

クロトンアルデヒドのラット及びマウスを用いた
吸入によるがん原性予備試験報告書

試験番号

2週間試験：ラット/0286；マウス 0287

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APPENDIX A 1-1

CLINICAL OBSERVATION (TWO-WEEK STUDY: SUMMARY)

RAT : MALE

STUDY NO. : 0286
 ANIMAL : RAT F344/DuCrj
 REPORT TYPE : A1 2

CLINICAL OBSERVATION (SUMMARY)
 ALL ANIMALS

SEX : MALE

PAGE : 1

Clinical sign	Group Name	Administration Week-day					
		1-1	1-2	1-4	1-7	2-3	2-7
LOCOMOTOR MOVEMENT DECR	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	1	0	0	1	0
	100 ppm	0	0	-	-	-	-
PILOERECTION	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	0	0	0	5	4
	100 ppm	0	0	-	-	-	-
EYE OPACITY	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	1
	50 ppm	0	1	0	0	0	0
	100 ppm	0	0	-	-	-	-
CORNEAL OPACITY	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	1	0	0	0	0
	100 ppm	0	0	-	-	-	-
NOSE HEMORRHAGIC DISCHA	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	0	0	0	1	0
	100 ppm	0	0	-	-	-	-
IRREGULAR BREATHING	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	2	5	0	2	0
	100 ppm	0	0	-	-	-	-

STUDY NO. : 0286
ANIMAL : RAT F344/DuCrj
REPORT TYPE : A1 2

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : MALE

PAGE : 2

Clinical sign	Group Name	Administration Week-day					
		1-1	1-2	1-4	1-7	2-3	2-7
ABNORMAL RESPIRATION	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	2	5	0	2	0
	100 ppm	0	0	-	-	-	-
DEEP BREATHING	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	1	0	0	1	0
	100 ppm	0	0	-	-	-	-
ABNORMAL RESPIRA.SOUND	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	5	6
	50 ppm	0	3	4	4	5	4
	100 ppm	0	0	-	-	-	-
SUBNORMAL TEMP	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	1	0	0	1	0
	100 ppm	0	0	-	-	-	-

APPENDIX A 1-2

CLINICAL OBSERVATION (TWO-WEEK STUDY: SUMMARY)

RAT : FEMALE

STUDY NO. : 0286
ANIMAL : RAT F344/DuCrj
REPORT TYPE : A1 2

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : FEMALE

PAGE : 3

Clinical sign	Group Name	Administration Week-day					
		1-1	1-2	1-4	1-7	2-3	2-7
LOCOMOTOR MOVEMENT DECR	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	0	0	0	0	0
	100 ppm	0	2	-	-	-	-
PILOERECTOR	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	0	0	0	6	6
	100 ppm	0	0	-	-	-	-
IRREGULAR BREATHING	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	1	1	0	0	0
	100 ppm	0	2	-	-	-	-
ABNORMAL RESPIRATION	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	1	1	0	0	0
	100 ppm	0	2	-	-	-	-
DEEP BREATHING	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	1	0	0	0	0
	100 ppm	0	2	-	-	-	-
ABNORMAL RESPIRA.SOUND	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	4	1
	50 ppm	0	7	6	6	6	6
	100 ppm	0	2	-	-	-	-

STUDY NO. : 0286
ANIMAL : RAT F344/DuCrj
REPORT TYPE : A1 2

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : FEMALE

PAGE : 4

Clinical sign	Group Name	Administration Week-day					
		1-1	1-2	1-4	1-7	2-3	2-7
SUBNORMAL TEMP	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	0	0	0	0	0
	100 ppm	0	2	-	-	-	-

(HAN190)

BAIS 3

APPENDIX A 1-3

CLINICAL OBSERVATION (TWO-WEEK STUDY: SUMMARY)

MOSUE : MALE

STUDY NO. : 0287
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1 2

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : MALE

PAGE : 1

Clinical sign	Group Name	Administration Week-day					
		1-1	1-2	1-5	1-7	2-3	2-7
LOCOMOTOR MOVEMENT DECR	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	0	0	0	0	0
	100 ppm	0	1	1	-	-	-
HUNCHBACK POSITION	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	0	0	0	0	4
	100 ppm	0	0	0	-	-	-
PILOERECTION	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	0	0	3	4	4
	100 ppm	0	0	1	-	-	-
IRREGULAR BREATHING	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	0	0	0	0	0
	100 ppm	0	3	0	-	-	-
ABNORMAL RESPIRATION	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	0	0	0	0	0
	100 ppm	0	4	0	-	-	-
DEEP BREATHING	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	0	0	0	0	0
	100 ppm	0	2	0	-	-	-

STUDY NO. : 0287
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1 2

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : MALE

PAGE : 2

Clinical sign	Group Name	Administration Week-day					
		1-1	1-2	1-5	1-7	2-3	2-7
ABNORMAL RESPIRA.SOUND	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	0	0	2	3	4
	100 ppm	0	7	1	-	-	-
SUBNORMAL TEMP	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	0	0	0	0	0
	100 ppm	0	1	0	-	-	-

(HAN190)

BAIS3

APPENDIX A 1-4

CLINICAL OBSERVATION (TWO-WEEK STUDY: SUMMARY)

MOSUE: FEMALE

STUDY NO. : 0287
ANIMAL : MOUSE Crj:BDF1
REPORT TYPE : A1 2

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : FEMALE

PAGE : 3

Clinical sign	Group Name	Administration Week-day					
		1-1	1-2	1-5	1-7	2-3	2-7
PILORECTION	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	0	0	0	5	9
	100 ppm	0	0	0	-	-	-
IRREGULAR BREATHING	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	0	0	0	0	0
	100 ppm	0	1	0	-	-	-
ABNORMAL RESPIRATION	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	0	0	0	0	0
	100 ppm	0	1	0	-	-	-
ABNORMAL RESPIRA.SOUND	Control	0	0	0	0	0	0
	6.3 ppm	0	0	0	0	0	0
	12.5 ppm	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	50 ppm	0	0	0	0	0	7
	100 ppm	0	5	3	-	-	-

APPENDIX A 2-1

BODY WEIGHT CHANGES (TWO-WEEK STUDY:SUMMARY)

