ブチル 2,3-エポキシプロピル エーテルのマウス
を用いた吸入による 2 週間毒性試験報告書

試験番号：0412

APPENDICES

APPENDICES

APPENDICES (CONTINUED)

APPENDICES (CONTINUED)

APPENDIX A 1

CLINICAL OBSERVATION : SUMMARY, MOUSE : MALE

(2-WEEK STUDY)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1 2

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : MALE

Clinical sign	Group Name	Administration Week-day 1-2	1-4	1-7	2-3	2-7
FROG BELLY	Control	0	0	0	0	0
	38ppm	0	0	0	0	0
	75ppm	0	0	0	0	0
	150ppm	0	4	0	0	0
	300ppm	0	0	0	0	0
	600ppm	0	0	-	-	-
RESPIRATORY SOUND ABNOR	Control	0	0	0	0	0
	38ppm	0	0	0	0	0
	75ppm	0	0	0	0	0
	150ppm	0	0	0	0	0
	300ppm	0	3	0	0	0
	600ppm	2	0	-	-	-

APPENDIX A 2

CLINICAL OBSERVATION : SUMMARY, MOUSE : FEMALE

(2-WEEK STUDY)

Clinical sign	Group Name	Administration Week-day 1-2	1-4	1-7	2-3	2-7
FROG BELLY	Control	0	0	0	0	0
	38ppm	0	0	0	0	0
	75ppm	0	0	0	0	0
	150ppm	0	5	0	0	0
	300ppm	0	0	0	0	0
	600ppm	0	0	-	-	-
IRREGULAR BREATHING	Control	0	0	0	0	0
	38ppm	0	0	0	0	0
	75ppm	0	0	0	0	0
	150ppm	0	0	0	0	0
	300ppm	0	0	1	0	0
	600ppm	0	0	-	-	-
RESPIRATORY SOUND ABNOR	Control	0	0	0	0	0
	38ppm	0	0	0	0	0
	75ppm	0	0	0	0	0
	150ppm	0	0	0	0	0
	300ppm	0	0	0	0	0
	600ppm	3	0	-	-	-

APPENDIX B 1

BODY WEIGHT CHANGES :SUMMARY, MOUSE : MALE

(2-WEEK STUDY)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
UNIT : g
REPORT TYPE : A1 2
SEX : MALE

BODY WEIGHT CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day 0-0	1-2	1-4	1-7	2-3	2-7
Control	23.1± 0.9	23.8± 1.1	23.8± 1.0	24.6± 1.2	24.8± 1.4	25.1± 1.4
38ppm	23.0± 0.8	23.6± 1.1	23.2± 1.2	23.7± 1.0	24.1± 0.8	24.4± 0.7
75ppm	23.0± 0.8	23.6± 0.9	22.9± 0.7	23.8± 0.8	23.9± 1.0	24.2± 1.2
150ppm	23.0± 0.8	22.7± 0.5	22.0± 0.8*	22.0± 0.6**	22.0± 0.4**	22.4± 0.5**
300ppm	23.0± 0.8	21.0± 0.9**	18.1± 0.7**	18.7± 0.7**	18.6± 0.6**	19.5± 0.8**
600ppm	23.0± 0.9	20.6± 1.1**	-	-	-	-

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX B 2

BODY WEIGHT CHANGES : SUMMARY, MOUSE : FEMALE

(2-WEEK STUDY)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
UNIT : g
REPORT TYPE : A1 2
SEX : FEMALE

BODY WEIGHT CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day 0-0	1-2	1-4	1-7	2-3	2-7
Control	19.1± 0.6	19.5± 0.4	19.8± 0.5	20.3± 0.5	20.7± 0.3	21.0± 0.9
38ppm	19.0± 0.7	19.2± 0.4	19.4± 0.9	20.2± 1.0	20.1± 1.0	20.4± 0.8
75ppm	19.0± 0.7	18.9± 0.7	19.0± 0.7	19.5± 0.7	19.1± 0.5**	20.2± 0.7
150ppm	19.0± 0.7	18.5± 0.6	18.3± 0.8*	18.2± 0.6**	18.1± 0.5**	18.5± 1.3**
300ppm	19.1± 0.7	17.5± 0.3**	15.4± 0.9**	14.9± 1.0**	15.1± 1.1**	15.8± 0.8**
600ppm	19.0± 0.7	16.6± 1.1**	-	-	-	-

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX C 1

FOOD CONSUMPTION CHANGES : SUMMARY, MOUSE : MALE

(2-WEEK STUDY)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
UNIT : g
REPORT TYPE : A1 2
SEX : MALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration 1-7(6)	week-day(effective) 2-7(7)
Control	4.2± 0.3	4.0± 0.2
38ppm	4.0± 0.3	4.0± 0.1
75ppm	4.0± 0.4	3.8± 0.4
150ppm	3.4± 0.2**	3.4± 0.2**
300ppm	2.4± 0.2**	3.5± 0.2*
600ppm	-	-

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX C 2

FOOD CONSUMPTION CHANGES : SUMMARY, MOUSE : FEMALE

(2-WEEK STUDY)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
UNIT : g
REPORT TYPE : A1 2
SEX : FEMALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration 1-7(6)	week-day(effective) 2-7(7)
Control	3.9± 0.2	3.6± 0.3
38ppm	3.6± 0.3	3.5± 0.1
75ppm	3.5± 0.3	3.4± 0.2
150ppm	2.9± 0.1**	3.0± 0.1*
300ppm	1.8± 0.3**	2.9± 0.1**
600ppm	-	-

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX D 1

HEMATOLOGY : SUMMARY, MOUSE : MALE

(2-WEEK STUDY)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
MEASURE. TIME : 1
SEX : MALE REPORT TYPE : A1

HEMATOLOGY (SUMMARY)
ALL ANIMALS (3W)

Group Name	NO. of Animals	RED BLOOD CELL $10^6/\mu\ell$	HEMOGLOBIN g/dℓ	HEMATOCRIT %	MCV fℓ	MCH pg	MCHC g/dℓ	PLATELET $10^3/\mu\ell$
Control	5	11.40± 0.23	17.0± 0.5	55.3± 1.2	48.5± 0.4	14.9± 0.2	30.7± 0.4	1295± 90
38ppm	5	11.33± 0.32	17.0± 0.4	55.0± 1.8	48.6± 0.6	15.0± 0.1	30.9± 0.5	1294± 71
75ppm	4	11.28± 0.48	17.0± 0.6	54.9± 2.3	48.7± 1.1	15.0± 0.2	30.9± 0.7	1240± 121
150ppm	5	11.26± 0.21	16.9± 0.3	54.4± 1.5	48.3± 0.5	15.0± 0.0	31.0± 0.3	1223± 48
300ppm	4	10.99± 0.23	16.3± 0.3	52.1± 1.3	47.4± 0.5	14.8± 0.1	31.3± 0.2	1209± 166
600ppm	0	-	-	-	-	-	-	-

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

(HCL070)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
MEASURE. TIME : 1
SEX : MALE REPORT TYPE : A1

HEMATOLOGY (SUMMARY)
ALL ANIMALS (3W)

Group Name	NO. of Animals	WBC $10^2/\mu\ell$	Differential WBC (%) N-BAND	N-SEG	EOSINO	BASO	MONO	LYMPHO	OTHER
Control	5	1.70± 0.90	1± 1	12± 4	1± 1	0± 0	1± 1	85± 3	0± 0
38ppm	5	1.65± 0.68	1± 1	12± 5	1± 1	0± 0	2± 1	84± 5	0± 0
75ppm	4	1.67± 0.71	1± 1	9± 2	1± 1	0± 0	2± 1	88± 3	0± 0
150ppm	5	1.08± 0.64	0± 0	10± 2	1± 1	0± 0	3± 2	86± 4	0± 0
300ppm	4	0.80± 0.30	1± 1	30± 17	1± 1	0± 0	2± 2	67± 17	0± 0
600ppm	0	-	-	-	-	-	-	-	-

