflammation  
Hyperplasia  
Inflammation  
Ulcer  
Cyst  
Hematopoietic Cell Proliferation  
Pigmentation Hemosiderin  
Atrophy  
Ulcer  
Atrophy  
Atrophy

**Morphology**

Infiltration Cellular Plasma Cell  
Atrophy  
Hyperplasia

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Adrenal Cortex Degeneration Cystic</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	1/50 (2%)
POLY-3 RATE (b)	0/38.40	0/41.50	1/43.64
POLY-3 PERCENT (g)	0%	0%	2.3%
TERMINAL (d)	0/18 (0%)	0/27 (0%)	0/31 (0%)
FIRST INCIDENCE	---	---	708
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Adrenal Cortex Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	7/50 (14%)	7/50 (14%)	3/50 (6%)
POLY-3 RATE (b)	7/39.87	7/41.63	3/43.65
POLY-3 PERCENT (g)	17.6%	16.8%	6.9%
TERMINAL (d)	3/18 (17%)	6/27 (22%)	2/31 (7%)
FIRST INCIDENCE	586	701	705
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.097N	P=0.581N	P=0.121N
POLY 1.5	P=0.113N	P=0.594N	P=0.137N
POLY 6	P=0.075N	P=0.558N	P=0.099N
COCH-ARM / FISHERS	P=0.135N	P=0.613N	P=0.159N
MAX-ISO-POLY-3	P=0.116N	P=0.464N	P=0.074N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Adrenal Medulla Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	22/50 (44%)	22/50 (44%)	24/50 (48%)
POLY-3 RATE (b)	22/42.60	22/44.04	24/46.54
POLY-3 PERCENT (g)	51.7%	50%	51.6%
TERMINAL (d)	9/18 (50%)	13/27 (48%)	14/31 (45%)
FIRST INCIDENCE	496	575	467
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.544	P=0.524N	P=0.582N
POLY 1.5	P=0.473	P=0.548N	P=0.516
POLY 6	P=0.444N	P=0.470N	P=0.480N
COCH-ARM / FISHERS	P=0.382	P=0.580N	P=0.421
MAX-ISO-POLY-3	P=0.629N	P=0.435N	P=0.496N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Adrenal Medulla: Bilateral Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	6/50 (12%)	8/50 (16%)	3/50 (6%)
POLY-3 RATE (b)	6/39.85	8/42.56	3/43.64
POLY-3 PERCENT (g)	15.1%	18.8%	6.9%
TERMINAL (d)	3/18 (17%)	5/27 (19%)	2/31 (7%)
FIRST INCIDENCE	537	575	708
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.160N	P=0.437	P=0.197N
POLY 1.5	P=0.184N	P=0.415	P=0.217N
POLY 6	P=0.127N	P=0.478	P=0.167N
COCH-ARM / FISHERS	P=0.215N	P=0.387	P=0.243N
MAX-ISO-POLY-3	P=0.133N	P=0.330	P=0.124N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Blood Vessel Inflammation</b>			
<b>LESION RATES</b>			
OVERALL (a)	24/50 (48%)	29/50 (58%)	29/50 (58%)
POLY-3 RATE (b)	24/43.56	29/43.90	29/44.59
POLY-3 PERCENT (g)	55.1%	66.1%	65%
TERMINAL (d)	9/18 (50%)	18/27 (67%)	21/31 (68%)
FIRST INCIDENCE	496	568	675
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.190	P=0.192	P=0.222
POLY 1.5	P=0.183	P=0.200	P=0.214
POLY 6	P=0.224	P=0.205	P=0.257
COCH-ARM / FISHERS	P=0.183	P=0.212	P=0.212
MAX-ISO-POLY-3	P=0.206	P=0.137	P=0.164

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Blood Vessel Mineralization</b>			
<b>LESION RATES</b>			
OVERALL (a)	3/50 (6%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	3/39.75	0/41.50	0/43.54
POLY-3 PERCENT (g)	7.6%	0%	0%
TERMINAL (d)	1/18 (6%)	0/27 (0%)	0/31 (0%)
FIRST INCIDENCE	496	---	---
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.034N*	P=0.110N	P=0.103N
POLY 1.5	P=0.035N*	P=0.114N	P=0.110N
POLY 6	P=0.033N*	P=0.103N	P=0.091N
COCH-ARM / FISHERS	P=0.037N*	P=0.121N	P=0.121N
MAX-ISO-POLY-3	P=0.019N*	P=0.037N*	P=0.037N*

---



Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Bone Marrow Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	4/50 (8%)	0/50 (0%)	4/50 (8%)
POLY-3 RATE (b)	4/39.14	0/41.50	4/45.36
POLY-3 PERCENT (g)	10.2%	0%	8.8%
TERMINAL (d)	2/18 (11%)	0/27 (0%)	0/31 (0%)
FIRST INCIDENCE	538	---	285
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.559N	P=0.052N	P=0.560N
POLY 1.5	P=0.572N	P=0.056N	P=0.595N
POLY 6	P=0.541N	P=0.047N*	P=0.507N
COCH-ARM / FISHERS	P=0.588	P=0.059N	P=0.643N
MAX-ISO-POLY-3	P=0.225N	P=0.019N*	P=0.418N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Bone</b>			
<b>Fibrous Osteodystrophy</b>			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	3/50 (6%)	1/50 (2%)	0/50 (0%)
POLY-3 RATE (b)	3/39.65	1/41.50	0/43.54
POLY-3 PERCENT (g)	7.6%	2.4%	0%
TERMINAL (d)	0/18 (0%)	1/27 (4%)	0/31 (0%)
FIRST INCIDENCE	514	734 (T)	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.053N	P=0.288N	P=0.102N
POLY 1.5	P=0.056N	P=0.295N	P=0.110N
POLY 6	P=0.049N*	P=0.275N	P=0.091N
COCH-ARM / FISHERS	P=0.060N	P=0.309N	P=0.121N
MAX-ISO-POLY-3	P=0.039N*	P=0.147N	P=0.037N*

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Eye: Anterior Chamber			
Inflammation Acute			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	2/50 (4%)	1/50 (2%)	0/49 (0%)
POLY-3 RATE (b)	2/38.83	1/41.83	0/42.65
POLY-3 PERCENT (g)	5.2%	2.4%	0%
TERMINAL (d)	0/18 (0%)	0/27 (0%)	0/31 (0%)
FIRST INCIDENCE	615	641	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.132N	P=0.474N	P=0.217N
POLY 1.5	P=0.138N	P=0.485N	P=0.228N
POLY 6	P=0.123N	P=0.455N	P=0.200N
COCH-ARM / FISHERS	P=0.145N	P=0.500N	P=0.253N
MAX-ISO-POLY-3	P=0.105N	P=0.266N	P=0.076N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Eye: Bilateral, Cornea Inflammation Acute			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	2/50 (4%)	2/50 (4%)	1/49 (2%)
POLY-3 RATE (b)	2/38.83	2/42.35	1/42.79
POLY-3 PERCENT (g)	5.2%	4.7%	2.3%
TERMINAL (d)	0/18 (0%)	0/27 (0%)	0/31 (0%)
FIRST INCIDENCE	615	575	698
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.360N	P=0.663N	P=0.466N
POLY 1.5	P=0.377N	P=0.676N	P=0.485N
POLY 6	P=0.333N	P=0.639N	P=0.436N
COCH-ARM / FISHERS	P=0.397N	P=0.691N	P=0.508N
MAX-ISO-POLY-3	P=0.379N	P=0.465N	P=0.263N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Eye: Bilateral, Cornea Inflammation Chronic			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	1/50 (2%)	2/50 (4%)	1/49 (2%)
POLY-3 RATE (b)	1/38.40	2/41.63	1/42.65
POLY-3 PERCENT (g)	2.6%	4.8%	2.3%
TERMINAL (d)	1/18 (6%)	1/27 (4%)	1/31 (3%)
FIRST INCIDENCE	734 (T)	701	734 (T)
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.586N	P=0.528	P=0.737N
POLY 1.5	P=0.605N	P=0.516	P=0.750N
POLY 6	P=0.555N	P=0.550	P=0.715N
COCH-ARM / FISHERS	P=0.616	P=0.500	P=0.747
MAX-ISO-POLY-3	P=0.507N	P=0.311	P=0.471N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Eye: Cornea Inflammation Acute			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	2/50 (4%)	2/50 (4%)	2/49 (4%)
POLY-3 RATE (b)	2/38.83	2/42.35	2/42.90
POLY-3 PERCENT (g)	5.2%	4.7%	4.7%
TERMINAL (d)	0/18 (0%)	0/27 (0%)	0/31 (0%)
FIRST INCIDENCE	615	575	698
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.568N	P=0.663N	P=0.658N
POLY 1.5	P=0.586N	P=0.676N	P=0.678N
POLY 6	P=0.539N	P=0.639N	P=0.624N
COCH-ARM / FISHERS	P=0.593	P=0.691N	P=0.684
MAX-ISO-POLY-3	P=0.621N	P=0.465N	P=0.461N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Eye: Cornea			
Inflammation Chronic			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	1/50 (2%)	4/50 (8%)	1/49 (2%)
POLY-3 RATE (b)	1/38.40	4/42.18	1/42.65
POLY-3 PERCENT (g)	2.6%	9.5%	2.3%
TERMINAL (d)	1/18 (6%)	1/27 (4%)	1/31 (3%)
FIRST INCIDENCE	734 (T)	659	734 (T)
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.541N	P=0.207	P=0.737N
POLY 1.5	P=0.572N	P=0.194	P=0.750N
POLY 6	P=0.489N	P=0.232	P=0.715N
COCH-ARM / FISHERS	P=0.593	P=0.181	P=0.747
MAX-ISO-POLY-3	P=0.312N	P=0.110	P=0.471N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Heart</b>			
<b>Cardiomyopathy</b>			
<b>LESION RATES</b>			
<b>OVERALL (a)</b>	42/50 (84%)	39/50 (78%)	38/50 (76%)
<b>POLY-3 RATE (b)</b>	42/47.21	39/45.29	38/48.14
<b>POLY-3 PERCENT (g)</b>	89%	86.1%	78.9%
<b>TERMINAL (d)</b>	15/18 (83%)	25/27 (93%)	22/31 (71%)
<b>FIRST INCIDENCE</b>	496	406	467
<b>STATISTICAL TESTS</b>			
<b>POLY 3</b>	P=0.094N	P=0.455N	P=0.136N
<b>POLY 1.5</b>	P=0.126N	P=0.355N	P=0.163N
<b>POLY 6</b>	P=0.062N	P=0.609N	P=0.106N
<b>COCH-ARM / FISHERS</b>	P=0.194N	P=0.306N	P=0.227N
<b>MAX-ISO-POLY-3</b>	P=0.099N	P=0.323N	P=0.085N