RAT : MALE

STUDY NO. : 0286
 ANIMAL : RAT F344
 UNIT : g
 REPORT TYPE : A1 2
 SEX : MALE

BODY WEIGHT CHANGES (SUMMARY)
 ALL ANIMALS

PAGE : 1

Group Name	Administration		week-day													
	0-0		1-1		1-2		1-4		1-7		2-3		2-7			
Control	115±	3	119±	5	121±	4	125±	5	133±	5	142±	6	152±	8		
6.3 ppm	115±	4	118±	5	120±	5	124±	6	134±	7	143±	8	154±	8		
12.5 ppm	115±	4	119±	4	119±	3	122±	4	131±	5	140±	7	153±	8		
25 ppm	115±	3	119±	3	114±	3**	108±	4**	117±	4**	121±	5**	132±	5**		
50 ppm	115±	4	118±	5	100±	4**	87±	7**	92±	6**	87±	10**	95±	9**		
100 ppm	115±	3	118±	3	103±	2**	-		-		-		-			

Significant difference : * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

APPENDIX A 2-2

BODY WEIGHT CHANGES (TWO-WEEK STUDY: SUMMARY)

RAT : FEMALE

STUDY NO. : 0286
 ANIMAL : RAT F344
 UNIT : g
 REPORT TYPE : A1 2
 SEX : FEMALE

BODY WEIGHT CHANGES (SUMMARY)
 ALL ANIMALS

PAGE : 2

Group Name	Administration		week-day									
	0-0		1-1		1-2		1-4		1-7		2-3	
Control	97±	3	98±	3	100±	3	102±	3	107±	3	111±	3
6.3 ppm	97±	3	98±	3	99±	4	101±	3	106±	4	110±	4
12.5 ppm	97±	3	98±	3	100±	3	100±	4	104±	4	109±	3
25 ppm	97±	3	98±	4	95±	4**	90±	4**	97±	4**	99±	3**
50 ppm	97±	3	98±	3	83±	3**	78±	5**	81±	3**	77±	4**
100 ppm	97±	3	98±	3	86±	3**	-		-		-	

Significant difference : * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

(HAN260)

BAIS3

APPENDIX A 2-3

BODY WEIGHT CHANGES(TWO-WEEK STUDY:SUMMARY)

MOSUE : MALE

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 UNIT : g
 REPORT TYPE : A1 2
 SEX : MALE

BODY WEIGHT CHANGES (SUMMARY)
 ALL ANIMALS

PAGE : 1

Group Name	Administration week-day						
	0-0	1-1	1-2	1-5	1-7	2-3	2-7
Control	22.3± 0.8	22.5± 0.8	22.6± 0.8	23.5± 0.9	23.7± 1.0	24.2± 0.9	24.6± 0.9
6.3 ppm	22.3± 0.8	22.5± 1.1	22.4± 1.3	23.0± 1.4	23.1± 1.4	23.3± 1.5	23.6± 1.7
12.5 ppm	22.3± 0.8	22.4± 0.8	21.7± 0.7	22.3± 0.9*	21.8± 0.8**	21.4± 0.7*	21.8± 0.9*
25 ppm	22.3± 0.9	22.1± 0.7	20.9± 0.6**	21.5± 0.9**	20.3± 0.7**	19.7± 0.6**	19.9± 0.6**
50 ppm	22.3± 0.9	22.2± 0.9	19.8± 0.8**	19.3± 0.7**	16.3± 0.6**	14.3± 0.5**	13.4± 0.4**
100 ppm	22.3± 0.8	22.0± 1.1	19.8± 1.1**	16.1± 1.3 ?	-	-	-

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

? : Significant test is not applied, because No. of data in this group is less than 3.

APPENDIX A 2-4

BODY WEIGHT CHANGES (TWO-WEEK STUDY: SUMMARY)

MOSUE: FEMALE

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 UNIT : g
 REPORT TYPE : A1 2
 SEX : FEMALE

BODY WEIGHT CHANGES (SUMMARY)
 ALL ANIMALS

PAGE : 2

Group Name	Administration week-day						
	0-0	1-1	1-2	1-5	1-7	2-3	2-7
Control	18.5± 0.6	18.5± 0.7	18.5± 0.8	19.5± 0.7	19.6± 0.9	20.3± 0.9	20.6± 1.0
6.3 ppm	18.5± 0.6	17.9± 0.8	18.0± 1.2	19.4± 1.1	19.4± 0.5	19.9± 0.8	20.2± 0.9
12.5 ppm	18.5± 0.6	18.2± 0.7	18.1± 0.6	18.6± 0.8	18.5± 0.7	18.3± 0.5**	18.4± 0.6**
25 ppm	18.5± 0.6	18.3± 0.6	17.4± 0.3	18.5± 0.6*	17.4± 0.4**	16.9± 0.5**	17.1± 0.6**
50 ppm	18.5± 0.6	18.3± 0.5	16.4± 0.4**	16.6± 0.7**	15.1± 0.3**	12.9± 0.8**	12.2± 0.5**
100 ppm	18.5± 0.6	18.0± 0.6	15.7± 0.6**	12.8± 0.7**	-	-	-

Significant difference ; * : $P \leq 0.05$

** : $P \leq 0.01$

Test of Dunnett

(HAN260)

BAIS3

APPENDIX A 3-1

FOOD CONSUMPTION CHANGES (TWO-WEEK STUDY: SUMMARY)

RAT : MALE

STUDY NO. : 0286
ANIMAL : RAT F344
UNIT : g
REPORT TYPE : A1 2
SEX : MALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

PAGE : 1

Group Name	Administration week-day(effective)	
	1-7(6)	2-7(7)
Control	14.0± 0.9	13.9± 0.8
6.3 ppm	14.0± 1.2	14.6± 0.9
12.5 ppm	13.3± 1.1	14.2± 0.9
25 ppm	10.0± 0.6**	11.8± 0.8**
50 ppm	5.3± 0.9**	8.2± 0.5**
100 ppm	-	-

Significant difference ; * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

APPENDIX A 3-2

FOOD CONSUMPTION CHANGES (TWO-WEEK STUDY: SUMMARY)

RAT : FEMALE

STUDY NO. : 0286
ANIMAL : RAT F344
UNIT : g
REPORT TYPE : A1 2
SEX : FEMALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

PAGE : 2

Group Name	Administration week-day(effective)	
	1-7(6)	2-7(7)
Control	11.4± 0.6	11.4± 0.6
6.3 ppm	11.7± 0.7	11.8± 0.6
12.5 ppm	11.1± 0.6	11.2± 0.4
25 ppm	9.3± 0.5**	10.4± 0.4**
50 ppm	6.0± 0.7**	8.0± 0.6**
100 ppm	-	-