Significant difference ; * : $P \leqq 0.05$ ** : $P \leqq 0.01$ Test of Dunnett

APPENDIX D 2

HEMATOLOGY : SUMMARY, MOUSE : FEMALE

(2-WEEK STUDY)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
MEASURE. TIME : 1
SEX : FEMALE REPORT TYPE : A1

HEMATOLOGY (SUMMARY)
ALL ANIMALS (3W)

Group Name	NO. of Animals	RED BLOOD CELL $10^6/\mu\ell$	HEMOGLOBIN g/dℓ	HEMATOCRIT %	MCV f ℓ	MCH p g	MCHC g/dℓ	PLATELET $10^3/\mu\ell$
Control	4	11.34± 0.22	17.0± 0.5	54.1± 1.0	47.7± 0.1	15.0± 0.1	31.5± 0.3	1099± 64
38ppm	4	11.28± 0.40	17.0± 0.5	54.4± 2.4	48.3± 0.8	15.0± 0.2	31.2± 0.6	1083± 65
75ppm	5	10.89± 0.31	16.6± 0.5	52.2± 1.4	47.9± 0.4	15.2± 0.2	31.7± 0.5	1027± 87
150ppm	5	10.69± 0.34*	16.0± 0.4	50.7± 1.7*	47.4± 0.5	15.0± 0.2	31.7± 0.3	999± 53
300ppm	4	10.31± 0.38**	15.5± 0.8**	48.6± 2.1**	47.2± 0.7	15.0± 0.2	31.8± 0.2	1146± 26
600ppm	0	-	-	-	-	-	-	-

Significant difference ; * : $P \leqq 0.05$ ** : $P \leqq 0.01$ Test of Dunnett

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
MEASURE. TIME : 1
SEX : FEMALE REPORT TYPE : A1

HEMATOLOGY (SUMMARY)
ALL ANIMALS (3W)

Group Name	NO. of Animals	WBC $10^3/\mu\ell$	Differential WBC (%) N-BAND	N-SEG	EOSINO	BASO	MONO	LYMPHO	OTHER
Control	4	1.80± 0.62	0± 0	12± 2	1± 1	0± 0	1± 1	87± 3	0± 0
38ppm	4	2.08± 1.42	1± 1	13± 2	2± 3	0± 0	2± 1	83± 4	0± 0
75ppm	5	0.98± 0.54	0± 1	11± 3	2± 1	0± 0	3± 3	84± 4	0± 0
150ppm	5	0.55± 0.39	0± 0	16± 8	0± 1	0± 0	1± 1	83± 8	0± 0
300ppm	4	0.93± 0.63	1± 2	31± 10	1± 1	0± 0	2± 2	66± 12**	0± 0
600ppm	0	-	-	-	-	-	-	-	-

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

(HCL070)

APPENDIX E 1

BIOCHEMISTRY : SUMMARY, MOUSE : MALE

(2-WEEK STUDY)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
MEASURE. TIME : 1
SEX : MALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
ALL ANIMALS (3W)

Group Name	NO. of Animals	TOTAL PROTEIN g/dℓ	ALBUMIN g/dℓ	A/G RATIO	T-BILIRUBIN mg/dℓ	GLUCOSE mg/dℓ	T-CHOLESTEROL mg/dℓ	TRIGLYCERIDE mg/dℓ
Control	5	5.3± 0.1	3.2± 0.0	1.5± 0.1	0.16± 0.03	234± 38	84± 8	19± 6
38ppm	5	5.2± 0.1	3.2± 0.1	1.7± 0.0	0.15± 0.02	212± 26	84± 9	18± 4
75ppm	4	5.2± 0.1	3.2± 0.1	1.6± 0.1	0.17± 0.02	215± 27	81± 5	19± 4
150ppm	5	5.2± 0.1	3.3± 0.2	1.8± 0.3	0.17± 0.02	188± 48	92± 7	15± 7
300ppm	5	5.1± 0.2	3.2± 0.1	1.7± 0.0*	0.18± 0.02	220± 44	99± 17	14± 5
600ppm	0	-	-	-	-	-	-	-

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
MEASURE. TIME : 1
SEX : MALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
ALL ANIMALS (3W)

Group Name	NO. of Animals	PHOSPHOLIPID mg/dl	GOT IU/l	GPT IU/l	LDH IU/l	ALP IU/l	G-GTP IU/l	CPK IU/l
Control	5	181± 21	36± 1	14± 1	210± 21	251± 16	2± 2	86± 34
38ppm	5	181± 17	37± 3	14± 1	206± 30	242± 12	2± 1	81± 28
75ppm	4	172± 17	37± 3	15± 2	208± 28	228± 17	2± 1	78± 42
150ppm	5	167± 14	37± 3	16± 2	205± 42	253± 16	1± 1	58± 20
300ppm	5	129± 25**	43± 6*	20± 2**	233± 54	262± 24	1± 1	62± 19
600ppm	0	-	-	-	-	-	-	-

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
MEASURE. TIME : 1
SEX : MALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
ALL ANIMALS (3W)

Group Name	NO. of Animals	UREA NITROGEN mg/dl	SODIUM mEq/l	POTASSIUM mEq/l	CHLORIDE mEq/l	CALCIUM mg/dl	INORGANIC PHOSPHORUS mg/dl
Control	5	29.5± 4.8	152± 2	4.8± 0.5	117± 2	8.8± 0.5	7.0± 0.8
38ppm	5	27.6± 3.1	152± 2	4.8± 0.4	118± 1	8.9± 0.2	6.9± 1.1
75ppm	4	26.1± 5.0	151± 2	4.9± 0.1	117± 2	8.9± 0.3	7.0± 1.4
150ppm	5	23.1± 3.8	152± 3	5.0± 0.5	117± 4	8.8± 0.3	8.0± 1.0
300ppm	5	27.0± 3.0	151± 2	4.5± 0.5	116± 1	8.8± 0.2	7.1± 0.5
600ppm	0	-	-	-	-	-	-

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX E 2

BIOCHEMISTRY : SUMMARY, MOUSE : FEMALE

(2-WEEK STUDY)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
MEASURE. TIME : 1
SEX : FEMALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
ALL ANIMALS (3W)

Group Name	NO. of Animals	TOTAL PROTEIN g/dl	ALBUMIN g/dl	A/G RATIO	T-BILIRUBIN mg/dl	GLUCOSE mg/dl	T-CHOLESTEROL mg/dl	TRIGLYCERIDE mg/dl
Control	5	5.3± 0.1	3.6± 0.1	2.1± 0.2	0.16± 0.03	190± 30	75± 9	17± 3
38ppm	5	5.5± 0.3	3.8± 0.2	2.2± 0.4	0.16± 0.03	195± 27	77± 5	17± 5
75ppm	5	5.4± 0.2	3.6± 0.1	2.0± 0.1	0.22± 0.13	183± 33	75± 9	14± 4
150ppm	5	5.2± 0.1	3.5± 0.1	2.1± 0.3	0.17± 0.04	166± 30	77± 8	14± 6
300ppm	4	5.1± 0.1	3.4± 0.1	1.9± 0.1	0.16± 0.01	229± 10	75± 4	18± 5
600ppm	0	-	-	-	-	-	-	-

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
MEASURE. TIME : 1
SEX : FEMALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
ALL ANIMALS (3W)

Group Name	NO. of Animals	PHOSPHOLIPID mg/dl	GOT IU/l	GPT IU/l	LDH IU/l	ALP IU/l	G-GTP IU/l	CPK IU/l
Control	5	160± 22	48± 6	18± 5	281± 59	372± 37	1± 1	96± 28
38ppm	5	158± 14	48± 8	17± 4	271± 138	358± 19	1± 1	87± 52
75ppm	5	144± 20	51± 11	18± 3	265± 85	364± 33	1± 1	66± 12
150ppm	5	138± 15	55± 21	20± 5	314± 144	430± 29*	1± 0	136± 89
300ppm	4	125± 17*	55± 6	25± 6	219± 25	331± 18	2± 1	56± 16
600ppm	0	-	-	-	-	-	-	-