---



Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Heart Mineralization</b>			
<b>LESION RATES</b>			
OVERALL (a)	2/50 (4%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	2/39.75	0/41.50	0/43.54
POLY-3 PERCENT (g)	5%	0%	0%
TERMINAL (d)	0/18 (0%)	0/27 (0%)	0/31 (0%)
FIRST INCIDENCE	496	---	---
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.093N	P=0.227N	P=0.217N
POLY 1.5	P=0.094N	P=0.232N	P=0.226N
POLY 6	P=0.092N	P=0.218N	P=0.202N
COCH-ARM / FISHERS	P=0.095N	P=0.247N	P=0.247N
MAX-ISO-POLY-3	P=0.052N	P=0.075N	P=0.075N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Heart: Atrium			
Thrombosis			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	3/50 (6%)	4/50 (8%)	0/50 (0%)
POLY-3 RATE (b)	3/39.16	4/41.79	0/43.54
POLY-3 PERCENT (g)	7.7%	9.6%	0%
TERMINAL (d)	0/18 (0%)	2/27 (7%)	0/31 (0%)
FIRST INCIDENCE	611	684	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.089N	P=0.536	P=0.100N
POLY 1.5	P=0.101N	P=0.521	P=0.108N
POLY 6	P=0.074N	P=0.562	P=0.089N
COCH-ARM / FISHERS	P=0.118N	P=0.500	P=0.121N
MAX-ISO-POLY-3	P=0.069N	P=0.383	P=0.037N*

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Islets, Pancreatic Hyperplasia			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	1/50 (2%)	3/50 (6%)	0/50 (0%)
POLY-3 RATE (b)	1/38.73	3/41.67	0/43.54
POLY-3 PERCENT (g)	2.6%	7.2%	0%
TERMINAL (d)	0/18 (0%)	2/27 (7%)	0/31 (0%)
FIRST INCIDENCE	642	688	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.326N	P=0.331	P=0.477N
POLY 1.5	P=0.349N	P=0.320	P=0.487N
POLY 6	P=0.291N	P=0.351	P=0.460N
COCH-ARM / FISHERS	P=0.378N	P=0.309	P=0.500N
MAX-ISO-POLY-3	P=0.157N	P=0.180	P=0.158N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Kidney Cyst</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	4/50 (8%)	1/50 (2%)
POLY-3 RATE (b)	0/38.40	4/41.50	1/43.54
POLY-3 PERCENT (g)	0%	9.6%	2.3%
TERMINAL (d)	0/18 (0%)	4/27 (15%)	1/31 (3%)
FIRST INCIDENCE	---	734 (T)	734 (T)
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.475	P=0.070	P=0.525
POLY 1.5	P=0.435	P=0.066	P=0.514
POLY 6	P=0.540	P=0.078	P=0.543
COCH-ARM / FISHERS	P=0.390	P=0.059	P=0.500
MAX-ISO-POLY-3	P=0.138	P=0.027*	P=0.189

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Kidney</b>			
<b>Infarct Chronic</b>			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	1/50 (2%)	3/50 (6%)
POLY-3 RATE (b)	0/38.40	1/41.50	3/43.54
POLY-3 PERCENT (g)	0%	2.4%	6.9%
TERMINAL (d)	0/18 (0%)	1/27 (4%)	3/31 (10%)
FIRST INCIDENCE	---	734 (T)	734 (T)
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.074	P=0.515	P=0.142
POLY 1.5	P=0.067	P=0.509	P=0.131
POLY 6	P=0.086	P=0.527	P=0.162
COCH-ARM / FISHERS	P=0.060	P=0.500	P=0.121
MAX-ISO-POLY-3	P=0.065	P=0.177	P=0.058

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Kidney</b>			
<b>Nephropathy</b>			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	49/50 (98%)	48/50 (96%)	50/50 (100%)
POLY-3 RATE (b)	49/49.29	48/49.30	50/50.00
POLY-3 PERCENT (g)	99.4%	97.4%	100%
TERMINAL (d)	18/18 (100%)	26/27 (96%)	31/31 (100%)
FIRST INCIDENCE	186	406	285
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.588	P=0.499N	P=0.991
POLY 1.5	P=0.481	P=0.499N	P=0.798
POLY 6	P=0.689	P=0.499N	P=1.000
COCH-ARM / FISHERS	P=0.360	P=0.500N	P=0.500
MAX-ISO-POLY-3	P=0.256	P=0.178N	P=0.161

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Liver			
Angiectasis			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/38.40	0/41.50	0/43.54
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/18 (0%)	0/27 (0%)	0/31 (0%)
FIRST INCIDENCE	---	---	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Liver			
Clear Cell Focus			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	18/50 (36%)	19/50 (38%)	26/50 (52%)
POLY-3 RATE (b)	18/39.70	19/41.77	26/45.16
POLY-3 PERCENT (g)	45.3%	45.5%	57.6%
TERMINAL (d)	14/18 (78%)	18/27 (67%)	22/31 (71%)
FIRST INCIDENCE	552	660	538
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.135	P=0.586	P=0.172
POLY 1.5	P=0.095	P=0.549	P=0.120
POLY 6	P=0.228	P=0.538N	P=0.289
COCH-ARM / FISHERS	P=0.064	P=0.500	P=0.079
MAX-ISO-POLY-3	P=0.187	P=0.494	P=0.135

---



Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Liver			
Eosinophilic Focus			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	4/50 (8%)	1/50 (2%)	0/50 (0%)
POLY-3 RATE (b)	4/38.94	1/41.50	0/43.54
POLY-3 PERCENT (g)	10.3%	2.4%	0%
TERMINAL (d)	2/18 (11%)	1/27 (4%)	0/31 (0%)
FIRST INCIDENCE	615	734 (T)	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.020N*	P=0.158N	P=0.047N*
POLY 1.5	P=0.022N*	P=0.167N	P=0.053N
POLY 6	P=0.018N*	P=0.145N	P=0.039N*
COCH-ARM / FISHERS	P=0.026N*	P=0.181N	P=0.059N
MAX-ISO-POLY-3	P=0.015N*	P=0.077N	P=0.019N*

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Liver			
Fatty Change			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	5/50 (10%)	5/50 (10%)	4/50 (8%)
POLY-3 RATE (b)	5/39.83	5/43.21	4/44.11
POLY-3 PERCENT (g)	12.6%	11.6%	9.1%
TERMINAL (d)	0/18 (0%)	1/27 (4%)	3/31 (10%)
FIRST INCIDENCE	552	505	551
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.370N	P=0.579N	P=0.436N
POLY 1.5	P=0.397N	P=0.600N	P=0.464N
POLY 6	P=0.333N	P=0.545N	P=0.395N
COCH-ARM / FISHERS	P=0.432N	P=0.630N	P=0.500N
MAX-ISO-POLY-3	P=0.436N	P=0.446N	P=0.313N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Liver			
Hematopoietic Cell Proliferation			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/38.40	0/41.50	0/43.54
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/18 (0%)	0/27 (0%)	0/31 (0%)
FIRST INCIDENCE	---	---	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Liver			
Mixed Cell Focus			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	1/50 (2%)	0/50 (0%)
POLY-3 RATE (b)	0/38.40	1/41.50	0/43.54
POLY-3 PERCENT (g)	0%	2.4%	0%
TERMINAL (d)	0/18 (0%)	1/27 (4%)	0/31 (0%)
FIRST INCIDENCE	---	734 (T)	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Liver: Bile Duct Hyperplasia			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/38.40	0/41.50	0/43.54
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/18 (0%)	0/27 (0%)	0/31 (0%)
FIRST INCIDENCE	---	---	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Liver: Hepatocyte Necrosis			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	4/50 (8%)	3/50 (6%)	0/50 (0%)
POLY-3 RATE (b)	4/40.14	3/42.12	0/43.54
POLY-3 PERCENT (g)	10%	7.1%	0%
TERMINAL (d)	0/18 (0%)	1/27 (4%)	0/31 (0%)
FIRST INCIDENCE	546	575	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.038N*	P=0.474N	P=0.050N*
POLY 1.5	P=0.042N*	P=0.485N	P=0.055N
POLY 6	P=0.033N*	P=0.453N	P=0.043N*
COCH-ARM / FISHERS	P=0.049N*	P=0.500N	P=0.059N
MAX-ISO-POLY-3	P=0.036N*	P=0.326N	P=0.019N*

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Lung</b>			
<b>Infiltration Cellular Histiocyte</b>			
<b>LESION RATES</b>			
<b>OVERALL (a)</b>	18/50 (36%)	21/50 (42%)	21/50 (42%)
<b>POLY-3 RATE (b)</b>	18/41.35	21/43.85	21/44.47
<b>POLY-3 PERCENT (g)</b>	43.5%	47.9%	47.2%
<b>TERMINAL (d)</b>	9/18 (50%)	15/27 (56%)	15/31 (48%)
<b>FIRST INCIDENCE</b>	496	406	649
<b>STATISTICAL TESTS</b>			
<b>POLY 3</b>	P=0.412	P=0.424	P=0.449
<b>POLY 1.5</b>	P=0.358	P=0.390	P=0.395
<b>POLY 6</b>	P=0.518	P=0.487	P=0.553
<b>COCH-ARM / FISHERS</b>	P=0.305	P=0.341	P=0.341
<b>MAX-ISO-POLY-3</b>	P=0.490	P=0.343	P=0.366

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Lung Inflammation</b>			
<b>LESION RATES</b>			
OVERALL (a)	3/50 (6%)	7/50 (14%)	4/50 (8%)
POLY-3 RATE (b)	3/39.43	7/43.69	4/44.08
POLY-3 PERCENT (g)	7.6%	16%	9.1%
TERMINAL (d)	0/18 (0%)	2/27 (7%)	0/31 (0%)
FIRST INCIDENCE	496	505	686
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.524	P=0.200	P=0.561
POLY 1.5	P=0.481	P=0.181	P=0.533
POLY 6	P=0.560N	P=0.235	P=0.606
COCH-ARM / FISHERS	P=0.432	P=0.159	P=0.500
MAX-ISO-POLY-3	P=0.348	P=0.131	P=0.408