Significant difference : * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

APPENDIX A 3-3

FOOD CONSUMPTION CHANGES (TWO-WEEK STUDY: SUMMARY)

MOSUE : MALE

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
UNIT : g
REPORT TYPE : A1 2
SEX : MALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

PAGE : 1

Group Name	Administration week-day(effective)	
	1-7(6)	2-7(7)
Control	4.2± 0.3	4.1± 0.2
6.3 ppm	4.1± 0.5	4.2± 0.3
12.5 ppm	3.6± 0.2	3.7± 0.1**
25 ppm	3.0± 0.2**	2.9± 0.2**
50 ppm	1.8± 0.2**	1.9± 0.2**
100 ppm	-	-

Significant difference : * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

(HAN260)

BAIS3

APPENDIX A 3-4

FOOD CONSUMPTION CHANGES(TWO-WEEK STUDY: SUMMARY)

MOSUE : FEMALE

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
UNIT : g
REPORT TYPE : A1 2
SEX : FEMALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

PAGE : 2

Group Name	Administration week-day(effective)	
	1-7(6)	2-7(7)
Control	3.7± 0.3	3.9± 0.3
6.3 ppm	3.7± 0.2	3.6± 0.3
12.5 ppm	3.3± 0.2**	3.3± 0.2
25 ppm	2.9± 0.2**	2.6± 0.2**
50 ppm	2.1± 0.2**	1.9± 0.1**
100 ppm	-	-

Significant difference : * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

(HAN260)

BAIS3

APPENDIX A 4-1

HEMATOLOGY (TWO-WEEK STUDY: SUMMARY)

RAT : MALE

STUDY NO. : 0286
 ANIMAL : RAT F344
 SAMPLING DATE : 003-1
 SEX : MALE

HEMATOLOGY (SUMMARY)
 SURVIVAL ANIMALS (3)

REPORT TYPE : A1

PAGE : 1

Group Name	NO. of Animals	RED BLOOD CELL 10 ⁶ /μl		HEMOGLOBIN g/dl		HEMATOCRIT %		MCV fl		MCH pg		MCHC g/dl		PLATELET 10 ³ /μl	
Control	5	8.66±	0.48	16.9±	0.2	46.4±	2.6	53.6±	0.4	19.5±	1.3	36.4±	2.3	821±	90
6.3 ppm	5	8.83±	0.25	16.5±	0.4	47.6±	1.3	53.9±	0.4	18.7±	0.5	34.7±	0.6	892±	90
12.5 ppm	5	8.66±	0.19	16.1±	0.4*	47.0±	1.3	54.3±	0.4	18.6±	0.2	34.2±	0.4	876±	42
25 ppm	5	8.97±	0.22	16.7±	0.4	47.6±	1.4	53.1±	0.3	18.6±	0.4	35.0±	0.6	774±	36
50 ppm	4	9.53±	0.41**	17.8±	0.6*	50.5±	2.3*	53.0±	1.1	18.6±	0.3	35.2±	0.7	774±	36
100 ppm	0	-		-		-		-		-		-		-	

Significant difference : * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

(HCL070)

BAIS3

STUDY NO. : 0286
ANIMAL : RAT F344
SAMPLING DATE : 003-1
SEX : MALE

REPORT TYPE : A1

HEMATOLOGY (SUMMARY)
SURVIVAL ANIMALS (3)

PAGE : 2

Group Name	NO. of Animals	RETICULOCYTE %		PROTHROMBIN TIME s e c		APTT s e c	
Control	5	33±	8	12.9±	0.4	19.9±	1.1
6.3 ppm	5	31±	7	13.9±	1.4	23.0±	6.0
12.5 ppm	5	38±	10	12.7±	0.6	22.8±	8.3
25 ppm	5	27±	6	13.9±	1.9	41.3±	48.9
50 ppm	4	39±	14	13.5±	0.2	18.7±	2.3
100 ppm	0	-		-		-	

Significant difference ; * : $P \leq 0.05$

** : $P \leq 0.01$

Test of Dunnett

(HCL070)

BATS3

STUDY NO. : 0286
 ANIMAL : RAT F344
 SAMPLING DATE : 003-1
 SEX : MALE

HEMATOLOGY (SUMMARY)
 SURVIVAL ANIMALS (3)

REPORT TYPE : A1

PAGE : 3

Group Name	NO. of Animals	WBC 10 ³ /μl		Differential N-BAND		WBC (%) N-SEG		EOSINO		BASO		MONO		LYMPHO		OTHERS	
Control	5	3.12±	1.16	0±	0	25±	6	1±	2	0±	0	3±	1	71±	8	0±	0
6.3 ppm	5	3.51±	1.82	0±	0	21±	5	1±	1	0±	0	3±	1	75±	3	0±	0
12.5 ppm	5	3.05±	1.31	0±	0	22±	6	1±	1	0±	0	2±	1	75±	7	0±	0
25 ppm	5	3.73±	2.40	0±	1	30±	9	1±	1	0±	0	2±	1	66±	9	0±	0
50 ppm	4	2.54±	0.51	0±	0	46±	6**	1±	1	0±	0	4±	1	50±	6**	0±	0
100 ppm	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Significant difference : * : P ≤ 0.05

** : P ≤ 0.01

Test of Dunnett

(HCL070)

BAIS3

APPENDIX A 4-2

HEMATOLOGY (TWO-WEEK STUDY: SUMMARY)

RAT : FEMALE

STUDY NO. : 0286
ANIMAL : RAT F344
SAMPLING DATE : 003-1
SEX : FEMALE

REPORT TYPE : A1

HEMATOLOGY (SUMMARY)
SURVIVAL ANIMALS (3)