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
MEASURE. TIME : 1
SEX : FEMALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
ALL ANIMALS (3W)

Group Name	NO. of Animals	UREA NITROGEN mg/dl	SODIUM mEq/l	POTASSIUM mEq/l	CHLORIDE mEq/l	CALCIUM mg/dl	INORGANIC PHOSPHORUS mg/dl
Control	5	28.2± 3.9	153± 2	4.4± 0.6	119± 3	9.1± 0.2	6.5± 0.9
38ppm	5	26.4± 3.8	152± 2	4.7± 0.7	119± 3	9.2± 0.3	6.7± 0.7
75ppm	5	26.1± 4.1	152± 3	4.8± 0.6	118± 4	9.0± 0.2	7.5± 0.7
150ppm	5	25.1± 3.7	152± 5	4.8± 0.4	118± 4	8.9± 0.1	7.9± 0.8
300ppm	4	24.4± 3.5	151± 3	4.3± 0.5	115± 2	8.8± 0.4	7.6± 0.8
600ppm	0	-	-	-	-	-	-

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX F 1

GROSS FINDINGS : SUMMARY, MOUSE : MALE

DEAD AND MORIBUND ANIMALS

(2-WEEK STUDY)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 3W)

Organ	Findings	Group Name / NO. of Animals	Control 0 (%)	38ppm 0 (%)	75ppm 0 (%)	150ppm 0 (%)
stomach	gas		- (-)	- (-)	- (-)	- (-)
small intes	gas		- (-)	- (-)	- (-)	- (-)
cecum	gas		- (-)	- (-)	- (-)	- (-)
abdominal c	gas		- (-)	- (-)	- (-)	- (-)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 3W)

Organ	Findings	Group Name	300ppm	600ppm
		NO. of Animals	0 (%)	5 (%)
stomach	gas		- (-)	4 (80)
small intes	gas		- (-)	4 (80)
cecum	gas		- (-)	2 (40)
abdominal c	gas		- (-)	2 (40)

APPENDIX F 2

GROSS FINDINGS : SUMMARY, MOUSE : MALE : SACRIFICED ANIMALS

(2-WEEK STUDY)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (3W)

Organ	Findings	Group Name / NO. of Animals	Control 5 (%)	38ppm 5 (%)	75ppm 5 (%)	150ppm 5 (%)
thymus	atrophic		0 (0)	0 (0)	0 (0)	0 (0)
spleen	black zone		0 (0)	1 (20)	0 (0)	0 (0)
kidney	hydronephrosis		0 (0)	0 (0)	1 (20)	0 (0)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (3W)

Organ	Findings	Group Name	300ppm	600ppm
		NO. of Animals	5 (%)	0 (%)
thymus	atrophic		1 (20)	- (-)
spleen	black zone		0 (0)	- (-)
kidney	hydronephrosis		0 (0)	- (-)

APPENDIX F 3

GROSS FINDINGS : SUMMARY, MOUSE : FEMALE

DEAD AND MORIBUND ANIMALS

(2-WEEK STUDY)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 3W)

Organ	Findings	Group Name / NO. of Animals	Control 0 (%)	38ppm 0 (%)	75ppm 0 (%)	150ppm 0 (%)
stomach	gas		- (-)	- (-)	- (-)	- (-)
small intes	gas		- (-)	- (-)	- (-)	- (-)
cecum	gas		- (-)	- (-)	- (-)	- (-)
abdominal c	gas		- (-)	- (-)	- (-)	- (-)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 3W)

Organ	Findings	Group Name	300ppm	600ppm
		NO. of Animals	0 (%)	5 (%)
stomach	gas		- (-)	5 (100)
small intes	gas		- (-)	4 (80)
cecum	gas		- (-)	3 (60)
abdominal c	gas		- (-)	1 (20)

APPENDIX F 4

GROSS FINDINGS : SUMMARY, MOUSE : FEMALE : SACRIFICED ANIMALS

(2-WEEK STUDY)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (3W)

Organ	Findings	Group Name / NO. of Animals	Control 5	(%)	38ppm 5	(%)	75ppm 5	(%)	150ppm 5	(%)
thymus	atrophic		0	(0)	0	(0)	0	(0)	0	(0)
spleen	black zone		0	(0)	0	(0)	1	(20)	0	(0)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (3W)

Organ	Findings	Group Name / NO. of Animals	300ppm 5 (%)	600ppm 0 (%)
thymus	atrophic		5 (100)	- (-)
spleen	black zone		1 (20)	- (-)

APPENDIX G 1

ORGAN WEIGHT, ABSOLUTE : SUMMARY, MOUSE : MALE

(2-WEEK STUDY)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (3W)

Group Name	NO. of Animals	Body Weight	THYMUS	ADRENALS	TESTES	HEART	LUNGS
Control	5	21.3± 1.1	0.046± 0.004	0.011± 0.003	0.178± 0.033	0.120± 0.003	0.139± 0.010
38ppm	5	21.0± 0.6	0.043± 0.007	0.012± 0.003	0.176± 0.021	0.117± 0.010	0.144± 0.010
75ppm	5	20.9± 0.3	0.034± 0.003**	0.010± 0.002	0.183± 0.016	0.117± 0.009	0.150± 0.012
150ppm	5	19.7± 0.4**	0.026± 0.003**	0.010± 0.001	0.179± 0.017	0.112± 0.009	0.140± 0.012
300ppm	5	16.4± 0.6**	0.014± 0.004**	0.008± 0.001	0.163± 0.025	0.096± 0.005**	0.134± 0.009
600ppm	0	-	-	-	-	-	-

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (3W)

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	5	0.341± 0.007	0.036± 0.004	0.928± 0.042	0.440± 0.014
38ppm	5	0.339± 0.018	0.035± 0.002	0.893± 0.033	0.436± 0.011
75ppm	5	0.367± 0.076	0.038± 0.005	0.875± 0.044	0.435± 0.021
150ppm	5	0.325± 0.008	0.030± 0.004	0.787± 0.030**	0.428± 0.013
300ppm	5	0.304± 0.010**	0.023± 0.005**	0.709± 0.037**	0.415± 0.016
600ppm	0	-	-	-	-

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

(HCL040)

APPENDIX G 2

ORGAN WEIGHT, ABSOLUTE : SUMMARY, MOUSE : FEMALE

(2-WEEK STUDY)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (3W)

Group Name	NO. of Animals	Body Weight	THYMUS	ADRENALS	OVARIES	HEART	LUNGS
Control	5	17.4± 0.4	0.063± 0.004	0.011± 0.002	0.022± 0.008	0.105± 0.008	0.134± 0.008
38ppm	5	17.2± 0.7	0.061± 0.003	0.010± 0.001	0.019± 0.004	0.099± 0.005	0.136± 0.003
75ppm	5	16.6± 0.7	0.049± 0.008**	0.010± 0.002	0.020± 0.002	0.097± 0.008	0.137± 0.006
150ppm	5	15.8± 0.8**	0.031± 0.006**	0.009± 0.001	0.017± 0.004	0.096± 0.005	0.127± 0.011
300ppm	5	13.3± 0.7**	0.011± 0.002**	0.007± 0.000	0.011± 0.000**	0.082± 0.005**	0.117± 0.009*
600ppm	0	-	-	-	-	-	-

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (3W)

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	5	0.250± 0.011	0.045± 0.001	0.762± 0.061	0.449± 0.012
38ppm	5	0.246± 0.009	0.040± 0.002	0.747± 0.033	0.443± 0.011
75ppm	5	0.257± 0.011	0.038± 0.006	0.722± 0.023	0.445± 0.008
150ppm	5	0.243± 0.008	0.032± 0.007*	0.650± 0.049**	0.425± 0.014*
300ppm	5	0.231± 0.008*	0.024± 0.006**	0.615± 0.041**	0.398± 0.011**
600ppm	0	-	-	-	-

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX H 1

ORGAN WEIGHT, RELATIVE : SUMMARY, MOUSE : MALE

(2-WEEK STUDY)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (3W)