---



Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Lymph Node, Mandibular Atrophy</b>			
<b>LESION RATES</b>			
OVERALL (a)	2/49 (4%)	2/50 (4%)	1/50 (2%)
POLY-3 RATE (b)	2/38.77	2/42.00	1/43.68
POLY-3 PERCENT (g)	5.2%	4.8%	2.3%
TERMINAL (d)	0/18 (0%)	1/27 (4%)	0/31 (0%)
FIRST INCIDENCE	611	580	698
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.351N	P=0.665N	P=0.458N
POLY 1.5	P=0.366N	P=0.674N	P=0.474N
POLY 6	P=0.328N	P=0.649N	P=0.433N
COCH-ARM / FISHERS	P=0.383N	P=0.684N	P=0.492N
MAX-ISO-POLY-3	P=0.372N	P=0.467N	P=0.257N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Lymph Node, Mandibular Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	15/49 (31%)	11/50 (22%)	14/50 (28%)
POLY-3 RATE (b)	15/40.81	11/42.78	14/45.52
POLY-3 PERCENT (g)	36.8%	25.7%	30.8%
TERMINAL (d)	6/18 (33%)	8/27 (30%)	9/31 (29%)
FIRST INCIDENCE	488	406	505
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.332N	P=0.193N	P=0.358N
POLY 1.5	P=0.375N	P=0.205N	P=0.408N
POLY 6	P=0.271N	P=0.175N	P=0.287N
COCH-ARM / FISHERS	P=0.431N	P=0.228N	P=0.474N
MAX-ISO-POLY-3	P=0.288N	P=0.138N	P=0.286N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Lymph Node, Mandibular Infiltration Cellular Plasma Cell</b>			
<b>LESION RATES</b>			
OVERALL (a)	12/49 (24%)	13/50 (26%)	9/50 (18%)
POLY-3 RATE (b)	12/39.01	13/42.96	9/43.90
POLY-3 PERCENT (g)	30.8%	30.3%	20.5%
TERMINAL (d)	8/18 (44%)	8/27 (30%)	6/31 (19%)
FIRST INCIDENCE	538	594	687
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.168N	P=0.576N	P=0.204N
POLY 1.5	P=0.206N	P=0.573	P=0.244N
POLY 6	P=0.116N	P=0.502N	P=0.147N
COCH-ARM / FISHERS	P=0.257N	P=0.523	P=0.294N
MAX-ISO-POLY-3	P=0.221N	P=0.480N	P=0.151N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Lymph Node, Mesenteric Atrophy</b>			
<b>LESION RATES</b>			
OVERALL (a)	2/50 (4%)	0/49 (0%)	0/50 (0%)
POLY-3 RATE (b)	2/39.05	0/41.03	0/43.54
POLY-3 PERCENT (g)	5.1%	0%	0%
TERMINAL (d)	0/18 (0%)	0/27 (0%)	0/31 (0%)
FIRST INCIDENCE	611	---	---
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.094N	P=0.226N	P=0.213N
POLY 1.5	P=0.094N	P=0.232N	P=0.224N
POLY 6	P=0.094N	P=0.215N	P=0.198N
COCH-ARM / FISHERS	P=0.096N	P=0.253N	P=0.247N
MAX-ISO-POLY-3	P=0.053N	P=0.076N	P=0.075N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Lymph Node, Mesenteric Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/49 (0%)	2/50 (4%)
POLY-3 RATE (b)	0/38.40	0/41.03	2/43.72
POLY-3 PERCENT (g)	0%	0%	4.6%
TERMINAL (d)	0/18 (0%)	0/27 (0%)	1/31 (3%)
FIRST INCIDENCE	---	---	686
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.107	(e)	P=0.267
POLY 1.5	P=0.102	(e)	P=0.253
POLY 6	P=0.117	(e)	P=0.290
COCH-ARM / FISHERS	P=0.096	(e)	P=0.247
MAX-ISO-POLY-3	P=0.084	(e)	P=0.104

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Lymph Node, Mesenteric Infiltration Cellular Histiocyte</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/49 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/38.40	0/41.03	0/43.54
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/18 (0%)	0/27 (0%)	0/31 (0%)
FIRST INCIDENCE	---	---	---
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Lymph Node: Mediastinal Atrophy</b>			
<b>LESION RATES</b>			
OVERALL (a)	1/6 (17%)	2/4 (50%)	0/1 (0%)
POLY-3 RATE (b)	1/4.80	2/3.72	0/0.90
POLY-3 PERCENT (g)	20.8%	53.7%	0%
TERMINAL (d)	0/0 (0%)	0/1 (0%)	0/0 (0%)
FIRST INCIDENCE	701	701	---
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.614	P=0.394	P=0.826N
POLY 1.5	P=0.590	P=0.371	P=0.826N
POLY 6	P=0.638	P=0.428	P=0.830N
COCH-ARM / FISHERS	P=0.556	P=0.333	P=0.857N
MAX-ISO-POLY-3	P=0.431N	P=0.170	P=0.367N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Lymph Node: Mediastinal Hemorrhage</b>			
<b>LESION RATES</b>			
OVERALL (a)	2/6 (33%)	4/4 (100%)	1/1 (100%)
POLY-3 RATE (b)	2/5.53	4/4.00	1/1.00
POLY-3 PERCENT (g)	36.2%	100%	100%
TERMINAL (d)	0/0 (0%)	1/1 (100%)	0/0 (0%)
FIRST INCIDENCE	496	659	708
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.036*	P=0.047*	P=0.464
POLY 1.5	P=0.032*	P=0.044*	P=0.452
POLY 6	P=0.046*	P=0.056	P=0.491
COCH-ARM / FISHERS	P=0.054	P=0.071	P=0.429
MAX-ISO-POLY-3	P=0.047*	P=0.009**	P=0.178



Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Mammary Gland Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/49 (0%)
POLY-3 RATE (b)	0/38.40	0/41.50	0/42.84
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/18 (0%)	0/27 (0%)	0/31 (0%)
FIRST INCIDENCE	---	---	---
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Nose Inflammation</b>			
<b>LESION RATES</b>			
OVERALL (a)	8/50 (16%)	4/50 (8%)	0/50 (0%)
POLY-3 RATE (b)	8/40.38	4/42.53	0/43.54
POLY-3 PERCENT (g)	19.8%	9.4%	0%
TERMINAL (d)	3/18 (17%)	1/27 (4%)	0/31 (0%)
FIRST INCIDENCE	496	406	---
<b>STATISTICAL TESTS</b>			
POLY 3	P<0.001N**	P=0.149N	P=0.002N**
POLY 1.5	P=0.002N**	P=0.160N	P=0.003N**
POLY 6	P<0.001N**	P=0.131N	P=0.002N**
COCH-ARM / FISHERS	P=0.003N**	P=0.178N	P=0.003N**
MAX-ISO-POLY-3	P<0.001N**	P=0.093N	P<0.001N**

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Nose: Respiratory Epithelium Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	3/50 (6%)	0/50 (0%)
POLY-3 RATE (b)	0/38.40	3/41.67	0/43.54
POLY-3 PERCENT (g)	0%	7.2%	0%
TERMINAL (d)	0/18 (0%)	2/27 (7%)	0/31 (0%)
FIRST INCIDENCE	---	688	---
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.580N	P=0.133	(e)
POLY 1.5	P=0.608N	P=0.127	(e)
POLY 6	P=0.533N	P=0.145	(e)
COCH-ARM / FISHERS	P=0.640	P=0.121	(e)
MAX-ISO-POLY-3	P=0.207N	P=0.050*	(e)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Pancreas: Acinus Atrophy</b>			
<b>LESION RATES</b>			
OVERALL (a)	3/49 (6%)	4/48 (8%)	3/50 (6%)
POLY-3 RATE (b)	3/38.13	4/40.68	3/43.72
POLY-3 PERCENT (g)	7.9%	9.8%	6.9%
TERMINAL (d)	2/18 (11%)	3/27 (11%)	2/31 (7%)
FIRST INCIDENCE	693	701	687
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.505N	P=0.536	P=0.598N
POLY 1.5	P=0.534N	P=0.515	P=0.623N
POLY 6	P=0.460N	P=0.570	P=0.556N
COCH-ARM / FISHERS	P=0.568N	P=0.488	P=0.651N
MAX-ISO-POLY-3	P=0.518N	P=0.383	P=0.434N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Pancreas: Acinus Basophilic Focus</b>			
<b>LESION RATES</b>			
OVERALL (a)	1/49 (2%)	1/48 (2%)	0/50 (0%)
POLY-3 RATE (b)	1/37.97	1/40.55	0/43.54
POLY-3 PERCENT (g)	2.6%	2.5%	0%
TERMINAL (d)	1/18 (6%)	1/27 (4%)	0/31 (0%)
FIRST INCIDENCE	734 (T)	734 (T)	---
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Pancreas: Acinus Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	23/49 (47%)	23/48 (48%)	32/50 (64%)
POLY-3 RATE (b)	23/41.62	23/40.84	32/44.90
POLY-3 PERCENT (g)	55.3%	56.3%	71.3%
TERMINAL (d)	10/18 (56%)	21/27 (78%)	27/31 (87%)
FIRST INCIDENCE	537	687	551
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.063	P=0.552	P=0.080
POLY 1.5	P=0.057	P=0.556	P=0.072
POLY 6	P=0.076	P=0.544	P=0.100
COCH-ARM / FISHERS	P=0.054	P=0.543	P=0.066
MAX-ISO-POLY-3	P=0.078	P=0.459	P=0.056

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Parathyroid Gland Hyperplasia			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	6/47 (13%)	2/44 (5%)	2/41 (5%)
POLY-3 RATE (b)	6/37.81	2/36.79	2/35.50
POLY-3 PERCENT (g)	15.9%	5.4%	5.6%
TERMINAL (d)	0/17 (0%)	0/24 (0%)	1/25 (4%)
FIRST INCIDENCE	514	568	715
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.094N	P=0.138N	P=0.150N
POLY 1.5	P=0.100N	P=0.145N	P=0.163N
POLY 6	P=0.084N	P=0.126N	P=0.130N
COCH-ARM / FISHERS	P=0.110N	P=0.156N	P=0.182N
MAX-ISO-POLY-3	P=0.082N	P=0.072N	P=0.079N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Pituitary Gland: Pars Distalis Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	12/50 (24%)	17/50 (34%)	17/50 (34%)
POLY-3 RATE (b)	12/39.88	17/43.43	17/45.00
POLY-3 PERCENT (g)	30.1%	39.2%	37.8%
TERMINAL (d)	6/18 (33%)	11/27 (41%)	11/31 (36%)
FIRST INCIDENCE	553	568	505
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.281	P=0.259	P=0.301
POLY 1.5	P=0.223	P=0.226	P=0.246
POLY 6	P=0.385	P=0.325	P=0.400
COCH-ARM / FISHERS	P=0.165	P=0.189	P=0.189
MAX-ISO-POLY-3	P=0.311	P=0.199	P=0.239