PAGE : 4

Group Name	NO. of Animals	RED BLOOD CELL 10 ⁶ /μl	HEMOGLOBIN g/dl	HEMATOCRIT %	MCV fl	MCH pg	MCHC g/dl	PLATELET 10 ³ /μl
Control	5	9.07± 0.30	17.2± 0.6	49.2± 1.1	54.3± 0.7	18.9± 0.2	34.8± 0.6	799± 28
6.3 ppm	5	9.05± 0.34	17.1± 0.5	48.7± 1.5	53.8± 0.7	18.9± 0.1	35.2± 0.3	856± 78
12.5 ppm	5	9.00± 0.50	17.1± 0.7	48.4± 2.5	53.9± 0.8	19.0± 0.3	35.3± 0.5	847± 76
25 ppm	5	9.23± 0.30	17.5± 0.5	49.6± 1.4	53.8± 0.6	18.9± 0.3	35.2± 0.2	837± 73
50 ppm	5	9.54± 0.21	18.0± 0.4	50.9± 1.5	53.3± 0.5	18.8± 0.3	35.3± 0.6	812± 63
100 ppm	0	-	-	-	-	-	-	-

Significant difference ; * : $P \leq 0.05$

** : $P \leq 0.01$

Test of Dunnett

(HCL070)

BAIS3

STUDY NO. : 0286
ANIMAL : RAT F344
SAMPLING DATE : 003-1
SEX : FEMALE

REPORT TYPE : A1

HEMATOLOGY (SUMMARY)
SURVIVAL ANIMALS (3)

PAGE : 5

Group Name	NO. of Animals	RETICULOCYTE %		PROTHROMBIN TIME s e c		APTT s e c	
Control	5	25±	5	12.2±	0.5	17.1±	2.1
6.3 ppm	5	23±	4	12.4±	0.3	16.9±	2.5
12.5 ppm	5	28±	12	12.3±	0.3	17.2±	1.6
25 ppm	5	18±	3	13.0±	0.7	19.8±	5.2
50 ppm	5	33±	9	13.9±	1.0**	25.5±	17.1
100 ppm	0	-	-	-	-	-	-

Significant difference ; * : $P \leq 0.05$

** : $P \leq 0.01$

Test of Dunnett

(HCL070)

BAIS3

STUDY NO. : 0286
 ANIMAL : RAT F344
 SAMPLING DATE : 003-1
 SEX : FEMALE

REPORT TYPE : A1

HEMATOLOGY (SUMMARY)
 SURVIVAL ANIMALS (3)

PAGE : 6

Group Name	NO. of Animals	WBC 10 ³ /μl		Differential N-BAND		WBC (%) N-SEG		EOSINO		BASO		MONO		LYMPHO		OTHERS	
Control	5	2.68±	0.96	0±	0	22±	5	1±	1	0±	0	2±	0	75±	5	0±	0
6.3 ppm	5	3.47±	0.70	0±	0	18±	6	0±	1	0±	0	2±	1	79±	6	0±	0
12.5 ppm	5	3.31±	0.93	0±	1	18±	4	1±	0	0±	0	3±	1	79±	3	0±	0
25 ppm	5	3.10±	0.80	0±	0	26±	6	1±	1	0±	0	2±	1	71±	7	0±	0
50 ppm	5	3.26±	1.61	0±	0	43±	18	1±	1	0±	0	3±	2	53±	19	0±	0
100 ppm	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Significant difference ; * : $P \leq 0.05$

** : $P \leq 0.01$

Test of Dunnett

(HCL070)

BAIS3

APPENDIX A 4-3

HEMATOLOGY (TWO-WEEK STUDY: SUMMARY)

MOSUE : MALE

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 SAMPLING DATE : 003-1
 SEX : MALE

HEMATOLOGY (SUMMARY)
 SURVIVAL ANIMALS (3)

REPORT TYPE : A1

PAGE : 1

Group Name	NO. of Animals	RED BLOOD CELL 10 ⁶ /μl	HEMOGLOBIN g/dl	HEMATOCRIT %	MCV fl	MCH pg	MCHC g/dl	PLATELET 10 ³ /μl
Control	5	11.33± 0.28	17.5± 0.4	52.9± 1.5	46.6± 0.4	15.5± 0.2	33.1± 0.6	1263± 59
6.3 ppm	5	11.40± 0.47	17.6± 0.4	52.9± 2.2	46.5± 0.5	15.4± 0.3	33.1± 0.5	1184± 50
12.5 ppm	5	11.60± 0.23	17.8± 0.4	52.8± 1.3	45.5± 0.9*	15.3± 0.2	33.7± 0.6	1208± 62
25 ppm	5	11.52± 0.21	17.8± 0.4	51.6± 0.8	44.8± 0.2**	15.5± 0.3	34.6± 0.6**	1233± 117
50 ppm	0	-	-	-	-	-	-	-
100 ppm	0	-	-	-	-	-	-	-

Significant difference ; * : $P \leq 0.05$

** : $P \leq 0.01$

Test of Dunnett

(HCL070)

BAIS3

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 SAMPLING DATE : 003-1
 SEX : MALE

REPORT TYPE : A1

HEMATOLOGY (SUMMARY)
 SURVIVAL ANIMALS (3)

PAGE : 2

Group Name	NO. of Animals	WBC 10 ³ /μL		Differential N-BAND		WBC (%) N-SEG		EOSINO		BASO		MONO		LYMPHO		OTHERS	
Control	5	1.59±	0.30	1±	1	12±	2	0±	0	0±	0	1±	0	85±	2	0±	0
6.3 ppm	5	1.69±	0.47	0±	1	13±	5	0±	0	0±	0	2±	1	84±	4	0±	0
12.5 ppm	5	1.55±	0.62	0±	0	11±	6	0±	0	0±	0	1±	0	88±	7	0±	0
25 ppm	5	2.53±	0.77*	0±	0	11±	3	1±	1	0±	0	1±	0	87±	3	0±	0
50 ppm	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
100 ppm	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Significant difference ; * : $P \leq 0.05$

** : $P \leq 0.01$

Test of Dunnett

(HCL070)

BAIS3

APPENDIX A 4-4

HEMATOLOGY (TWO-WEEK STUDY: SUMMARY)

MOSUE : FEMALE

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 SAMPLING DATE : 003-1
 SEX : FEMALE

REPORT TYPE : A1

HEMATOLOGY (SUMMARY)
 SURVIVAL ANIMALS (3)

PAGE : 3

Group Name	NO. of Animals	RED BLOOD CELL 10 ⁶ /μl		HEMOGLOBIN g/dl		HEMATOCRIT %		MCV fl		MCH pg		MCHC g/dl		PLATELET 10 ³ /μl	
Control	5	10.96±	0.25	17.3±	0.5	50.6±	1.0	46.2±	0.3	15.8±	0.4	34.2±	0.7	1119±	69
6.3 ppm	5	11.10±	0.41	17.0±	0.5	50.8±	2.0	45.8±	0.3	15.3±	0.4	33.4±	0.8	1097±	97
12.5 ppm	5	11.53±	0.26*	17.8±	0.4	52.8±	1.5	45.7±	0.4	15.4±	0.1	33.6±	0.3	1174±	64
25 ppm	5	11.34±	0.22	17.5±	0.2	51.0±	0.3	44.9±	0.8**	15.4±	0.3	34.3±	0.2	1228±	78
50 ppm	2	10.75±	1.77 ?	16.5±	2.4 ?	46.4±	8.2 ?	43.1±	0.6 ?	15.4±	0.2 ?	35.6±	1.1 ?	1086±	116 ?
100 ppm	0	-		-		-		-		-		-		-	

Significant difference ; * : $P \leq 0.05$

** : $P \leq 0.01$

Test of Dunnett

? : Significant test is not applied, because No. of data in this group is less than 3.