Group Name	NO. of Animals	Body Weight (g)	THYMUS	ADRENALS	TESTES	HEART	LUNGS
Control	5	21.3± 1.1	0.216± 0.010	0.053± 0.013	0.835± 0.139	0.564± 0.026	0.655± 0.043
38ppm	5	21.0± 0.6	0.204± 0.027	0.055± 0.012	0.839± 0.086	0.557± 0.033	0.686± 0.036
75ppm	5	20.9± 0.3	0.165± 0.016**	0.049± 0.010	0.875± 0.076	0.559± 0.037	0.717± 0.048
150ppm	5	19.7± 0.4**	0.132± 0.017**	0.049± 0.006	0.906± 0.091	0.571± 0.053	0.712± 0.068
300ppm	5	16.4± 0.6**	0.086± 0.023**	0.048± 0.010	1.001± 0.178	0.589± 0.039	0.817± 0.073**
600ppm	0	-	-	-	-	-	-

Significant difference : * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (3W)

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	5	1.602± 0.082	0.168± 0.012	4.361± 0.091	2.073± 0.165
38ppm	5	1.618± 0.058	0.165± 0.008	4.262± 0.040	2.084± 0.111
75ppm	5	1.761± 0.365	0.182± 0.023	4.193± 0.144	2.086± 0.086
150ppm	5	1.649± 0.021	0.153± 0.021	3.990± 0.161**	2.173± 0.055
300ppm	5	1.856± 0.084**	0.144± 0.035	4.330± 0.142	2.537± 0.084**
600ppm	0	-	-	-	-

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX H 2

ORGAN WEIGHT, RELATIVE : SUMMARY, MOUSE : FEMALE

(2-WEEK STUDY)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (3W)

Group Name	NO. of Animals	Body Weight (g)	THYMUS	ADRENALS	OVARIES	HEART	LUNGS
Control	5	17.4± 0.4	0.363± 0.030	0.061± 0.009	0.127± 0.042	0.605± 0.049	0.769± 0.045
38ppm	5	17.2± 0.7	0.357± 0.028	0.057± 0.010	0.113± 0.022	0.578± 0.041	0.793± 0.042
75ppm	5	16.6± 0.7	0.293± 0.045**	0.058± 0.014	0.121± 0.012	0.583± 0.036	0.825± 0.008
150ppm	5	15.8± 0.8**	0.193± 0.032**	0.058± 0.009	0.106± 0.017	0.607± 0.034	0.800± 0.037
300ppm	5	13.3± 0.7**	0.084± 0.012**	0.053± 0.003	0.081± 0.005	0.617± 0.025	0.880± 0.048**
600ppm	0	-	-	-	-	-	-

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (3W)

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	5	1.435± 0.046	0.256± 0.005	4.373± 0.339	2.576± 0.071
38ppm	5	1.435± 0.087	0.232± 0.015	4.351± 0.085	2.586± 0.107
75ppm	5	1.550± 0.127	0.227± 0.031	4.352± 0.156	2.686± 0.075
150ppm	5	1.541± 0.104	0.201± 0.033**	4.116± 0.251	2.700± 0.188
300ppm	5	1.744± 0.045**	0.177± 0.037**	4.632± 0.172	2.999± 0.150**
600ppm	0	-	-	-	-

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX I 1

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

MOUSE : MALE : DEAD AND MORIBUND ANIMALS

(2-WEEK STUDY)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 3W)

Organ	Findings	Group Name	Control				38ppm				75ppm				150ppm			
		No. of Animals on Study	0				0				0				0			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
{Respiratory system}																		
nasal cavit			< 0>				< 0>				< 0>				< 0>			
	exudate		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	inflammation:respiratory epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:olfactory epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:respiratory epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
nasopharynx			< 0>				< 0>				< 0>				< 0>			
	necrosis:epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
larynx			< 0>				< 0>				< 0>				< 0>			
	necrosis:epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
trachea			< 0>				< 0>				< 0>				< 0>			
	necrosis:epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

Organ	Findings	Group Name	300ppm				600ppm			
		No. of Animals on Study	0				5			
		Grade	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}										
nasal cavit			< 0>				< 5>			
	exudate		-	-	-	-	0	2	0	0
			(-)	(-)	(-)	(-)	(0)	(40)	(0)	(0)
	inflammation:respiratory epithelium		-	-	-	-	3	0	0	0
			(-)	(-)	(-)	(-)	(60)	(0)	(0)	(0)
	necrosis:olfactory epithelium		-	-	-	-	0	1	4	0
			(-)	(-)	(-)	(-)	(0)	(20)	(80)	(0)
	necrosis:respiratory epithelium		-	-	-	-	0	0	0	5
			(-)	(-)	(-)	(-)	(0)	(0)	(0)	(100)
nasopharynx			< 0>				< 5>			
	necrosis:epithelium		-	-	-	-	3	0	0	0
			(-)	(-)	(-)	(-)	(60)	(0)	(0)	(0)
larynx			< 0>				< 5>			
	necrosis:epithelium		-	-	-	-	1	0	4	0
			(-)	(-)	(-)	(-)	(20)	(0)	(80)	(0)
trachea			< 0>				< 5>			
	necrosis:epithelium		-	-	-	-	0	1	4	0
			(-)	(-)	(-)	(-)	(0)	(20)	(80)	(0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 3W)

Organ	Findings	Group Name	Control				38ppm				75ppm				150ppm			
		No. of Animals on Study	0				0				0				0			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}																		
lung			< 0>				< 0>				< 0>				< 0>			
	necrosis:epithelium, bronchus		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
{Hematopoietic system}																		
thymus			< 0>				< 0>				< 0>				< 0>			
	atrophy		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	karyorrhexis		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
{Reproductive system}																		
epididymis			< 0>				< 0>				< 0>				< 0>			
	decreased:sperma		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	debris of spermatic elements		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

Organ	Findings	Group Name	300ppm				600ppm			
		No. of Animals on Study	0				5			
		Grade	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}										
lung			< 0>				< 5>			
	necrosis:epithelium, bronchus		-	-	-	-	1	1	0	0
			(-)	(-)	(-)	(-)	(20)	(20)	(0)	(0)
{Hematopoietic system}										
thymus			< 0>				< 5>			
	atrophy		-	-	-	-	0	3	1	0
			(-)	(-)	(-)	(-)	(0)	(60)	(20)	(0)
	karyorrhexis		-	-	-	-	3	1	1	0
			(-)	(-)	(-)	(-)	(60)	(20)	(20)	(0)
{Reproductive system}										
epididymis			< 0>				< 5>			
	decreased:sperma		-	-	-	-	0	0	1	0
			(-)	(-)	(-)	(-)	(0)	(0)	(20)	(0)
	debris of spermatic elements		-	-	-	-	0	1	0	0
			(-)	(-)	(-)	(-)	(0)	(20)	(0)	(0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

APPENDIX I 2

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

MOUSE : MALE: SACRIFICED ANIMALS

(2-WEEK STUDY)

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)
SACRIFICED ANIMALS (3W)

Organ	Findings	Group Name	Control				38ppm				75ppm				150ppm			
		No. of Animals on Study	5				5				5				5			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}																		
nasal cavit			< 5>				< 5>				< 5>				< 5>			
	exudate		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(20)	(0)	(0)	(0)
	inflammatory polyp		0	0	0	0	0	0	0	0	3	0	0	0	5	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(60)	(0)	(0)	(0)	(100)	(0)	(0)	(0)
	inflammation:respiratory epithelium		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	respiratory metaplasia:olfactory epithelium		0	0	0	0	0	0	0	0	4	0	0	0	4	1	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(80)	(0)	(0)	(0)	(80)	(20)	(0)	(0)
	squamous cell metaplasia:respiratory epithelium		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	sclerosis:lamina propria		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(20)	(0)	(0)	(0)
	atrophy:olfactory epithelium		0	0	0	0	0	0	0	0	4	0	0	0	2	3	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(80)	(0)	(0)	(0)	(40)	(60)	(0)	(0)
	necrosis:olfactory epithelium		0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(40)	(0)	(0)	(0)	(80)	(0)	(0)	(0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