---



Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Preputial Gland Inflammation			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	2/50 (4%)	0/50 (0%)
POLY-3 RATE (b)	0/38.40	2/41.68	0/43.54
POLY-3 PERCENT (g)	0%	4.8%	0%
TERMINAL (d)	0/18 (0%)	1/27 (4%)	0/31 (0%)
FIRST INCIDENCE	---	687	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.625N	P=0.255	(e)
POLY 1.5	P=0.645N	P=0.247	(e)
POLY 6	P=0.591N	P=0.270	(e)
COCH-ARM / FISHERS	P=0.669	P=0.247	(e)
MAX-ISO-POLY-3	P=0.279N	P=0.093	(e)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Prostate: Epithelium Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	2/50 (4%)	1/50 (2%)	0/50 (0%)
POLY-3 RATE (b)	2/38.89	1/41.50	0/43.54
POLY-3 PERCENT (g)	5.1%	2.4%	0%
TERMINAL (d)	1/18 (6%)	1/27 (4%)	0/31 (0%)
FIRST INCIDENCE	586	734 (T)	---
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.129N	P=0.477N	P=0.213N
POLY 1.5	P=0.135N	P=0.487N	P=0.224N
POLY 6	P=0.121N	P=0.460N	P=0.196N
COCH-ARM / FISHERS	P=0.142N	P=0.500N	P=0.247N
MAX-ISO-POLY-3	P=0.104N	P=0.267N	P=0.075N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Skin Inflammation</b>			
<b>LESION RATES</b>			
OVERALL (a)	4/50 (8%)	2/50 (4%)	0/50 (0%)
POLY-3 RATE (b)	4/38.40	2/41.79	0/43.54
POLY-3 PERCENT (g)	10.4%	4.8%	0%
TERMINAL (d)	4/18 (22%)	0/27 (0%)	0/31 (0%)
FIRST INCIDENCE	734 (T)	660	---
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.028N*	P=0.298N	P=0.045N*
POLY 1.5	P=0.031N*	P=0.315N	P=0.052N
POLY 6	P=0.023N*	P=0.268N	P=0.037N*
COCH-ARM / FISHERS	P=0.037N*	P=0.339N	P=0.059N
MAX-ISO-POLY-3	P=0.025N*	P=0.180N	P=0.019N*

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Skin			
Ulcer			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	3/50 (6%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	3/38.91	0/41.50	0/43.54
POLY-3 PERCENT (g)	7.7%	0%	0%
TERMINAL (d)	1/18 (6%)	0/27 (0%)	0/31 (0%)
FIRST INCIDENCE	586	---	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.034N*	P=0.107N	P=0.099N
POLY 1.5	P=0.034N*	P=0.112N	P=0.108N
POLY 6	P=0.033N*	P=0.098N	P=0.087N
COCH-ARM / FISHERS	P=0.037N*	P=0.121N	P=0.121N
MAX-ISO-POLY-3	P=0.019N*	P=0.037N*	P=0.037N*

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Skin: Epidermis Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	2/50 (4%)	2/50 (4%)	2/50 (4%)
POLY-3 RATE (b)	2/38.57	2/41.50	2/43.54
POLY-3 PERCENT (g)	5.2%	4.8%	4.6%
TERMINAL (d)	1/18 (6%)	2/27 (7%)	2/31 (7%)
FIRST INCIDENCE	691	734 (T)	734 (T)
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.559N	P=0.668N	P=0.650N
POLY 1.5	P=0.577N	P=0.679N	P=0.670N
POLY 6	P=0.529N	P=0.648N	P=0.617N
COCH-ARM / FISHERS	P=0.601	P=0.691N	P=0.691N
MAX-ISO-POLY-3	P=0.611N	P=0.470N	P=0.452N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Skin: Hair Follicle Cyst			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	3/50 (6%)	0/50 (0%)	1/50 (2%)
POLY-3 RATE (b)	3/38.59	0/41.50	1/43.54
POLY-3 PERCENT (g)	7.8%	0%	2.3%
TERMINAL (d)	2/18 (11%)	0/27 (0%)	1/31 (3%)
FIRST INCIDENCE	684	---	734 (T)
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.167N	P=0.105N	P=0.263N
POLY 1.5	P=0.171N	P=0.111N	P=0.282N
POLY 6	P=0.163N	P=0.096N	P=0.235N
COCH-ARM / FISHERS	P=0.176N	P=0.121N	P=0.309N
MAX-ISO-POLY-3	P=0.074N	P=0.037N*	P=0.139N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Spleen</b>			
<b>Hematopoietic Cell Proliferation</b>			
<b>LESION RATES</b>			
OVERALL (a)	27/50 (54%)	24/49 (49%)	37/50 (74%)
POLY-3 RATE (b)	27/43.76	24/44.45	37/48.97
POLY-3 PERCENT (g)	61.7%	54%	75.6%
TERMINAL (d)	13/18 (72%)	16/27 (59%)	24/31 (77%)
FIRST INCIDENCE	537	406	285
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.073	P=0.296N	P=0.102
POLY 1.5	P=0.049*	P=0.323N	P=0.065
POLY 6	P=0.118	P=0.263N	P=0.171
COCH-ARM / FISHERS	P=0.027*	P=0.383N	P=0.030*
MAX-ISO-POLY-3	P=0.050*	P=0.227N	P=0.077

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Spleen Pigmentation Hemosiderin			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	44/50 (88%)	49/49 (100%)	43/50 (86%)
POLY-3 RATE (b)	44/47.85	49/49.00	43/49.18
POLY-3 PERCENT (g)	92%	100%	87.4%
TERMINAL (d)	17/18 (94%)	27/27 (100%)	28/31 (90%)
FIRST INCIDENCE	186	406	285
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.215N	P=0.035*	P=0.334N
POLY 1.5	P=0.302N	P=0.023*	P=0.406N
POLY 6	P=0.128N	P=0.082	P=0.249N
COCH-ARM / FISHERS	P=0.430N	P=0.014*	P=0.500N
MAX-ISO-POLY-3	P=0.045N*	P=0.008**	P=0.218N

---



Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Spleen: Lymphoid Follicle Atrophy</b>			
<b>LESION RATES</b>			
OVERALL (a)	6/50 (12%)	3/49 (6%)	1/50 (2%)
POLY-3 RATE (b)	6/40.66	3/42.04	1/43.68
POLY-3 PERCENT (g)	14.8%	7.1%	2.3%
TERMINAL (d)	0/18 (0%)	0/27 (0%)	0/31 (0%)
FIRST INCIDENCE	514	490	698
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.028N*	P=0.223N	P=0.044N*
POLY 1.5	P=0.031N*	P=0.236N	P=0.049N*
POLY 6	P=0.024N*	P=0.203N	P=0.036N*
COCH-ARM / FISHERS	P=0.036N*	P=0.254N	P=0.056N
MAX-ISO-POLY-3	P=0.026N*	P=0.137N	P=0.021N*

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Spleen: Lymphoid Follicle Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	7/50 (14%)	10/49 (20%)	8/50 (16%)
POLY-3 RATE (b)	7/40.53	10/41.82	8/45.00
POLY-3 PERCENT (g)	17.3%	23.9%	17.8%
TERMINAL (d)	0/18 (0%)	8/27 (30%)	4/31 (13%)
FIRST INCIDENCE	552	505	504
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.554	P=0.318	P=0.588
POLY 1.5	P=0.508	P=0.304	P=0.551
POLY 6	P=0.500N	P=0.338	P=0.586N
COCH-ARM / FISHERS	P=0.447	P=0.282	P=0.500
MAX-ISO-POLY-3	P=0.483	P=0.232	P=0.475

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Stomach, Forestomach Mineralization</b>			
<b>LESION RATES</b>			
OVERALL (a)	2/50 (4%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	2/39.75	0/41.50	0/43.54
POLY-3 PERCENT (g)	5%	0%	0%
TERMINAL (d)	0/18 (0%)	0/27 (0%)	0/31 (0%)
FIRST INCIDENCE	496	---	---
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.093N	P=0.227N	P=0.217N
POLY 1.5	P=0.094N	P=0.232N	P=0.226N
POLY 6	P=0.092N	P=0.218N	P=0.202N
COCH-ARM / FISHERS	P=0.095N	P=0.247N	P=0.247N
MAX-ISO-POLY-3	P=0.052N	P=0.075N	P=0.075N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Stomach, Forestomach Ulcer</b>			
<b>LESION RATES</b>			
OVERALL (a)	3/50 (6%)	1/50 (2%)	0/50 (0%)
POLY-3 RATE (b)	3/38.82	1/41.83	0/43.54
POLY-3 PERCENT (g)	7.7%	2.4%	0%
TERMINAL (d)	1/18 (6%)	0/27 (0%)	0/31 (0%)
FIRST INCIDENCE	656	641	---
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.052N	P=0.278N	P=0.099N
POLY 1.5	P=0.055N	P=0.290N	P=0.108N
POLY 6	P=0.048N*	P=0.259N	P=0.087N
COCH-ARM / FISHERS	P=0.060N	P=0.309N	P=0.121N
MAX-ISO-POLY-3	P=0.039N*	P=0.144N	P=0.037N*

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Stomach, Forestomach: Epithelium Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	11/50 (22%)	11/50 (22%)	16/50 (32%)
POLY-3 RATE (b)	11/40.05	11/44.29	16/45.18
POLY-3 PERCENT (g)	27.5%	24.8%	35.4%
TERMINAL (d)	2/18 (11%)	4/27 (15%)	12/31 (39%)
FIRST INCIDENCE	652	439	505
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.231	P=0.490N	P=0.288
POLY 1.5	P=0.194	P=0.532N	P=0.240
POLY 6	P=0.287	P=0.431N	P=0.364
COCH-ARM / FISHERS	P=0.150	P=0.595N	P=0.184
MAX-ISO-POLY-3	P=0.259	P=0.394N	P=0.227

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Stomach, Glandular Mineralization</b>			
<b>LESION RATES</b>			
OVERALL (a)	2/50 (4%)	1/50 (2%)	0/50 (0%)
POLY-3 RATE (b)	2/39.75	1/41.72	0/43.54
POLY-3 PERCENT (g)	5%	2.4%	0%
TERMINAL (d)	0/18 (0%)	0/27 (0%)	0/31 (0%)
FIRST INCIDENCE	496	676	---
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.131N	P=0.483N	P=0.217N
POLY 1.5	P=0.137N	P=0.491N	P=0.226N
POLY 6	P=0.124N	P=0.467N	P=0.202N
COCH-ARM / FISHERS	P=0.142N	P=0.500N	P=0.247N
MAX-ISO-POLY-3	P=0.104N	P=0.270N	P=0.075N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Testes			
Edema			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	2/50 (4%)
POLY-3 RATE (b)	0/38.40	0/41.50	2/43.84
POLY-3 PERCENT (g)	0%	0%	4.6%
TERMINAL (d)	0/18 (0%)	0/27 (0%)	1/31 (3%)
FIRST INCIDENCE	---	---	649
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.107	(e)	P=0.268
POLY 1.5	P=0.101	(e)	P=0.253
POLY 6	P=0.117	(e)	P=0.292
COCH-ARM / FISHERS	P=0.095	(e)	P=0.247
MAX-ISO-POLY-3	P=0.084	(e)	P=0.104

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Testes: Bilateral, Germinal Epithelium Atrophy			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	1/50 (2%)	7/50 (14%)
POLY-3 RATE (b)	0/38.40	1/41.68	7/46.78
POLY-3 PERCENT (g)	0%	2.4%	15%
TERMINAL (d)	0/18 (0%)	0/27 (0%)	1/31 (3%)
FIRST INCIDENCE	---	687	467
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.003**	P=0.516	P=0.016*
POLY 1.5	P=0.002**	P=0.509	P=0.012*
POLY 6	P=0.004**	P=0.529	P=0.025*
COCH-ARM / FISHERS	P=0.002**	P=0.500	P=0.006**
MAX-ISO-POLY-3	P=0.003**	P=0.178	P=0.010**