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 SAMPLING DATE : 003-1
 SEX : FEMALE

REPORT TYPE : A1

HEMATOLOGY (SUMMARY)
 SURVIVAL ANIMALS (3)

PAGE : 4

Group Name	NO. of Animals	WBC 10 ³ /μl		Differential N-BAND		WBC (%) N-SEG		EOSINO		BASO		MONO		LYMPHO		OTHERS	
Control	5	1.40±	0.72	0±	0	13±	4	0±	1	0±	0	1±	1	85±	3	0±	0
6.3 ppm	5	1.56±	0.62	0±	0	11±	4	0±	1	0±	0	1±	1	87±	5	0±	0
12.5 ppm	5	2.29±	0.99	0±	1	16±	7	1±	1	0±	0	2±	1	82±	7	0±	0
25 ppm	5	1.38±	0.53	0±	0	17±	4	1±	1	0±	0	2±	1	80±	5	0±	0
50 ppm	2	0.77±	0.64 ?	3±	2 ?	51±	13 ?	0±	0 ?	0±	0 ?	1±	0 ?	46±	16 ?	0±	0 ?
100 ppm	0	-		-		-		-		-		-		-		-	

Significant difference ; * : $P \leq 0.05$

** : $P \leq 0.01$

Test of Dunnett

? : Significant test is not applied, because No. of data in this group is less than 3.

APPENDIX A 5-1

BIOCHEMISTRY (TWO-WEEK STUDY: SUMMARY)

RAT : MALE

STUDY NO. : 0286
 ANIMAL : RAT F344
 SAMPLING DATE : 003-2
 SEX : MALE

BIOCHEMISTRY (SUMMARY)
 SURVIVAL ANIMALS (3)

REPORT TYPE : A1

PAGE : 1

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	5.7±	0.1	3.7±	0.1	1.9±	0.1	0.16±	0.00	161±	18	46±	4	18±	3
6.3 ppm	5	5.7±	0.1	3.7±	0.1	1.9±	0.0	0.15±	0.01	151±	11	41±	2	21±	6
12.5 ppm	5	5.6±	0.1	3.7±	0.1	2.0±	0.1	0.15±	0.01	155±	22	44±	2	23±	6
25 ppm	5	5.5±	0.1	3.6±	0.1	1.9±	0.1	0.16±	0.01	150±	14	52±	5	16±	5
50 ppm	4	5.6±	0.2	3.4±	0.2**	1.6±	0.1**	0.18±	0.01	126±	25	82±	12	19±	3
100 ppm	0	-		-		-		-		-		-		-	

Significant difference ; * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

(HCL074)

BAIS3

STUDY NO. : 0286
 ANIMAL : RAT F344
 SAMPLING DATE : 003-2
 SEX : MALE

REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
 SURVIVAL ANIMALS (3)

PAGE : 2

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	83±	5	75±	4	33±	2	202±	53	723±	63	1±	0	206±	32
6.3 ppm	5	79±	4	76±	4	33±	2	178±	54	782±	48	1±	0	199±	35
12.5 ppm	5	82±	3	77±	3	34±	1	166±	56	788±	53	1±	0	186±	12
25 ppm	5	89±	5	78±	4	35±	5	234±	85	682±	46	2±	1	213±	54
50 ppm	4	134±	17*	91±	13	48±	6*	456±	168**	517±	38**	2±	1	248±	55
100 ppm	0	-		-		-		-		-		-		-	

Significant difference ; * : $P \leq 0.05$

** : $P \leq 0.01$

Test of Dunnett

(HCL074)

BAIS3

STUDY NO. : 0286
 ANIMAL : RAT F344
 SAMPLING DATE : 003-2
 SEX : MALE

REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
 SURVIVAL ANIMALS (3)

PAGE : 3

Group Name	NO. of Animals	UREA NITROGEN mg/dl		CREATININE mg/dl		SODIUM mEq/l		POTASSIUM mEq/l		CHLORIDE mEq/l		CALCIUM mg/dl		INORGANIC PHOSPHORUS mg/dl	
Control	5	17.1±	1.8	0.5±	0.0	143±	2	3.9±	0.5	105±	2	10.4±	0.7	9.2±	1.3
6.3 ppm	5	17.0±	1.0	0.4±	0.1	143±	1	4.1±	0.4	105±	2	10.5±	0.6	9.4±	0.8
12.5 ppm	5	16.9±	0.8	0.4±	0.0	143±	2	4.2±	0.5	105±	2	10.2±	0.2	9.4±	1.1
25 ppm	5	15.4±	1.2	0.4±	0.0	143±	1	4.1±	0.3	105±	1	9.8±	0.3	8.7±	0.8
50 ppm	4	19.0±	2.7	0.4±	0.0	142±	2	3.9±	0.4	105±	1	9.8±	0.6	8.4±	0.9
100 ppm	0	-		-		-		-		-		-		-	

Significant difference : * : $P \leq 0.05$

** : $P \leq 0.01$

Test of Dunnett

(HCL074)

BAIS3

APPENDIX A 5-2

BIOCHEMISTRY (TWO-WEEK STUDY: SUMMARY)

RAT : FEMALE

STUDY NO. : 0286
 ANIMAL : RAT F344
 SAMPLING DATE : 003-2
 SEX : FEMALE

REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
 SURVIVAL ANIMALS (3)