Organ	Findings	Group Name	300ppm				600ppm			
		No. of Animals on Study	5				0			
		Grade	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)
{Respiratory system}										
nasal cavit			< 5>				< 0>			
	exudate		0 (0)	0 (0)	4 (80)	0 (0)	- (-)	- (-)	- (-)	- (-)
	inflammatory polyp		5 (100)	0 (0)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
	inflammation:respiratory epithelium		1 (20)	0 (0)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
	respiratory metaplasia:olfactory epithelium		3 (60)	2 (40)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
	squamous cell metaplasia:respiratory epithelium		0 (0)	5 (100)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
	sclerosis:lamina propria		3 (60)	0 (0)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
	atrophy:olfactory epithelium		1 (20)	2 (40)	2 (40)	0 (0)	- (-)	- (-)	- (-)	- (-)
	necrosis:olfactory epithelium		5 (100)	0 (0)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

STUDY NO. : 0412
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)
SACRIFICED ANIMALS (3W)

Organ	Findings	Group Name / No. of Animals on Study / Grade	Control 5 1 (%)	Control 5 2 (%)	Control 5 3 (%)	Control 5 4 (%)	38ppm 5 1 (%)	38ppm 5 2 (%)	38ppm 5 3 (%)	38ppm 5 4 (%)	75ppm 5 1 (%)	75ppm 5 2 (%)	75ppm 5 3 (%)	75ppm 5 4 (%)	150ppm 5 1 (%)	150ppm 5 2 (%)	150ppm 5 3 (%)	150ppm 5 4 (%)
{Respiratory system}																		
nasal cavit			< 5>				< 5>				< 5>				< 5>			
	degeneration:respiratory epithelium		0 (0)	0 (0)	0 (0)	0 (0)	1 (20)	3 (60)	0 (0)	0 (0)	0 (0)	4 (80)	1 (20)	0 (0)	0 (0)	2 (40)	3 (60)	0 (0)
	necrosis:respiratory epithelium		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (60)	0 (0)	0 (0)	0 (0)	5 (100)	0 (0)	0 (0)	0 (0)
nasopharynx			< 5>				< 5>				< 5>				< 5>			
	degeneration:epithelium		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	necrosis:epithelium		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
trachea			< 5>				< 5>				< 5>				< 5>			
	degeneration:epithelium		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
{Hematopoietic system}																		
thymus			< 5>				< 5>				< 5>				< 5>			
	atrophy		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

Organ	Findings	Group Name	300ppm				600ppm			
		No. of Animals on Study	5				0			
		Grade	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}										
nasal cavit			< 5>				< 0>			
	degeneration:respiratory epithelium		2	3	0	0	-	-	-	-
			(40)	(60)	(0)	(0)	(-)	(-)	(-)	(-)
	necrosis:respiratory epithelium		0	5	0	0	-	-	-	-
			(0)	(100)	(0)	(0)	(-)	(-)	(-)	(-)
nasopharynx			< 5>				< 0>			
	degeneration:epithelium		0	0	5	0	-	-	-	-
			(0)	(0)	(100)	(0)	(-)	(-)	(-)	(-)
	necrosis:epithelium		3	0	0	0	-	-	-	-
			(60)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
trachea			< 5>				< 0>			
	degeneration:epithelium		1	0	4	0	-	-	-	-
			(20)	(0)	(80)	(0)	(-)	(-)	(-)	(-)
{Hematopoietic system}										
thymus			< 5>				< 0>			
	atrophy		1	0	0	0	-	-	-	-
			(20)	(0)	(0)	(0)	(-)	(-)	(-)	(-)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

Organ	Findings	Group Name / No. of Animals on Study / Grade	Control 5				38ppm 5				75ppm 5				150ppm 5			
			1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)
{Hematopoietic system}																		
spleen	deposit of melanin	< a >	< 5>				< 5>				< 5>				< 5>			
		b	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		(c)	(0)	(0)	(0)	(0)	(20)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
{Circulatory system}																		
heart	lymphocytic infiltration	< a >	< 5>				< 5>				< 5>				< 5>			
		b	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		(c)	(0)	(0)	(0)	(0)	(20)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
{Urinary system}																		
kidney	hydronephrosis	< a >	< 5>				< 5>				< 5>				< 5>			
		b	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
		(c)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(20)	(0)	(0)	(0)	(0)	(0)	(0)
{Endocrine system}																		
pituitary	Rathke pouch	< a >	< 5>				< 5>				< 5>				< 5>			
		b	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		(c)	(0)	(0)	(0)	(0)	(20)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

Organ	Findings	Group Name	300ppm				600ppm			
		No. of Animals on Study	5				0			
		Grade	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Hematopoietic system}										
spleen			< 5>				< 0>			
	deposit of melanin		0	0	0	0	-	-	-	-
			(0)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
{Circulatory system}										
heart			< 5>				< 0>			
	lymphocytic infiltration		0	0	0	0	-	-	-	-
			(0)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
{Urinary system}										
kidney			< 5>				< 0>			
	hydronephrosis		0	0	0	0	-	-	-	-
			(0)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
{Endocrine system}										
pituitary			< 5>				< 0>			
	Rathke pouch		0	0	0	0	-	-	-	-
			(0)	(0)	(0)	(0)	(-)	(-)	(-)	(-)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

APPENDIX I 3

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

MOUSE : FEMALE : DEAD AND MORIBUND ANIMALS

(2-WEEK STUDY)

Organ	Findings	Group Name	Control				38ppm				75ppm				150ppm			
		No. of Animals on Study	0				0				0				0			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}																		
nasal cavit			< 0>				< 0>				< 0>				< 0>			
	exudate		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	inflammation:respiratory epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:olfactory epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:respiratory epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
nasopharynx			< 0>				< 0>				< 0>				< 0>			
	necrosis:epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
larynx			< 0>				< 0>				< 0>				< 0>			
	necrosis:epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
trachea			< 0>				< 0>				< 0>				< 0>			
	necrosis:epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

Organ	Findings	Group Name	300ppm				600ppm			
		No. of Animals on Study	0				5			
		Grade	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}										
nasal cavit			< 0>				< 5>			
	exudate		-	-	-	-	1	0	0	0
			(-)	(-)	(-)	(-)	(20)	(0)	(0)	(0)
	inflammation:respiratory epithelium		-	-	-	-	3	0	0	0
			(-)	(-)	(-)	(-)	(60)	(0)	(0)	(0)
	necrosis:olfactory epithelium		-	-	-	-	0	0	5	0
			(-)	(-)	(-)	(-)	(0)	(0)	(100)	(0)
	necrosis:respiratory epithelium		-	-	-	-	0	0	0	5
			(-)	(-)	(-)	(-)	(0)	(0)	(0)	(100)
nasopharynx			< 0>				< 5>			
	necrosis:epithelium		-	-	-	-	1	1	0	0
			(-)	(-)	(-)	(-)	(20)	(20)	(0)	(0)
larynx			< 0>				< 5>			
	necrosis:epithelium		-	-	-	-	2	1	2	0
			(-)	(-)	(-)	(-)	(40)	(20)	(40)	(0)
trachea			< 0>				< 5>			
	necrosis:epithelium		-	-	-	-	1	1	2	0
			(-)	(-)	(-)	(-)	(20)	(20)	(40)	(0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

Organ	Findings	Group Name	Control				38ppm				75ppm				150ppm			
		No. of Animals on Study	0				0				0				0			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Hematopoietic system}																		
thymus			< 0>				< 0>				< 0>				< 0>			
	atrophy		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	karyorrhexis		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

Organ	Findings	Group Name	300ppm				600ppm			
		No. of Animals on Study	0				5			
		Grade	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Hematopoietic system}										
thymus			< 0>				< 5>			
	atrophy		-	-	-	-	0	3	1	0
			(-)	(-)	(-)	(-)	(0)	(60)	(20)	(0)
	karyorrhexis		-	-	-	-	0	2	1	0
			(-)	(-)	(-)	(-)	(0)	(40)	(20)	(0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