---



Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef

---

Testes: Germinal Epithelium  
Atrophy

**LESION RATES**

OVERALL (a)	5/50 (10%)	1/50 (2%)	10/50 (20%)
POLY-3 RATE (b)	5/39.21	1/41.68	10/46.78
POLY-3 PERCENT (g)	12.8%	2.4%	21.4%
TERMINAL (d)	2/18 (11%)	0/27 (0%)	4/31 (13%)
FIRST INCIDENCE	638	687	467

---

**STATISTICAL TESTS**

POLY 3	P=0.099	P=0.086N	P=0.223
POLY 1.5	P=0.084	P=0.093N	P=0.179
POLY 6	P=0.123	P=0.076N	P=0.294
COCH-ARM / FISHERS	P=0.072	P=0.102N	P=0.131
MAX-ISO-POLY-3	P=0.044*	P=0.040N*	P=0.168

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Thymus Atrophy			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	37/47 (79%)	35/50 (70%)	40/49 (82%)
POLY-3 RATE (b)	37/44.96	35/48.89	40/47.85
POLY-3 PERCENT (g)	82.3%	71.6%	83.6%
TERMINAL (d)	12/18 (67%)	16/27 (59%)	25/31 (81%)
FIRST INCIDENCE	514	406	285
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.474	P=0.159N	P=0.545
POLY 1.5	P=0.470	P=0.170N	P=0.537
POLY 6	P=0.465	P=0.154N	P=0.536
COCH-ARM / FISHERS	P=0.408	P=0.227N	P=0.459
MAX-ISO-POLY-3	P=0.290	P=0.112N	P=0.432

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Thymus Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/47 (0%)	3/50 (6%)	1/49 (2%)
POLY-3 RATE (b)	0/36.61	3/41.68	1/42.84
POLY-3 PERCENT (g)	0%	7.2%	2.3%
TERMINAL (d)	0/18 (0%)	2/27 (7%)	1/31 (3%)
FIRST INCIDENCE	---	687	734 (T)
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.458	P=0.142	P=0.531
POLY 1.5	P=0.427	P=0.137	P=0.521
POLY 6	P=0.510	P=0.153	P=0.548
COCH-ARM / FISHERS	P=0.390	P=0.133	P=0.510
MAX-ISO-POLY-3	P=0.187	P=0.056	P=0.194

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Thyroid Gland: C-Cell Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	16/50 (32%)	13/50 (26%)	16/50 (32%)
POLY-3 RATE (b)	16/39.85	13/42.58	16/44.78
POLY-3 PERCENT (g)	40.2%	30.5%	35.7%
TERMINAL (d)	10/18 (56%)	8/27 (30%)	12/31 (39%)
FIRST INCIDENCE	586	659	504
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.401N	P=0.243N	P=0.422N
POLY 1.5	P=0.464N	P=0.279N	P=0.495N
POLY 6	P=0.311N	P=0.186N	P=0.315N
COCH-ARM / FISHERS	P=0.543	P=0.330N	P=0.585N
MAX-ISO-POLY-3	P=0.364N	P=0.183N	P=0.343N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Tooth Necrosis</b>			
<b>LESION RATES</b>			
OVERALL (a)	3/3 (100%)	0/1 (0%)	0/0 (0%)
POLY-3 RATE (b)	3/3.00	0/0.76	0/0.00
POLY-3 PERCENT (g)	100%	0%	0%
TERMINAL (d)	1/1 (100%)	0/0 (0%)	0/0 (0%)
FIRST INCIDENCE	488	---	---
<b>STATISTICAL TESTS</b>			
POLY 3	(e)	P=0.250N	(e)
POLY 1.5	(e)	P=0.250N	(e)
POLY 6	(e)	P=0.250N	(e)
COCH-ARM / FISHERS	P=0.252N	P=0.250N	(e)
MAX-ISO-POLY-3	(e)	(e)	(e)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 105 WEEKS**

---

DOSE	Males		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Urinary Bladder Inflammation</b>			
<b>LESION RATES</b>			
OVERALL (a)	2/50 (4%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	2/38.57	0/41.50	0/43.54
POLY-3 PERCENT (g)	5.2%	0%	0%
TERMINAL (d)	1/18 (6%)	0/27 (0%)	0/31 (0%)
FIRST INCIDENCE	691	---	---
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.093N	P=0.221N	P=0.211N
POLY 1.5	P=0.094N	P=0.228N	P=0.223N
POLY 6	P=0.093N	P=0.209N	P=0.194N
COCH-ARM / FISHERS	P=0.095N	P=0.247N	P=0.247N
MAX-ISO-POLY-3	P=0.052N	P=0.075N	P=0.075N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Adrenal Cortex Degeneration Cystic</b>			
<b>LESION RATES</b>			
OVERALL (a)	3/50 (6%)	1/50 (2%)	4/50 (8%)
POLY-3 RATE (b)	3/39.46	1/44.72	4/42.11
POLY-3 PERCENT (g)	7.6%	2.2%	9.5%
TERMINAL (d)	3/25 (12%)	0/34 (0%)	4/32 (13%)
FIRST INCIDENCE	725 (T)	615	725 (T)
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.432	P=0.262N	P=0.536
POLY 1.5	P=0.424	P=0.278N	P=0.519
POLY 6	P=0.446	P=0.241N	P=0.562
COCH-ARM / FISHERS	P=0.412	P=0.309N	P=0.500
MAX-ISO-POLY-3	P=0.280	P=0.139N	P=0.383

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Adrenal Cortex Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	6/50 (12%)	5/50 (10%)	5/50 (10%)
POLY-3 RATE (b)	6/40.62	5/44.47	5/42.11
POLY-3 PERCENT (g)	14.8%	11.2%	11.9%
TERMINAL (d)	3/25 (12%)	4/34 (12%)	5/32 (16%)
FIRST INCIDENCE	435	690	725 (T)
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.414N	P=0.436N	P=0.474N
POLY 1.5	P=0.425N	P=0.461N	P=0.487N
POLY 6	P=0.396N	P=0.406N	P=0.451N
COCH-ARM / FISHERS	P=0.436N	P=0.500N	P=0.500N
MAX-ISO-POLY-3	P=0.461N	P=0.322N	P=0.351N

---



Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Adrenal Medulla Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	6/50 (12%)	3/50 (6%)	4/50 (8%)
POLY-3 RATE (b)	6/39.60	3/44.52	4/42.40
POLY-3 PERCENT (g)	15.2%	6.7%	9.4%
TERMINAL (d)	5/25 (20%)	2/34 (6%)	3/32 (9%)
FIRST INCIDENCE	690	676	648
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.270N	P=0.186N	P=0.326N
POLY 1.5	P=0.282N	P=0.207N	P=0.346N
POLY 6	P=0.253N	P=0.162N	P=0.294N
COCH-ARM / FISHERS	P=0.297N	P=0.243N	P=0.370N
MAX-ISO-POLY-3	P=0.218N	P=0.119N	P=0.223N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Adrenal Medulla: Bilateral Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/39.46	0/44.33	0/42.11
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	---	---	---
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Blood Vessel Inflammation</b>			
<b>LESION RATES</b>			
OVERALL (a)	1/50 (2%)	0/50 (0%)	1/50 (2%)
POLY-3 RATE (b)	1/39.46	0/44.33	1/42.11
POLY-3 PERCENT (g)	2.5%	0%	2.4%
TERMINAL (d)	1/25 (4%)	0/34 (0%)	1/32 (3%)
FIRST INCIDENCE	725 (T)	---	725 (T)
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Blood Vessel Mineralization</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/39.46	0/44.33	0/42.11
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	---	---	---
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Bone Marrow Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	14/50 (28%)	9/50 (18%)	10/49 (20%)
POLY-3 RATE (b)	14/43.13	9/46.75	10/44.74
POLY-3 PERCENT (g)	32.5%	19.3%	22.4%
TERMINAL (d)	6/25 (24%)	4/34 (12%)	3/32 (9%)
FIRST INCIDENCE	540	463	350
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.174N	P=0.115N	P=0.204N
POLY 1.5	P=0.188N	P=0.132N	P=0.225N
POLY 6	P=0.155N	P=0.100N	P=0.179N
COCH-ARM / FISHERS	P=0.214N	P=0.171N	P=0.259N
MAX-ISO-POLY-3	P=0.148N	P=0.082N	P=0.148N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Bone</b>			
<b>Fibrous Osteodystrophy</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/39.46	0/44.33	0/42.11
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	---	---	---
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Eye: Anterior Chamber			
Inflammation Acute			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/39.46	0/44.33	0/42.11
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	---	---	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Eye: Bilateral, Cornea Inflammation Acute			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/39.46	0/44.33	0/42.11
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	---	---	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---



Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Eye: Bilateral, Cornea Inflammation Chronic			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/39.46	0/44.33	0/42.11
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	---	---	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Eye: Cornea Inflammation Acute			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/39.46	0/44.33	0/42.11
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	---	---	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Eye: Cornea			
Inflammation Chronic			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/39.46	0/44.33	0/42.11
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	---	---	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Heart Cardiomyopathy			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	7/50 (14%)	4/50 (8%)	10/50 (20%)
POLY-3 RATE (b)	7/40.31	4/44.33	10/42.11
POLY-3 PERCENT (g)	17.4%	9%	23.8%
TERMINAL (d)	4/25 (16%)	4/34 (12%)	10/32 (31%)
FIRST INCIDENCE	568	725 (T)	725 (T)
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.251	P=0.207N	P=0.328
POLY 1.5	P=0.244	P=0.227N	P=0.314
POLY 6	P=0.264	P=0.186N	P=0.353
COCH-ARM / FISHERS	P=0.236	P=0.262N	P=0.298
MAX-ISO-POLY-3	P=0.137	P=0.137N	P=0.242

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Heart Mineralization			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/39.46	0/44.33	0/42.11
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	---	---	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Heart: Atrium Thrombosis			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/39.46	0/44.33	0/42.11
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	---	---	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Islets, Pancreatic Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	1/50 (2%)	0/50 (0%)
POLY-3 RATE (b)	0/39.46	1/44.33	0/42.11
POLY-3 PERCENT (g)	0%	2.3%	0%
TERMINAL (d)	0/25 (0%)	1/34 (3%)	0/32 (0%)
FIRST INCIDENCE	---	725 (T)	---
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Kidney Cyst			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	2/50 (4%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	2/40.05	0/44.33	0/42.11
POLY-3 PERCENT (g)	5%	0%	0%
TERMINAL (d)	1/25 (4%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	540	---	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.094N	P=0.215N	P=0.226N
POLY 1.5	P=0.094N	P=0.223N	P=0.231N
POLY 6	P=0.095N	P=0.205N	P=0.217N
COCH-ARM / FISHERS	P=0.095N	P=0.247N	P=0.247N
MAX-ISO-POLY-3	P=0.052N	P=0.075N	P=0.075N