PAGE : 4

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	5.4±	0.1	3.6±	0.1	1.9±	0.1	0.17±	0.01	129±	8	67±	12	15±	4
6.3 ppm	5	5.5±	0.1	3.6±	0.1	1.9±	0.0	0.16±	0.00	127±	7	67±	5	15±	3
12.5 ppm	5	5.4±	0.1	3.6±	0.1	1.9±	0.0	0.17±	0.00	136±	11	69±	6	14±	1
25 ppm	5	5.4±	0.1	3.5±	0.1	1.8±	0.1*	0.17±	0.01	124±	2	66±	5	14±	1
50 ppm	5	5.4±	0.2	3.3±	0.1**	1.5±	0.1**	0.18±	0.01	112±	8**	77±	8	19±	3
100 ppm	0	-		-		-		-		-		-		-	

Significant difference : * : $P \leq 0.05$

** : $P \leq 0.01$

Test of Dunnett

(HCL074)

BAIS3

STUDY NO. : 0286
ANIMAL : RAT F344
SAMPLING DATE : 003-2
SEX : FEMALE

REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (3)

PAGE : 5

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	111±	17	81±	9	33±	2	304±	92	629±	46	2±	1	223±	47
6.3 ppm	5	113±	8	81±	5	34±	2	225±	97	696±	42	2±	1	195±	33
12.5 ppm	5	115±	7	78±	5	33±	2	221±	71	640±	47	3±	1	203±	51
25 ppm	5	110±	4	83±	3	33±	2	373±	135	678±	43	2±	0	230±	48
50 ppm	5	130±	14	82±	15	44±	13*	306±	142	492±	48**	2±	0	210±	42
100 ppm	0	-		-		-		-		-		-		-	

Significant difference : * : $P \leq 0.05$

** : $P \leq 0.01$

Test of Dunnett

(HCL074)

BAIS3

STUDY NO. : 0286
 ANIMAL : RAT F344
 SAMPLING DATE : 003-2
 SEX : FEMALE

REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
 SURVIVAL ANIMALS (3)

PAGE : 6

Group Name	NO. of Animals	UREA NITROGEN mg/dl		CREATININE mg/dl		SODIUM mEq/l		POTASSIUM mEq/l		CHLORIDE mEq/l		CALCIUM mg/dl		INORGANIC PHOSPHORUS mg/dl	
Control	5	16.0±	1.3	0.4±	0.0	143±	1	3.9±	0.3	107±	2	9.9±	0.3	7.8±	0.9
6.3 ppm	5	17.4±	0.7	0.4±	0.0	142±	1	3.7±	0.3	106±	1	9.9±	0.1	7.9±	1.2
12.5 ppm	5	18.5±	1.9	0.5±	0.1	142±	2	3.8±	0.6	106±	2	10.2±	0.4	8.6±	1.3
25 ppm	5	16.4±	2.1	0.4±	0.1	142±	2	4.0±	0.3	106±	2	9.8±	0.2	8.5±	0.7
50 ppm	5	16.8±	1.6	0.4±	0.1	142±	2	4.0±	0.2	106±	3	9.8±	0.3	8.4±	0.4
100 ppm	0	-		-		-		-		-		-		-	

Significant difference : * : $P \leq 0.05$

** : $P \leq 0.01$

Test of Dunnett

1

(HCL074)

BAIS3

APPENDIX A 5-3

BIOCHEMISTRY (TWO-WEEK STUDY: SUMMARY)

MOUSE: MALE

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
SAMPLING DATE : 003-2
SEX : MALE

REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (3)

PAGE : 1

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±	0.2	3.1±	0.1	1.4±	0.0	0.19±	0.01	221±	20	82±	5	25±	4
6.3 ppm	5	5.2±	0.2	3.0±	0.1	1.4±	0.1	0.22±	0.05	205±	43	79±	13	22±	7
12.5 ppm	5	5.1±	0.2	3.0±	0.1	1.4±	0.0	0.21±	0.02	187±	32	76±	6	17±	5
25 ppm	5	5.4±	0.2	3.1±	0.1	1.4±	0.1	0.23±	0.01**	105±	10**	95±	10	13±	2**
50 ppm	0	-		-		-		-		-		-		-	
100 ppm	0	-		-		-		-		-		-		-	

Significant defference ; * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

(HCL074)

BAIS3

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 SAMPLING DATE : 003-2
 SEX : MALE

BIOCHEMISTRY (SUMMARY)
 SURVIVAL ANIMALS (3)

REPORT TYPE : A1

PAGE : 2

Group Name	NO. of Animals	GOT I U / ℓ		GPT I U / ℓ		LDH I U / ℓ		ALP I U / ℓ		CPK I U / ℓ		UREA NITROGEN mg / dl		SODIUM mEq / ℓ	
Control	5	40±	4	13±	2	188±	41	322±	24	80±	61	28.1±	1.5	151±	2
6.3 ppm	5	43±	3	17±	1*	210±	47	312±	18	94±	38	26.4±	4.6	151±	2
12.5 ppm	5	40±	4	16±	2	188±	41	282±	30*	87±	43	24.8±	1.8	151±	2
25 ppm	5	41±	4	17±	3*	165±	18	272±	16**	52±	16	23.1±	2.3	153±	1
50 ppm	0	-		-		-		-		-		-		-	
100 ppm	0	-		-		-		-		-		-		-	

Significant difference ; * : $P \leq 0.05$

** : $P \leq 0.01$

Test of Dunnett

(HCL074)

BAIS3

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 SAMPLING DATE : 003-2
 SEX : MALE

REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
 SURVIVAL ANIMALS (3)

PAGE : 3

Group Name	NO. of Animals	POTASSIUM mEq/ℓ		CHLORIDE mEq/ℓ		CALCIUM mg/dℓ		INORGANIC PHOSPHORUS mg/dℓ	
Control	5	4.7±	0.5	124±	1	8.8±	0.1	8.6±	1.4
6.3 ppm	5	5.0±	0.2	122±	3	8.9±	0.2	9.4±	1.3
12.5 ppm	5	4.6±	0.3	120±	2*	8.8±	0.2	8.1±	1.1
25 ppm	5	5.0±	0.4	119±	1**	9.3±	0.1**	8.3±	0.9
50 ppm	0	-	-	-	-	-	-	-	-
100 ppm	0	-	-	-	-	-	-	-	-

Significant difference ; * : $P \leq 0.05$

** : $P \leq 0.01$

Test of Dunnett

(HCL074)