APPENDIX I 4

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

MOUSE : FEMALE : SACRIFICED ANIMALS

(2-WEEK STUDY)

Organ	Findings	Group Name	Control				38ppm				75ppm				150ppm			
		No. of Animals on Study	5				5				5				5			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}																		
nasal cavit			< 5>				< 5>				< 5>				< 5>			
	exudate		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	inflammatory polyp		0	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(80)	(0)	(0)	(0)	(80)	(0)	(0)	(0)
	inflammation:respiratory epithelium		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	respiratory metaplasia:olfactory epithelium		0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(100)	(0)	(0)	(0)
	squamous cell metaplasia:respiratory epithelium		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	sclerosis:lamina propria		0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(40)	(0)	(0)	(0)
	atrophy:olfactory epithelium		0	0	0	0	0	0	0	0	4	1	0	0	1	4	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(80)	(20)	(0)	(0)	(20)	(80)	(0)	(0)
	necrosis:olfactory epithelium		0	0	0	0	0	0	0	0	2	0	0	0	5	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(40)	(0)	(0)	(0)	(100)	(0)	(0)	(0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

Organ	Findings	Group Name	300ppm				600ppm			
		No. of Animals on Study	5				0			
		Grade	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}										
nasal cavit			< 5>				< 0>			
	exudate		0	0	5	0	-	-	-	-
			(0)	(0)	(100)	(0)	(-)	(-)	(-)	(-)
	inflammatory polyp		5	0	0	0	-	-	-	-
			(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
	inflammation:respiratory epithelium		2	0	0	0	-	-	-	-
			(40)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
	respiratory metaplasia:olfactory epithelium		0	5	0	0	-	-	-	-
			(0)	(100)	(0)	(0)	(-)	(-)	(-)	(-)
	squamous cell metaplasia:respiratory epithelium		0	5	0	0	-	-	-	-
			(0)	(100)	(0)	(0)	(-)	(-)	(-)	(-)
	sclerosis:lamina propria		5	0	0	0	-	-	-	-
			(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
	atrophy:olfactory epithelium		0	3	2	0	-	-	-	-
			(0)	(60)	(40)	(0)	(-)	(-)	(-)	(-)
	necrosis:olfactory epithelium		4	1	0	0	-	-	-	-
			(80)	(20)	(0)	(0)	(-)	(-)	(-)	(-)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

Organ	Findings	Group Name	Control				38ppm				75ppm				150ppm			
		No. of Animals on Study	5				5				5				5			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}																		
nasal cavit			< 5>				< 5>				< 5>				< 5>			
	degeneration:respiratory epithelium		0	0	0	0	0	5	0	0	0	3	2	0	0	0	5	0
			(0)	(0)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(60)	(40)	(0)	(0)	(0)	(100)	(0)
	necrosis:respiratory epithelium		0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(100)	(0)	(0)	(0)
nasopharynx			< 5>				< 5>				< 5>				< 5>			
	degeneration:epithelium		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	necrosis:epithelium		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
larynx			< 5>				< 5>				< 5>				< 5>			
	degeneration:epithelium		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	necrosis:epithelium		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
trachea			< 5>				< 5>				< 5>				< 5>			
	degeneration:epithelium		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

Organ	Findings	Group Name	300ppm				600ppm			
		No. of Animals on Study	5				0			
		Grade	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}										
nasal cavit			< 5>				< 0>			
	degeneration:respiratory epithelium		0	5	0	0	-	-	-	-
			(0)	(100)	(0)	(0)	(-)	(-)	(-)	(-)
	necrosis:respiratory epithelium		0	5	0	0	-	-	-	-
			(0)	(100)	(0)	(0)	(-)	(-)	(-)	(-)
nasopharynx			< 5>				< 0>			
	degeneration:epithelium		0	0	5	0	-	-	-	-
			(0)	(0)	(100)	(0)	(-)	(-)	(-)	(-)
	necrosis:epithelium		4	1	0	0	-	-	-	-
			(80)	(20)	(0)	(0)	(-)	(-)	(-)	(-)
larynx			< 5>				< 0>			
	degeneration:epithelium		0	0	1	0	-	-	-	-
			(0)	(0)	(20)	(0)	(-)	(-)	(-)	(-)
	necrosis:epithelium		1	0	0	0	-	-	-	-
			(20)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
trachea			< 5>				< 0>			
	degeneration:epithelium		0	2	3	0	-	-	-	-
			(0)	(40)	(60)	(0)	(-)	(-)	(-)	(-)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

Organ	Findings	Group Name	Control				38ppm				75ppm				150ppm			
		No. of Animals on Study	5				5				5				5			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Hematopoietic system}																		
thymus			< 5>				< 5>				< 5>				< 5>			
	atrophy		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
spleen			< 5>				< 5>				< 5>				< 5>			
	deposit of melanin		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(20)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
{Digestive system}																		
stomach			< 5>				< 5>				< 5>				< 5>			
	cyst		0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
			(0)	(0)	(0)	(0)	(20)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(20)	(0)	(0)	(0)
	erosion:forestomach		0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(20)	(0)	(0)	(0)	(0)	(20)	(0)	(0)
	hyperplasia:forestomach		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(20)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
liver			< 5>				< 5>				< 5>				< 5>			
	granulation		1	0	0	0	1	0	0	0	2	0	0	0	1	0	0	0
			(20)	(0)	(0)	(0)	(20)	(0)	(0)	(0)	(40)	(0)	(0)	(0)	(20)	(0)	(0)	(0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

Organ	Findings	Group Name	300ppm				600ppm			
		No. of Animals on Study	5				0			
		Grade	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Hematopoietic system}										
thymus			< 5>				< 0>			
	atrophy		4	1	0	0	-	-	-	-
			(80)	(20)	(0)	(0)	(-)	(-)	(-)	(-)
spleen			< 5>				< 0>			
	deposit of melanin		1	0	0	0	-	-	-	-
			(20)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
{Digestive system}										
stomach			< 5>				< 0>			
	cyst		0	0	0	0	-	-	-	-
			(0)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
	erosion:forestomach		0	0	0	0	-	-	-	-
			(0)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
	hyperplasia:forestomach		0	0	0	0	-	-	-	-
			(0)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
liver			< 5>				< 0>			
	granulation		0	0	0	0	-	-	-	-
			(0)	(0)	(0)	(0)	(-)	(-)	(-)	(-)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

Organ	Findings	Group Name	Control				38ppm				75ppm				150ppm			
		No. of Animals on Study	5				5				5				5			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
{Endocrine system}																		
parathyroid			< 4>				< 3>				< 3>				< 3>			
	cyst		0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(33)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
{Reproductive system}																		
vagina			< 5>				< 5>				< 5>				< 5>			
	mucification:epithelium		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

Organ	Findings	Group Name	300ppm				600ppm			
		No. of Animals on Study	5				0			
		Grade	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Endocrine system}										
parathyroid			< 2>				< 0>			
	cyst		0	0	0	0	-	-	-	-
			(0)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
{Reproductive system}										
vagina			< 5>				< 0>			
	mucification:epithelium		2	2	0	0	-	-	-	-
			(40)	(40)	(0)	(0)	(-)	(-)	(-)	(-)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100

APPENDIX J 1

IDENTITY OF BUTY2,3-EPOXYPROPYL ETHER IN THE 2-WEEK INHALATION STUDY

IDENTITY OF BUTYL 2,3-EPOXYPROPYL ETHER IN THE 2-WEEK INHALATION STUDY

Test Substance : Butyl 2,3-epoxypropyl ether (Wako Pure Chemical Industries, Ltd.)