---



Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Kidney</b>			
<b>Infarct Chronic</b>			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	1/50 (2%)
POLY-3 RATE (b)	0/39.46	0/44.33	1/42.11
POLY-3 PERCENT (g)	0%	0%	2.4%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	1/32 (3%)
FIRST INCIDENCE	---	---	725 (T)
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Kidney</b>			
<b>Nephropathy</b>			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	27/50 (54%)	21/50 (42%)	28/50 (56%)
POLY-3 RATE (b)	27/44.39	21/47.01	28/45.55
POLY-3 PERCENT (g)	60.8%	44.7%	61.5%
TERMINAL (d)	14/25 (56%)	12/34 (35%)	22/32 (69%)
FIRST INCIDENCE	435	483	350
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.507	P=0.086N	P=0.563
POLY 1.5	P=0.494	P=0.108N	P=0.545
POLY 6	P=0.514	P=0.064N	P=0.576
COCH-ARM / FISHERS	P=0.460	P=0.158N	P=0.500
MAX-ISO-POLY-3	P=0.271	P=0.061N	P=0.473

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Liver			
Angiectasis			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	3/50 (6%)	2/50 (4%)
POLY-3 RATE (b)	0/39.46	3/44.52	2/42.21
POLY-3 PERCENT (g)	0%	6.7%	4.7%
TERMINAL (d)	0/25 (0%)	2/34 (6%)	1/32 (3%)
FIRST INCIDENCE	---	676	701
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.229	P=0.142	P=0.252
POLY 1.5	P=0.216	P=0.132	P=0.245
POLY 6	P=0.252	P=0.154	P=0.264
COCH-ARM / FISHERS	P=0.202	P=0.121	P=0.247
MAX-ISO-POLY-3	P=0.139	P=0.058	P=0.090

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Liver			
Clear Cell Focus			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	2/50 (4%)	7/50 (14%)	2/50 (4%)
POLY-3 RATE (b)	2/39.46	7/44.33	2/42.11
POLY-3 PERCENT (g)	5.1%	15.8%	4.8%
TERMINAL (d)	2/25 (8%)	7/34 (21%)	2/32 (6%)
FIRST INCIDENCE	725 (T)	725 (T)	725 (T)
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.527N	P=0.109	P=0.671N
POLY 1.5	P=0.550N	P=0.097	P=0.682N
POLY 6	P=0.489N	P=0.125	P=0.653N
COCH-ARM / FISHERS	P=0.576	P=0.080	P=0.691N
MAX-ISO-POLY-3	P=0.248N	P=0.066	P=0.473N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Liver			
Eosinophilic Focus			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	3/50 (6%)	1/50 (2%)
POLY-3 RATE (b)	0/39.46	3/44.52	1/42.11
POLY-3 PERCENT (g)	0%	6.7%	2.4%
TERMINAL (d)	0/25 (0%)	2/34 (6%)	1/32 (3%)
FIRST INCIDENCE	---	676	725 (T)
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.416	P=0.142	P=0.513
POLY 1.5	P=0.398	P=0.132	P=0.507
POLY 6	P=0.446	P=0.154	P=0.523
COCH-ARM / FISHERS	P=0.378	P=0.121	P=0.500
MAX-ISO-POLY-3	P=0.177	P=0.058	P=0.174

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Liver			
Fatty Change			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	6/50 (12%)	11/50 (22%)	4/50 (8%)
POLY-3 RATE (b)	6/41.36	11/46.64	4/42.11
POLY-3 PERCENT (g)	14.5%	23.6%	9.5%
TERMINAL (d)	1/25 (4%)	6/34 (18%)	4/32 (13%)
FIRST INCIDENCE	469	447	725 (T)
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.314N	P=0.210	P=0.357N
POLY 1.5	P=0.322N	P=0.184	P=0.363N
POLY 6	P=0.298N	P=0.242	P=0.345N
COCH-ARM / FISHERS	P=0.333N	P=0.143	P=0.370N
MAX-ISO-POLY-3	P=0.160N	P=0.154	P=0.244N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Liver			
Hematopoietic Cell Proliferation			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	1/50 (2%)	0/50 (0%)	2/50 (4%)
POLY-3 RATE (b)	1/39.46	0/44.33	2/42.75
POLY-3 PERCENT (g)	2.5%	0%	4.7%
TERMINAL (d)	1/25 (4%)	0/34 (0%)	1/32 (3%)
FIRST INCIDENCE	725 (T)	---	518
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.375	P=0.477N	P=0.528
POLY 1.5	P=0.369	P=0.486N	P=0.515
POLY 6	P=0.384	P=0.466N	P=0.547
COCH-ARM / FISHERS	P=0.360	P=0.500N	P=0.500
MAX-ISO-POLY-3	P=0.227	P=0.158N	P=0.311

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Liver			
Mixed Cell Focus			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	2/50 (4%)	1/50 (2%)
POLY-3 RATE (b)	0/39.46	2/44.33	1/42.11
POLY-3 PERCENT (g)	0%	4.5%	2.4%
TERMINAL (d)	0/25 (0%)	2/34 (6%)	1/32 (3%)
FIRST INCIDENCE	---	725 (T)	725 (T)
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.392	P=0.264	P=0.513
POLY 1.5	P=0.377	P=0.253	P=0.507
POLY 6	P=0.416	P=0.277	P=0.523
COCH-ARM / FISHERS	P=0.360	P=0.247	P=0.500
MAX-ISO-POLY-3	P=0.229	P=0.101	P=0.174

---



Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Liver: Bile Duct Hyperplasia			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	2/50 (4%)
POLY-3 RATE (b)	0/39.46	0/44.33	2/42.11
POLY-3 PERCENT (g)	0%	0%	4.8%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	2/32 (6%)
FIRST INCIDENCE	---	---	725 (T)
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.100	(e)	P=0.252
POLY 1.5	P=0.097	(e)	P=0.245
POLY 6	P=0.103	(e)	P=0.263
COCH-ARM / FISHERS	P=0.095	(e)	P=0.247
MAX-ISO-POLY-3	P=0.066	(e)	P=0.090

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Liver: Hepatocyte Necrosis			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	2/50 (4%)	1/50 (2%)
POLY-3 RATE (b)	0/39.46	2/44.82	1/42.55
POLY-3 PERCENT (g)	0%	4.5%	2.4%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	---	644	599
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.397	P=0.267	P=0.515
POLY 1.5	P=0.380	P=0.255	P=0.508
POLY 6	P=0.425	P=0.283	P=0.526
COCH-ARM / FISHERS	P=0.360	P=0.247	P=0.500
MAX-ISO-POLY-3	P=0.232	P=0.104	P=0.177

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Lung			
Infiltration Cellular Histiocyte			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	37/50 (74%)	40/50 (80%)	38/50 (76%)
POLY-3 RATE (b)	37/46.02	40/49.12	38/47.00
POLY-3 PERCENT (g)	80.4%	81.4%	80.9%
TERMINAL (d)	21/25 (84%)	27/34 (79%)	27/32 (84%)
FIRST INCIDENCE	362	447	350
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.533	P=0.555	P=0.587
POLY 1.5	P=0.504	P=0.466	P=0.554
POLY 6	P=0.546N	P=0.571N	P=0.605N
COCH-ARM / FISHERS	P=0.453	P=0.318	P=0.500
MAX-ISO-POLY-3	P=0.622	P=0.447	P=0.476

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Lung Inflammation			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	1/50 (2%)
POLY-3 RATE (b)	0/39.46	0/44.33	1/42.11
POLY-3 PERCENT (g)	0%	0%	2.4%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	1/32 (3%)
FIRST INCIDENCE	---	---	725 (T)
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Lymph Node, Mandibular Atrophy</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	1/49 (2%)	2/49 (4%)
POLY-3 RATE (b)	0/39.46	1/44.02	2/41.88
POLY-3 PERCENT (g)	0%	2.3%	4.8%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	1/32 (3%)
FIRST INCIDENCE	---	615	599
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.156	P=0.522	P=0.250
POLY 1.5	P=0.148	P=0.512	P=0.242
POLY 6	P=0.168	P=0.535	P=0.264
COCH-ARM / FISHERS	P=0.139	P=0.495	P=0.242
MAX-ISO-POLY-3	P=0.124	P=0.186	P=0.090

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Lymph Node, Mandibular Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	8/50 (16%)	8/49 (16%)	12/49 (24%)
POLY-3 RATE (b)	8/40.76	8/45.00	12/41.79
POLY-3 PERCENT (g)	19.6%	17.8%	28.7%
TERMINAL (d)	4/25 (16%)	5/34 (15%)	10/32 (31%)
FIRST INCIDENCE	435	463	659
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.192	P=0.523N	P=0.238
POLY 1.5	P=0.182	P=0.563N	P=0.223
POLY 6	P=0.213	P=0.473N	P=0.269
COCH-ARM / FISHERS	P=0.172	P=0.590	P=0.212
MAX-ISO-POLY-3	P=0.197	P=0.416N	P=0.171

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Lymph Node, Mandibular Infiltration Cellular Plasma Cell</b>			
<b>LESION RATES</b>			
OVERALL (a)	15/50 (30%)	8/49 (16%)	18/49 (37%)
POLY-3 RATE (b)	15/45.21	8/46.40	18/44.32
POLY-3 PERCENT (g)	33.2%	17.2%	40.6%
TERMINAL (d)	5/25 (20%)	2/34 (6%)	12/32 (38%)
FIRST INCIDENCE	253	447	513
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.259	P=0.062N	P=0.304
POLY 1.5	P=0.256	P=0.070N	P=0.298
POLY 6	P=0.274	P=0.053N	P=0.329
COCH-ARM / FISHERS	P=0.266	P=0.084N	P=0.310
MAX-ISO-POLY-3	P=0.071	P=0.040N*	P=0.233

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Lymph Node, Mesenteric Atrophy</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	1/50 (2%)	1/49 (2%)
POLY-3 RATE (b)	0/39.46	1/44.72	1/42.00
POLY-3 PERCENT (g)	0%	2.2%	2.4%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	1/32 (3%)
FIRST INCIDENCE	---	615	725 (T)
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---



Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Lymph Node, Mesenteric Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	1/50 (2%)	0/50 (0%)	1/49 (2%)
POLY-3 RATE (b)	1/39.46	0/44.33	1/42.91
POLY-3 PERCENT (g)	2.5%	0%	2.3%
TERMINAL (d)	1/25 (4%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	725 (T)	---	323
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Lymph Node, Mesenteric Infiltration Cellular Histiocyte</b>			
<b>LESION RATES</b>			
OVERALL (a)	1/50 (2%)	2/50 (4%)	3/49 (6%)
POLY-3 RATE (b)	1/39.46	2/44.33	3/42.00
POLY-3 PERCENT (g)	2.5%	4.5%	7.1%
TERMINAL (d)	1/25 (4%)	2/34 (6%)	3/32 (9%)
FIRST INCIDENCE	725 (T)	725 (T)	725 (T)
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.244	P=0.540	P=0.327
POLY 1.5	P=0.232	P=0.525	P=0.315
POLY 6	P=0.261	P=0.560	P=0.346
COCH-ARM / FISHERS	P=0.216	P=0.500	P=0.301
MAX-ISO-POLY-3	P=0.248	P=0.324	P=0.178