BAIS3

APPENDIX A 5-4

BIOCHEMISTRY (TWO-WEEK STUDY: SUMMARY)

MOUSE: FEMALE

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 SAMPLING DATE : 003-2
 SEX : FEMALE

REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
 SURVIVAL ANIMALS (3)

PAGE : 4

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	3.3±	0.1	1.6±	0.1	0.23±	0.06	200±	26	73±	9	20±	6
6.3 ppm	5	5.3±	0.2	3.3±	0.1	1.7±	0.0	0.22±	0.06	166±	31	79±	6	20±	6
12.5 ppm	5	5.3±	0.1	3.3±	0.1	1.7±	0.1	0.20±	0.01	181±	21	70±	5	17±	5
25 ppm	5	5.4±	0.1	3.3±	0.1	1.6±	0.1	0.25±	0.06	104±	15**	84±	2*	15±	2
50 ppm	2	4.7±	0.4 ?	2.9±	0.1 ?	1.7±	0.2 ?	0.47±	0.21 ?	53±	16 ?	80±	3 ?	15±	1 ?
100 ppm	0	-		-		-		-		-		-		-	

Significant difference : * : $P \leq 0.05$

** : $P \leq 0.01$

Test of Dunnett

? : Significant test is not applied,because No. of data in this group is less than 3.

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 SAMPLING DATE : 003-2
 SEX : FEMALE

REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
 SURVIVAL ANIMALS (3)

PAGE : 5

Group Name	NO. of Animals	GOT IU / ℓ		GPT IU / ℓ		LDH IU / ℓ		ALP IU / ℓ		CPK IU / ℓ		UREA NITROGEN mg / dl		SODIUM mEq / ℓ	
Control	5	42±	9	17±	4	216±	25	438±	53	90±	34	24.2±	2.4	150±	2
6.3 ppm	5	45±	4	15±	4	219±	63	424±	43	83±	32	23.2±	2.3	153±	2
12.5 ppm	5	52±	7	19±	3	203±	17	434±	59	92±	21	26.0±	1.9	151±	1
25 ppm	5	45±	4	16±	2	202±	40	369±	24	64±	29	22.2±	3.3	151±	2
50 ppm	2	413±	327 ?	94±	20 ?	1500±	1321 ?	273±	30 ?	1904±	1768 ?	103.8±	49.8 ?	139±	7 ?
100 ppm	0	-		-		-		-		-		-		-	

Significant defference ; * : $P \leq 0.05$

** : $P \leq 0.01$

Test of Dunnett

? : Significant test is not applied,because No. of data in this group is less than 3.

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 SAMPLING DATE : 003-2
 SEX : FEMALE

REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
 SURVIVAL ANIMALS (3)

PAGE : 6

Group Name	NO. of Animals	POTASSIUM mEq/ℓ		CHLORIDE mEq/ℓ		CALCIUM mg/dℓ		INORGANIC PHOSPHORUS mg/dℓ	
Control	5	4.7±	0.3	122±	4	8.9±	0.4	7.0±	0.4
6.3 ppm	5	4.7±	0.3	124±	2	9.0±	0.3	8.1±	0.9
12.5 ppm	5	4.6±	0.3	122±	1	8.9±	0.3	7.3±	0.2
25 ppm	5	4.8±	0.3	119±	3	9.0±	0.3	7.7±	0.8
50 ppm	2	6.6±	1.4 ?	109±	7 ?	8.4±	0.8 ?	12.2±	2.3 ?
100 ppm	0	-		-		-		-	

Significant defference ; * : $P \leq 0.05$

** : $P \leq 0.01$

Test of Dunnett

? : Significant test is not applied,because No. of data in this group is less than 3.

APPENDIX A 6-1

GROSS FINDINGS (TWO-WEEK STUDY: SUMMARY)

RAT : MALE : SACRIFICED ANIMALS

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (3W)

PAGE : 1

Organ	Findings	Group Name NO. of Animals	Control	6.3 ppm	12.5 ppm	25 ppm
			10 (%)	10 (%)	10 (%)	10 (%)
thymus	atrophic		0 (0)	0 (0)	0 (0)	0 (0)
gl stomach	ulcer		0 (0)	0 (0)	0 (0)	0 (0)
liver	herniation		1 (10)	0 (0)	0 (0)	0 (0)
eye	turbid		0 (0)	0 (0)	0 (0)	1 (10)

(HPT080)

BAIS3

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (3W)

PAGE : 2

Organ	Findings	Group Name	50 ppm	100 ppm
		NO. of Animals	4 (%)	0 (%)
thymus	atrophic		2 (50)	- (-)
gl stomach	ulcer		3 (75)	- (-)
liver	herniation		0 (0)	- (-)
eye	turbid		0 (0)	- (-)

(IPT080)

BAIS3

APPENDIX A 6-2

GROSS FINDINGS (TWO-WEEK STUDY: SUMMARY)

RAT : FEMALE : SACRIFICED ANIMALS

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (3W)

PAGE : 3

Organ_____	Findings_____	Group Name NO. of Animals	Control	6.3 ppm	12.5 ppm	25 ppm
			10 (%)	10 (%)	10 (%)	10 (%)
lung	red zone		0 (0)	0 (0)	0 (0)	0 (0)
thymus	atrophic		0 (0)	0 (0)	0 (0)	0 (0)
gl stomach	ulcer		0 (0)	0 (0)	0 (0)	0 (0)

(HPT080)

BAIS3

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (3W)

PAGE : 4

Organ_____	Findings_____	Group Name	50 ppm	100 ppm
		NO. of Animals	6 (%)	0 (%)
lung	red zone		2 (33)	- (-)
thymus	atrophic		3 (50)	- (-)
gl stomach	ulcer		1 (17)	- (-)

(HPT080)

BATS3

APPENDIX A 6-3

GROSS FINDINGS (TWO-WEEK STUDY: SUMMARY)

RAT : MALE : DEAD AND MORIBUND ANIMALS

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

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

PAGE : 1

Organ	Findings	Group Name NO. of Animals	Control 0 (%)	6.3 ppm 0 (%)	12.5 ppm 0 (%)	25 ppm 0 (%)
subcutis	edema		- (-)	- (-)	- (-)	- (-)
lung	red		- (-)	- (-)	- (-)	- (-)
	red zone		- (-)	- (-)	- (-)	- (-)
stomach	gas		- (-)	- (-)	- (-)	- (-)
small intes	gas		- (-)	- (-)	- (-)	- (-)
large intes	gas		- (-)	- (-)	- (-)	- (-)
eye	turbid		- (-)	- (-)	- (-)	- (-)
thoracic ca	pleural fluid		- (-)	- (-)	- (-)	- (-)