Lot No. : CHK5928

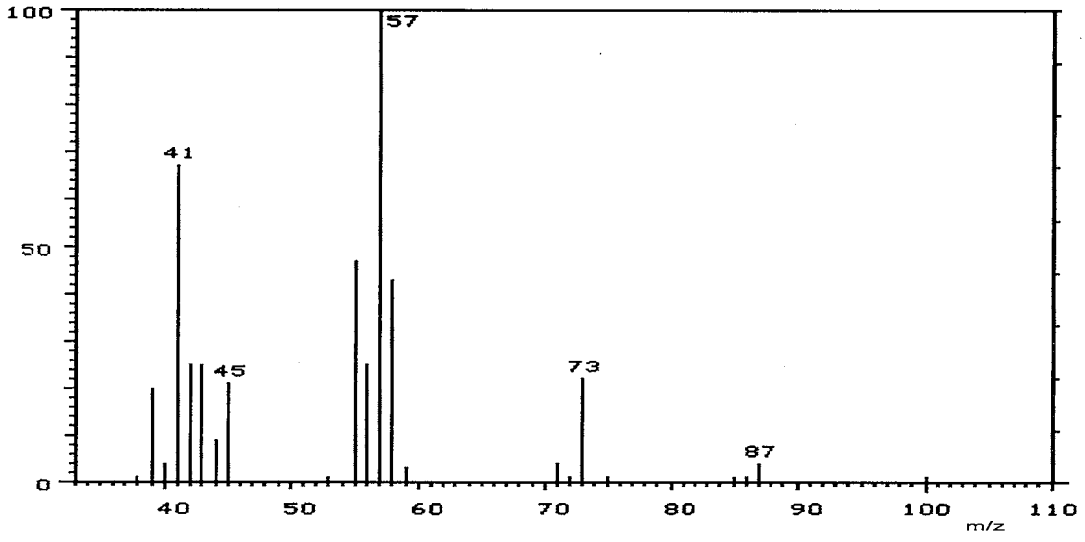
1. Spectral Data

Mass Spectrometry

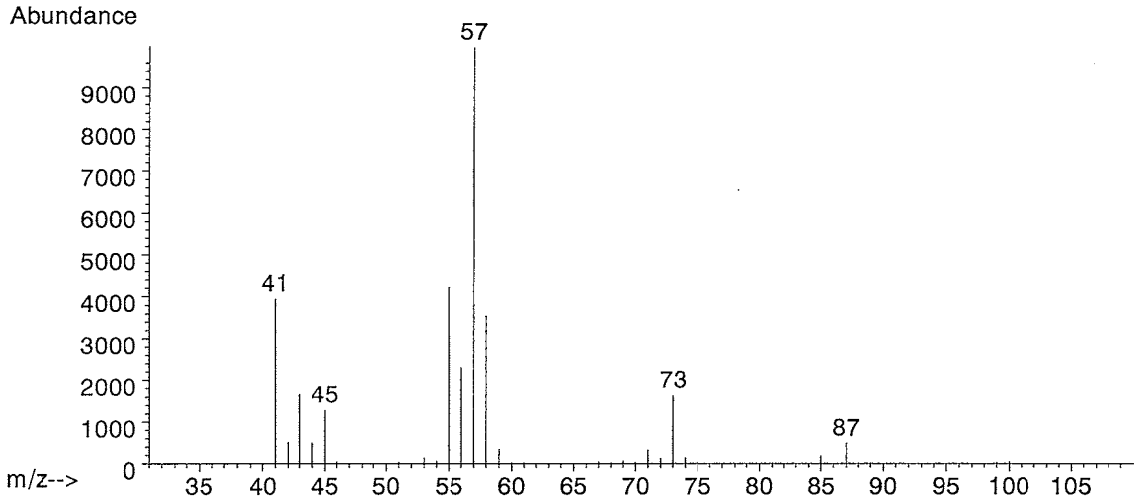
Instrument : Hitachi M-80B Mass Spectrometer

Ionization : EI (Electron Ionization)

Ionization Voltage : 70eV



Mass Spectrum of Test Substance



Mass Spectrum of Literature Data*

Result: The mass spectrum was consistent with literature spectrum.

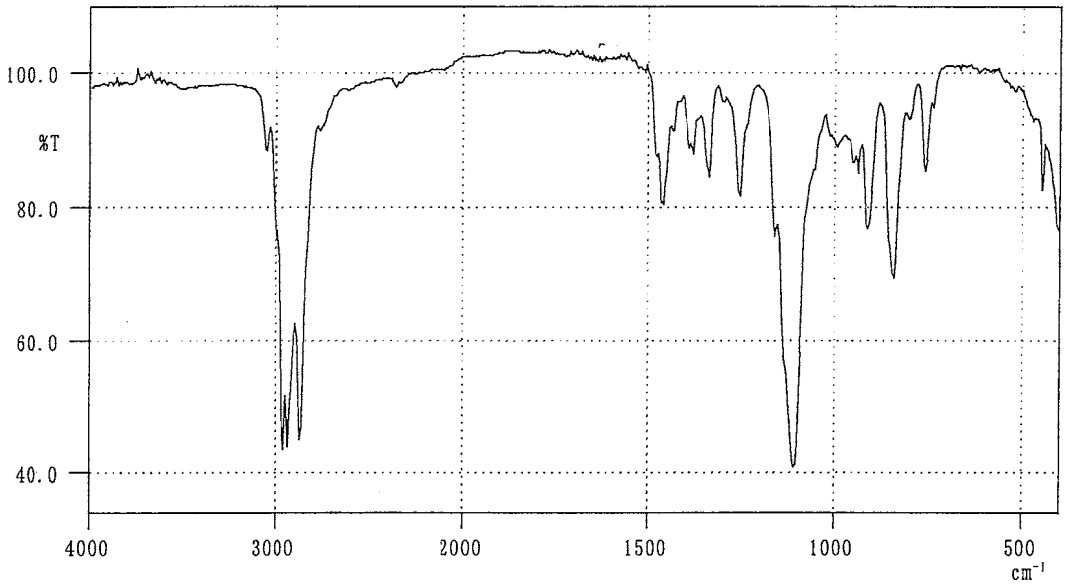
(*Fred W. McLafferty (1994) Wiley Registry of Mass Spectral Data, 6th edition. John Wiley and Sons, Inc. (U.S.), Entry Number 20313)

Infrared Spectrometry

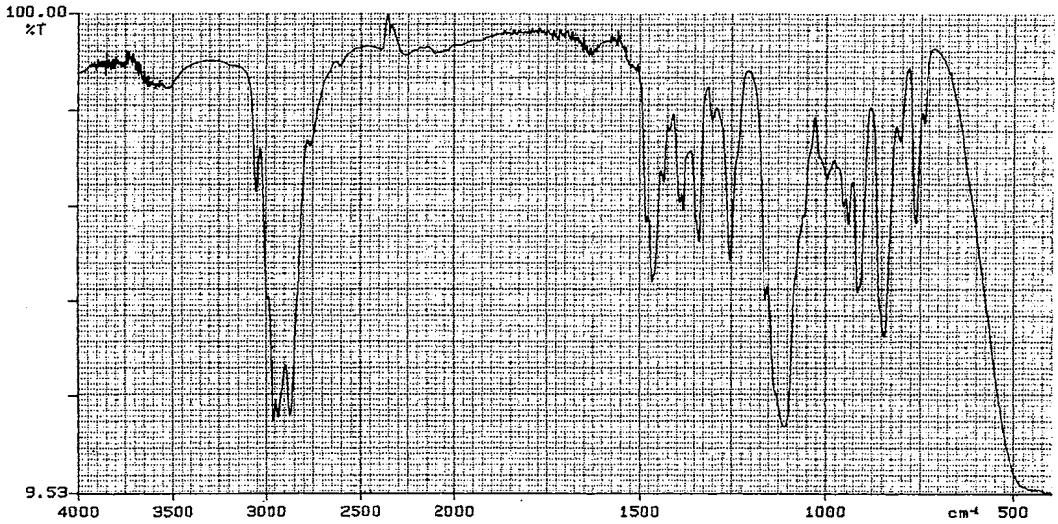
Instrument : Shimadzu FTIR-8200PC Infrared Spectrometer

Cell : KBr Liquid Cell

Resolution : 4 cm^{-1}



Infrared Spectrum of Test Substance



Infrared Spectrum of Literature Data*

Result: The infrared spectrum was consistent with literature spectrum.
(*Performed by Wako Pure Chemical Industries, Ltd.)