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Lymph Node: Mediastinal Atrophy</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/1 (0%)	0/0 (0%)	0/0 (0%)
POLY-3 RATE (b)	0/1.00	0/0.00	0/0.00
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/1 (0%)	0/0 (0%)	0/0 (0%)
FIRST INCIDENCE	---	---	---
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01  
Test Type: CHRONIC  
Route: DOSED FEED  
Species/Strain: RATS/HSD

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS  
Zinc Carbonate, Basic  
CAS Number: 5263-02-5

Date Report Requested: 11/22/2015  
Time Report Requested: 18:28:05  
First Dose M/F: 09/03/09 / 09/04/09  
Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Lymph Node: Mediastinal Hemorrhage</b>			
<b>LESION RATES</b>			
OVERALL (a)	1/1 (100%)	0/0 (0%)	0/0 (0%)
POLY-3 RATE (b)	1/1.00	0/0.00	0/0.00
POLY-3 PERCENT (g)	100%	0%	0%
TERMINAL (d)	1/1 (100%)	0/0 (0%)	0/0 (0%)
FIRST INCIDENCE	725 (T)	---	---
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Mammary Gland Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	2/50 (4%)	2/50 (4%)	5/50 (10%)
POLY-3 RATE (b)	2/39.73	2/44.33	5/42.39
POLY-3 PERCENT (g)	5%	4.5%	11.8%
TERMINAL (d)	0/25 (0%)	2/34 (6%)	4/32 (13%)
FIRST INCIDENCE	677	725 (T)	649
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.162	P=0.654N	P=0.242
POLY 1.5	P=0.155	P=0.669N	P=0.230
POLY 6	P=0.173	P=0.636N	P=0.262
COCH-ARM / FISHERS	P=0.146	P=0.691N	P=0.218
MAX-ISO-POLY-3	P=0.163	P=0.457N	P=0.144

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Nose Inflammation			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	1/50 (2%)	0/50 (0%)	2/50 (4%)
POLY-3 RATE (b)	1/39.87	0/44.33	2/42.11
POLY-3 PERCENT (g)	2.5%	0%	4.8%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	2/32 (6%)
FIRST INCIDENCE	609	---	725 (T)
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.370	P=0.479N	P=0.519
POLY 1.5	P=0.366	P=0.487N	P=0.510
POLY 6	P=0.377	P=0.469N	P=0.533
COCH-ARM / FISHERS	P=0.360	P=0.500N	P=0.500
MAX-ISO-POLY-3	P=0.216	P=0.158N	P=0.301

---

Experiment Number: 20403 - 01  
Test Type: CHRONIC  
Route: DOSED FEED  
Species/Strain: RATS/HSD

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS  
Zinc Carbonate, Basic  
CAS Number: 5263-02-5

Date Report Requested: 11/22/2015  
Time Report Requested: 18:28:05  
First Dose M/F: 09/03/09 / 09/04/09  
Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Nose: Respiratory Epithelium Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	1/50 (2%)	0/50 (0%)
POLY-3 RATE (b)	0/39.46	1/44.33	0/42.11
POLY-3 PERCENT (g)	0%	2.3%	0%
TERMINAL (d)	0/25 (0%)	1/34 (3%)	0/32 (0%)
FIRST INCIDENCE	---	725 (T)	---
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Ovary Atrophy			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	31/50 (62%)	30/50 (60%)	29/50 (58%)
POLY-3 RATE (b)	31/42.90	30/46.76	29/43.86
POLY-3 PERCENT (g)	72.3%	64.2%	66.1%
TERMINAL (d)	19/25 (76%)	21/34 (62%)	23/32 (72%)
FIRST INCIDENCE	540	572	459
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.308N	P=0.268N	P=0.341N
POLY 1.5	P=0.334N	P=0.351N	P=0.371N
POLY 6	P=0.282N	P=0.188N	P=0.308N
COCH-ARM / FISHERS	P=0.380N	P=0.500N	P=0.419N
MAX-ISO-POLY-3	P=0.327N	P=0.207N	P=0.259N

---



Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Ovary Cyst			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	12/50 (24%)	7/50 (14%)	8/50 (16%)
POLY-3 RATE (b)	12/41.06	7/44.44	8/42.99
POLY-3 PERCENT (g)	29.2%	15.8%	18.6%
TERMINAL (d)	7/25 (28%)	6/34 (18%)	6/32 (19%)
FIRST INCIDENCE	549	697	519
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.153N	P=0.106N	P=0.186N
POLY 1.5	P=0.164N	P=0.121N	P=0.203N
POLY 6	P=0.137N	P=0.090N	P=0.162N
COCH-ARM / FISHERS	P=0.181N	P=0.154N	P=0.227N
MAX-ISO-POLY-3	P=0.127N	P=0.072N	P=0.130N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Ovary: Bilateral Cyst</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	2/50 (4%)	0/50 (0%)
POLY-3 RATE (b)	0/39.46	2/44.33	0/42.11
POLY-3 PERCENT (g)	0%	4.5%	0%
TERMINAL (d)	0/25 (0%)	2/34 (6%)	0/32 (0%)
FIRST INCIDENCE	---	725 (T)	---
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.646N	P=0.264	(e)
POLY 1.5	P=0.657N	P=0.253	(e)
POLY 6	P=0.629N	P=0.277	(e)
COCH-ARM / FISHERS	P=0.669	P=0.247	(e)
MAX-ISO-POLY-3	P=0.285N	P=0.101	(e)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Ovary: Interstitial Cell Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	2/50 (4%)
POLY-3 RATE (b)	0/39.46	0/44.33	2/43.00
POLY-3 PERCENT (g)	0%	0%	4.7%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	1/32 (3%)
FIRST INCIDENCE	---	---	350
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.102	(e)	P=0.257
POLY 1.5	P=0.099	(e)	P=0.248
POLY 6	P=0.106	(e)	P=0.269
COCH-ARM / FISHERS	P=0.095	(e)	P=0.247
MAX-ISO-POLY-3	P=0.072	(e)	P=0.094

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Pancreas: Acinus Atrophy</b>			
<b>LESION RATES</b>			
OVERALL (a)	2/50 (4%)	2/49 (4%)	4/48 (8%)
POLY-3 RATE (b)	2/39.89	2/43.63	4/41.77
POLY-3 PERCENT (g)	5%	4.6%	9.6%
TERMINAL (d)	1/25 (4%)	2/34 (6%)	3/32 (9%)
FIRST INCIDENCE	601	725 (T)	350
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.267	P=0.662N	P=0.358
POLY 1.5	P=0.255	P=0.677N	P=0.341
POLY 6	P=0.286	P=0.642N	P=0.384
COCH-ARM / FISHERS	P=0.237	P=0.684	P=0.319
MAX-ISO-POLY-3	P=0.278	P=0.464N	P=0.224

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Pancreas: Acinus Basophilic Focus</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	2/49 (4%)	0/48 (0%)
POLY-3 RATE (b)	0/39.46	2/43.63	0/40.88
POLY-3 PERCENT (g)	0%	4.6%	0%
TERMINAL (d)	0/25 (0%)	2/34 (6%)	0/32 (0%)
FIRST INCIDENCE	---	725 (T)	---
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.651N	P=0.260	(e)
POLY 1.5	P=0.664N	P=0.249	(e)
POLY 6	P=0.630N	P=0.275	(e)
COCH-ARM / FISHERS	P=0.660	P=0.242	(e)
MAX-ISO-POLY-3	P=0.286N	P=0.099	(e)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Pancreas: Acinus Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	2/50 (4%)	5/49 (10%)	1/48 (2%)
POLY-3 RATE (b)	2/39.46	5/43.63	1/40.88
POLY-3 PERCENT (g)	5.1%	11.5%	2.5%
TERMINAL (d)	2/25 (8%)	5/34 (15%)	1/32 (3%)
FIRST INCIDENCE	725 (T)	725 (T)	725 (T)
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.383N	P=0.258	P=0.488N
POLY 1.5	P=0.405N	P=0.238	P=0.500N
POLY 6	P=0.349N	P=0.285	P=0.467N
COCH-ARM / FISHERS	P=0.431N	P=0.210	P=0.515N
MAX-ISO-POLY-3	P=0.205N	P=0.161	P=0.275N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Parathyroid Gland Hyperplasia			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/42 (0%)	0/41 (0%)	1/43 (2%)
POLY-3 RATE (b)	0/33.40	0/36.40	1/36.62
POLY-3 PERCENT (g)	0%	0%	2.7%
TERMINAL (d)	0/22 (0%)	0/27 (0%)	1/28 (4%)
FIRST INCIDENCE	---	---	725 (T)
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Pituitary Gland: Pars Distalis Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	15/50 (30%)	22/50 (44%)	15/50 (30%)
POLY-3 RATE (b)	15/41.24	22/45.33	15/42.53
POLY-3 PERCENT (g)	36.4%	48.5%	35.3%
TERMINAL (d)	9/25 (36%)	19/34 (56%)	13/32 (41%)
FIRST INCIDENCE	575	582	649
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.493N	P=0.173	P=0.549N
POLY 1.5	P=0.516N	P=0.145	P=0.567N
POLY 6	P=0.456N	P=0.208	P=0.519N
COCH-ARM / FISHERS	P=0.542	P=0.107	P=0.586N
MAX-ISO-POLY-3	P=0.341N	P=0.132	P=0.457N

---



Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Skin			
Inflammation			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	1/50 (2%)
POLY-3 RATE (b)	0/39.46	0/44.33	1/42.11
POLY-3 PERCENT (g)	0%	0%	2.4%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	1/32 (3%)
FIRST INCIDENCE	---	---	725 (T)
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Skin			
Ulcer			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/39.46	0/44.33	0/42.11
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	---	---	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Skin: Epidermis Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/39.46	0/44.33	0/42.11
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	---	---	---
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Skin: Hair Follicle Cyst			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/39.46	0/44.33	0/42.11
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	---	---	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Spleen</b>			
<b>Hematopoietic Cell Proliferation</b>			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	25/50 (50%)	31/50 (62%)	28/50 (56%)
POLY-3 RATE (b)	25/44.97	31/48.27	28/47.81
POLY-3 PERCENT (g)	55.6%	64.2%	58.6%
TERMINAL (d)	12/25 (48%)	21/34 (62%)	17/32 (53%)
FIRST INCIDENCE	435	447	323
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.439	P=0.258	P=0.468
POLY 1.5	P=0.396	P=0.223	P=0.427
POLY 6	P=0.484	P=0.293	P=0.511
COCH-ARM / FISHERS	P=0.307	P=0.157	P=0.344
MAX-ISO-POLY-3	P=0.400	P=0.202	P=0.386