2. Conclusion: The test substance was identified as butyl 2,3-epoxypropyl ether by mass spectrum and infrared spectrum.

APPENDIX J 2

STABILITY OF BUTY2,3-EPOXYPROPYL ETHER IN THE 2-WEEK INHALATION STUDY

STABILITY OF BUTYL 2,3-EPOXYPROPYL ETHER IN THE 2-WEEK INHALATION STUDY

Test Substance : Butyl 2,3-epoxypropyl ether (Wako Pure Chemical Industries, Ltd.)

Lot No. : CHK5928

1. Sample : This lot was used from 2000.3.28 to 2000.4.10. Test substance was stored in a dark place at room temperature.

2. Gas Chromatography

Instrument : Hewlett Packard 5890A Gas Chromatograph

Column : Methyl Silicone (0.53 mmϕ × 60 m)

Column Temperature: 160° C

Flow Rate : 20 mL/min

Detector : FID (Flame Ionization Detector)

Injection Volume : 1 μL

Date (date analyzed)	Peak No.	Retention Time (min)	Area (%)
2000.03.24	1	2.850	100
2000.04.26	1	2.851	100

Result: Gas chromatography indicated one major peak (peak No.1) analyzed on 2000.3.24 and one major peak (peak No.1) analyzed on 2000.4.26. No new trace impurity peak in the test substance analyzed on 2000.4.26 was detected.

3. Conclusion: The test substance was stable for about 1 month in a dark place at room temperature.

APPENDIX K 1

CONCENTMOUSEION OF BUTY2,3-EPOXYPROPYL ETHER

IN THE INHALATION CHAMBER

OF 2-WEEK INHALATION STUDY

CONCENTRATION OF BUTYL 2,3-EPOXYPROPYL ETHER IN THE INHALATION CHAMBER
OF THE 2-WEEK INHALATION STUDY

Group Name	Concentration(ppm) Mean ± S.D.
0ppm(Control)	0.0 ± 0.0
38ppm	38.4 ± 0.5
75ppm	75.5 ± 0.5
150ppm	151.3 ± 1.3
300ppm	301.4 ± 2.4
600ppm	600.0 ± 1.8

APPENDIX K 2

ENVIRONMENTAL CONDITIONS OF INHALATION CHAMBER IN THE 2-WEEK INHALATION STUDY OF BUTY2,3-EPOXYPROPYL ETHER

ENVIRONMENTAL CONDITIONS OF INHALATION CHAMBER IN THE 2 -WEEK INHALATION SYUDY OF BUTYL 2,3-EPOXYPROPYL ETHER

Group Name	Temperature(℃) Mean ± S.D.	Humidity(%) Mean ± S.D.	Ventilation Rate(L/min) Mean ± S.D.	Air Change(time/h) Mean
0ppm(Control)	21.9 ± 0.2	52.9 ± 4.4	104.4 ± 0.4	12.0
38ppm	22.2 ± 0.2	47.9 ± 5.7	104.3 ± 0.3	12.0
75ppm	22.1 ± 0.1	46.3 ± 6.0	104.7 ± 0.3	12.1
150ppm	21.9 ± 0.2	47.7 ± 7.6	104.5 ± 0.4	12.1
300ppm	21.8 ± 0.1	46.2 ± 7.7	104.4 ± 0.3	12.0
600ppm	21.6 ± 0.3	43.0 ± 0.3	104.4 ± 0.2	12.0

APPENDIX L 1

METHODS FOR HEMATOLOGY AND BIOCHEMISTRY IN THE 2-WEEK INHALATION STUDY OF BUTY2,3-EPOXYPROPYL ETHER

METHOD FOR HEMATOLOGY AND BIOCHEMISTRY IN THE 2-WEEK INHALATION STUDY OF BUTYL 2,3-EPOXYPROPYL ETHER

Item	Method
Hematology	
Red blood cell (RBC)	Light scattering method [1]
Hemoglobin (Hgb)	Cyanmethemoglobin method [1]
Hematocrit (Hct)	Calculated as RBC × MCV/10 [1]
Mean corpuscular volume (MCV)	Light scattering method [1]
Mean corpuscular hemoglobin (MCH)	Calculated as Hgb/RBC × 10 [1]
Mean corpuscular hemoglobin concentration (MCHC)	Calculated as Hgb/Hct × 100 [1]
Platelet	Light scattering method [1]
White blood cell (WBC)	Light scattering method [1]
Differential WBC	Pattern recognition method [2] (Wright staining)
Biochemistry	
Total protein (TP)	Biuret method [3]
Albumin (Alb)	BCG method [3]
A/G ratio	Calculated as Alb/(TP－Alb) [3]
T-bilirubin	Alkaline azobilirubin method [3]
Glucose	GlcK・G-6-PDH method [3]
T-cholesterol	CE・COD・POD method [3]
Triglyceride	LPL・GK・GPO・POD method [3]
Phospholipid	PLD・ChOD・POD method [3]
Glutamic oxaloacetic transaminase (GOT)	JSCC method [3]
Glutamic pyruvic transaminase (GPT)	JSCC method [3]
Lactate dehydrogenase (LDH)	SFBC method [3]
Alkaline phosphatase (ALP)	GSCC method [3]
γ-Glutamyl transpeptidase (γ-GTP)	L-γ-Glutamyl-p-nitroanilide method [3]
Creatine phosphokinase (CPK)	JSCC method [3]
Urea nitrogen	Urease・GLDH method [3]
Sodium	Ion selective electrode method [3]
Potassium	Ion selective electrode method [3]
Chloride	Ion selective electrode method [3]
Calcium	OCPC method [3]
Inorganic phosphorus	PNP・XOD・POD method [3]

1) Automatic blood cell analyzer (Technicon H・1 : Bayer Corporation)

2) Automatic blood cell differential analyzer (MICROX HEG-120NA : OMRON Corporation)

3) Automatic analyzer (Hitachi 7070 : Hitachi,Ltd.)

APPENDIX L 2

UNITS AND DECIMAL PLACE FOR HEMATOLOGY AND BIOCHEMISTRY IN THE 2-WEEK INHALATION STUDY OF BUTY2,3-EPOXYPROPYL ETHER

UNITS AND DECIMAL PLACE FOR HEMATOLOGY AND BIOCHEMISTRY IN THE 2-WEEK INHALATION STUDY OF BUTYL 2,3-EPOXYPROPYL ETHER

Item	Unit	Decimal place
Hematology		
Red blood cell (RBC)	$\times 10^6/\mu L$	2
Hemoglobin	g/dL	1
Hematocrit	%	1
Mean corpuscular volume (MCV)	fL	1
Mean corpuscular hemoglobin (MCH)	pg	1
Mean corpuscular hemoglobin concentration (MCHC)	g/dL	1
Platelet	$\times 10^3/\mu L$	0
White blood cell (WBC)	$\times 10^3/\mu L$	2
Differential WBC	%	0
Biochemistry		
Total protein	g/dL	1
Albumin	g/dL	1
A/G ratio	—	1
T-bilirubin	mg/dL	2
Glucose	mg/dL	0
T-cholesterol	mg/dL	0
Triglyceride	mg/dL	0
Phospholipid	mg/dL	0
Glutamic oxaloacetic transminase (GOT)	IU/L	0
Glutamic pyruvic transaminase (GPT)	IU/L	0
Lactate dehydrogenase (LDH)	IU/L	0
Alkaline phosphatase (ALP)	IU/L	0
γ-Glutamyl transpeptidase (γ-GTP)	IU/L	0
Creatine phosphokinase (CPK)	IU/L	0
Urea nitrogen	mg/dL	1
Sodium	mEq/L	0
Potassium	mEq/L	1
Chloride	mEq/L	0
Calcium	mg/dL	1
Inorganic phosphorus	mg/dL	1