---

Experiment Number: 20403 - 01  
Test Type: CHRONIC  
Route: DOSED FEED  
Species/Strain: RATS/HSD

P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS  
Zinc Carbonate, Basic  
CAS Number: 5263-02-5

Date Report Requested: 11/22/2015  
Time Report Requested: 18:28:05  
First Dose M/F: 09/03/09 / 09/04/09  
Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Spleen</b>			
Pigmentation Hemosiderin			
<b>LESION RATES</b>			
OVERALL (a)	39/50 (78%)	43/50 (86%)	38/50 (76%)
POLY-3 RATE (b)	39/46.51	43/48.83	38/46.38
POLY-3 PERCENT (g)	83.9%	88.1%	81.9%
TERMINAL (d)	21/25 (84%)	30/34 (88%)	29/32 (91%)
FIRST INCIDENCE	253	447	323
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.454N	P=0.375	P=0.513N
POLY 1.5	P=0.447N	P=0.307	P=0.504N
POLY 6	P=0.463N	P=0.460	P=0.528N
COCH-ARM / FISHERS	P=0.450N	P=0.218	P=0.500N
MAX-ISO-POLY-3	P=0.391N	P=0.269	P=0.394N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Spleen: Lymphoid Follicle Atrophy</b>			
<b>LESION RATES</b>			
OVERALL (a)	1/50 (2%)	1/50 (2%)	2/50 (4%)
POLY-3 RATE (b)	1/40.33	1/44.84	2/42.73
POLY-3 PERCENT (g)	2.5%	2.2%	4.7%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	362	572	633
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.397	P=0.737N	P=0.520
POLY 1.5	P=0.388	P=0.746N	P=0.510
POLY 6	P=0.414	P=0.723N	P=0.539
COCH-ARM / FISHERS	P=0.378	P=0.753N	P=0.500
MAX-ISO-POLY-3	P=0.390	P=0.470N	P=0.302

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Spleen: Lymphoid Follicle Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	11/50 (22%)	7/50 (14%)	9/50 (18%)
POLY-3 RATE (b)	11/41.85	7/46.46	9/46.00
POLY-3 PERCENT (g)	26.3%	15.1%	19.6%
TERMINAL (d)	6/25 (24%)	3/34 (9%)	1/32 (3%)
FIRST INCIDENCE	435	447	323
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.281N	P=0.148N	P=0.310N
POLY 1.5	P=0.306N	P=0.172N	P=0.345N
POLY 6	P=0.251N	P=0.123N	P=0.266N
COCH-ARM / FISHERS	P=0.348N	P=0.218N	P=0.402N
MAX-ISO-POLY-3	P=0.223N	P=0.105N	P=0.237N

---



Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Stomach, Forestomach Mineralization</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/39.46	0/44.33	0/42.11
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	---	---	---
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Stomach, Forestomach Ulcer			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	1/50 (2%)	0/50 (0%)	1/50 (2%)
POLY-3 RATE (b)	1/39.94	0/44.33	1/42.76
POLY-3 PERCENT (g)	2.5%	0%	2.3%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	584	---	513
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Stomach, Forestomach: Epithelium Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	5/50 (10%)	4/50 (8%)	8/50 (16%)
POLY-3 RATE (b)	5/42.03	4/45.22	8/44.18
POLY-3 PERCENT (g)	11.9%	8.8%	18.1%
TERMINAL (d)	0/25 (0%)	1/34 (3%)	4/32 (13%)
FIRST INCIDENCE	469	582	459
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.236	P=0.454N	P=0.307
POLY 1.5	P=0.227	P=0.471N	P=0.294
POLY 6	P=0.249	P=0.434N	P=0.327
COCH-ARM / FISHERS	P=0.215	P=0.500N	P=0.277
MAX-ISO-POLY-3	P=0.206	P=0.326N	P=0.217

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Stomach, Glandular Mineralization</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/39.46	0/44.33	0/42.11
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	---	---	---
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Thymus Atrophy			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	35/48 (73%)	31/48 (65%)	34/50 (68%)
POLY-3 RATE (b)	35/43.15	31/46.59	34/44.90
POLY-3 PERCENT (g)	81.1%	66.5%	75.7%
TERMINAL (d)	22/24 (92%)	22/34 (65%)	25/32 (78%)
FIRST INCIDENCE	362	447	459
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.324N	P=0.082N	P=0.351N
POLY 1.5	P=0.340N	P=0.134N	P=0.372N
POLY 6	P=0.279N	P=0.039N*	P=0.288N
COCH-ARM / FISHERS	P=0.342N	P=0.255N	P=0.378N
MAX-ISO-POLY-3	P=0.184N	P=0.056N	P=0.256N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Thymus Hyperplasia			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	0/48 (0%)	1/48 (2%)	0/50 (0%)
POLY-3 RATE (b)	0/38.19	1/42.87	0/42.11
POLY-3 PERCENT (g)	0%	2.3%	0%
TERMINAL (d)	0/24 (0%)	1/34 (3%)	0/32 (0%)
FIRST INCIDENCE	---	725 (T)	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Thyroid Gland: C-Cell Hyperplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	18/50 (36%)	9/50 (18%)	14/49 (29%)
POLY-3 RATE (b)	18/42.89	9/45.82	14/42.11
POLY-3 PERCENT (g)	42%	19.6%	33.2%
TERMINAL (d)	8/25 (32%)	5/34 (15%)	11/32 (34%)
FIRST INCIDENCE	469	483	601
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.221N	P=0.017N*	P=0.270N
POLY 1.5	P=0.226N	P=0.022N*	P=0.276N
POLY 6	P=0.213N	P=0.014N*	P=0.257N
COCH-ARM / FISHERS	P=0.234N	P=0.035N*	P=0.283N
MAX-ISO-POLY-3	P=0.076N	P=0.011N*	P=0.202N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Tooth Necrosis			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	1/1 (100%)	0/0 (0%)	0/1 (0%)
POLY-3 RATE (b)	1/1.00	0/0.00	0/1.00
POLY-3 PERCENT (g)	100%	0%	0%
TERMINAL (d)	1/1 (100%)	0/0 (0%)	0/1 (0%)
FIRST INCIDENCE	725 (T)	---	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---



Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Urinary Bladder Inflammation</b>			
<b>LESION RATES</b>			
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 RATE (b)	0/39.46	0/44.33	0/42.11
POLY-3 PERCENT (g)	0%	0%	0%
TERMINAL (d)	0/25 (0%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	---	---	---
<b>STATISTICAL TESTS</b>			
POLY 3	(n)	(n)	(n)
POLY 1.5	(n)	(n)	(n)
POLY 6	(n)	(n)	(n)
COCH-ARM / FISHERS	(n)	(n)	(n)
MAX-ISO-POLY-3	(n)	(n)	(n)

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Uterus</b>			
<b>Metaplasia</b>			
<b>LESION RATES</b>			
OVERALL (a)	21/50 (42%)	18/49 (37%)	19/50 (38%)
POLY-3 RATE (b)	21/42.12	18/45.05	19/44.95
POLY-3 PERCENT (g)	49.9%	40%	42.3%
TERMINAL (d)	13/25 (52%)	15/34 (44%)	14/32 (44%)
FIRST INCIDENCE	582	483	350
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.282N	P=0.234N	P=0.307N
POLY 1.5	P=0.315N	P=0.279N	P=0.347N
POLY 6	P=0.248N	P=0.193N	P=0.267N
COCH-ARM / FISHERS	P=0.379N	P=0.371N	P=0.419N
MAX-ISO-POLY-3	P=0.295N	P=0.181N	P=0.242N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<hr/>			
Uterus			
Pigmentation Hemosiderin			
<hr/>			
<b>LESION RATES</b>			
OVERALL (a)	2/50 (4%)	0/49 (0%)	0/50 (0%)
POLY-3 RATE (b)	2/39.91	0/43.72	0/42.11
POLY-3 PERCENT (g)	5%	0%	0%
TERMINAL (d)	1/25 (4%)	0/34 (0%)	0/32 (0%)
FIRST INCIDENCE	593	---	---
<hr/>			
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.095N	P=0.217N	P=0.225N
POLY 1.5	P=0.095N	P=0.226N	P=0.231N
POLY 6	P=0.096N	P=0.206N	P=0.216N
COCH-ARM / FISHERS	P=0.096N	P=0.253N	P=0.247N
MAX-ISO-POLY-3	P=0.053N	P=0.076N	P=0.075N

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS IN RATS(HSD)  
TERMINAL SACRIFICE AT 104 WEEKS**

---

DOSE	Females		
	Control (38ppm)	7ppm ZnDef	3.5ppm SevZnDef
<b>Uterus: Endometrium Hyperplasia Cystic</b>			
<b>LESION RATES</b>			
OVERALL (a)	9/50 (18%)	5/49 (10%)	13/50 (26%)
POLY-3 RATE (b)	9/41.50	5/43.91	13/42.46
POLY-3 PERCENT (g)	21.7%	11.4%	30.6%
TERMINAL (d)	5/25 (20%)	4/34 (12%)	11/32 (34%)
FIRST INCIDENCE	362	676	659
<b>STATISTICAL TESTS</b>			
POLY 3	P=0.184	P=0.159N	P=0.246
POLY 1.5	P=0.180	P=0.177N	P=0.237
POLY 6	P=0.195	P=0.139N	P=0.269
COCH-ARM / FISHERS	P=0.182	P=0.205N	P=0.235
MAX-ISO-POLY-3	P=0.075	P=0.105N	P=0.177

---

Experiment Number: 20403 - 01

Test Type: CHRONIC

Route: DOSED FEED

Species/Strain: RATS/HSD

**P10: STATISTICAL ANALYSIS OF NON-NEOPLASTIC LESIONS**

Zinc Carbonate, Basic

CAS Number: 5263-02-5

Date Report Requested: 11/22/2015

Time Report Requested: 18:28:05

First Dose M/F: 09/03/09 / 09/04/09

Lab: BAT

**LEGEND**

- (a) Number of tumor-bearing animals/number of animals examined at site.
  - (b) Number of tumor-bearing animals/Poly-3 number
  - (d) Observed incidence at terminal kill.
  - (e) Value of statistic cannot be computed.
  - (f) Beneath the control incidence are the P-values associated with the trend test. Beneath the dosed group incidence are the P-values corresponding to pairwise comparisons between the controls and that dosed group.
  - (g) Poly-3 adjusted lifetime tumor incidence.
  - (n) No statistics are calculated if all dose groups have fewer than two tumors.
  - (I) Interim sacrifice
  - (T) Terminal sacrifice
  - # Tumor rates based on numbers of animals necropsied.
  - \* To the right of any statistical result, indicates significance at ( $P \leq 0.05$ ).
  - \*\* To the right of any statistical result, indicates significance at ( $P \leq 0.01$ ).
  - N Indicates a negative trend for all tests
- The Cochran-Armitage and Fishers exact tests compare directly the overall incidence rates.

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