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

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

PAGE : 2

Organ	Findings	Group Name	50 ppm	100 ppm
		NO. of Animals	6 (%)	10 (%)
subcutis	edema		0 (0)	2 (20)
lung	red		0 (0)	1 (10)
	red zone		5 (83)	9 (90)
stomach	gas		6 (100)	10 (100)
small intes	gas		2 (33)	0 (0)
large intes	gas		2 (33)	0 (0)
eye	turbid		1 (17)	0 (0)
thoracic ca	pleural fluid		0 (0)	2 (20)

(HPT080)

BAIS3

APPENDIX A 6-4

GROSS FINDINGS (TWO-WEEK STUDY: SUMMARY)

RAT : FEMALE : DEAD AND MORIBUND ANIMALS

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 3

Organ	Findings	Group Name NO. of Animals	Control 0 (%)	6.3 ppm 0 (%)	12.5 ppm 0 (%)	25 ppm 0 (%)
trachea	fluid:red		- (-)	- (-)	- (-)	- (-)
lung	red zone		- (-)	- (-)	- (-)	- (-)
	voluminous		- (-)	- (-)	- (-)	- (-)
stomach	gas		- (-)	- (-)	- (-)	- (-)
small intes	gas		- (-)	- (-)	- (-)	- (-)
large intes	gas		- (-)	- (-)	- (-)	- (-)
thoracic ca	pleural fluid		- (-)	- (-)	- (-)	- (-)

(HPT080)

BAIS3

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 4

Organ	Findings	Group Name	50 ppm	100 ppm
		NO. of Animals	4 (%)	10 (%)
trachea	fluid:red		1 (25)	0 (0)
lung	red zone		4 (100)	8 (80)
	voluminus		0 (0)	1 (10)
stomach	gas		4 (100)	10 (100)
small intes	gas		1 (25)	1 (10)
large intes	gas		1 (25)	1 (10)
thoracic ca	pleural fluid		0 (0)	2 (20)

(HPT080)

BAIS3

APPENDIX A 6-5

GROSS FINDINGS (TWO-WEEK STUDY: SUMMARY)

MOUSE: MALE : SACRIFICED ANIMALS

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (3W)

PAGE : 1

Organ	Findings	Group Name NO. of Animals	Control	6.3 ppm	12.5 ppm	25 ppm
			10 (%)	10 (%)	10 (%)	10 (%)
thymus	atrophic		0 (0)	0 (0)	0 (0)	0 (0)
spleen	black zone		1 (10)	1 (10)	1 (10)	0 (0)
stomach	gas		0 (0)	0 (0)	0 (0)	0 (0)
small intes	gas		0 (0)	0 (0)	0 (0)	0 (0)
large intes	gas		0 (0)	0 (0)	0 (0)	0 (0)
testis	absence		0 (0)	1 (10)	0 (0)	0 (0)

(HPT080)

BAIS3

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (3W)

PAGE : 2

Organ	Findings	Group Name	50 ppm	100 ppm
		NO. of Animals	4 (%)	0 (%)
thymus	atrophic		2 (50)	- (-)
spleen	black zone		0 (0)	- (-)
stomach	gas		3 (75)	- (-)
small intes	gas		4 (100)	- (-)
large intes	gas		3 (75)	- (-)
testis	absence		0 (0)	- (-)

(HPT080)

BATS3

APPENDIX A 6-6

GROSS FINDINGS (TWO-WEEK STUDY: SUMMARY)

MOUSE: FEMALE : SACRIFICED ANIMALS

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (3W)

PAGE : 3

Organ	Findings	Group Name NO. of Animals	Control	6.3 ppm	12.5 ppm	25 ppm
			10 (%)	10 (%)	10 (%)	10 (%)
thymus	atrophic		0 (0)	0 (0)	0 (0)	0 (0)
spleen	black zone		1 (10)	0 (0)	0 (0)	2 (20)
stomach	gas		0 (0)	0 (0)	0 (0)	0 (0)
small intes	gas		0 (0)	0 (0)	0 (0)	0 (0)
large intes	gas		0 (0)	0 (0)	0 (0)	0 (0)

(HPT080)

BAIS 3

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (3w)

PAGE : 4

Organ	Findings	Group Name NO. of Animals	50 ppm	100 ppm
			9 (%)	0 (%)
thymus	atrophic		2 (22)	- (-)
spleen	black zone		0 (0)	- (-)
stomach	gas		7 (78)	- (-)
small intes	gas		7 (78)	- (-)
large intes	gas		7 (78)	- (-)

(HPT080)

BAIS 3

APPENDIX A 6-7

GROSS FINDINGS (TWO-WEEK STUDY: SUMMARY)

MOUSE: MALE : DEAD AND MORIBUND ANIMALS

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

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

PAGE : 1

Organ	Findings	Group Name	Control	6.3 ppm	12.5 ppm	25 ppm
		NO. of Animals	0 (%)	0 (%)	0 (%)	0 (%)
lung	red		- (-)	- (-)	- (-)	- (-)
	red zone		- (-)	- (-)	- (-)	- (-)
stomach	gas		- (-)	- (-)	- (-)	- (-)
small intes	gas		- (-)	- (-)	- (-)	- (-)
large intes	gas		- (-)	- (-)	- (-)	- (-)
thoracic ca	pleural fluid		- (-)	- (-)	- (-)	- (-)

(HPT080)

BAIS 3

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

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

PAGE : 2

Organ	Findings	Group Name		50 ppm		100 ppm	
		NO. of Animals		6	(%)	10	(%)
lung	red			2	(33)	6	(60)
	red zone			0	(0)	3	(30)
stomach	gas			5	(83)	7	(70)
small intes	gas			5	(83)	7	(70)
large intes	gas			3	(50)	1	(10)
thoracic ca	pleural fluid			0	(0)	4	(40)

(HPT080)

BATS3

APPENDIX A 6-8

GROSS FINDINGS (TWO-WEEK STUDY: SUMMARY)

MOUSE: FEMALE : DEAD AND MORIBUND ANIMALS

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 3

Organ_____	Findings_____	Group Name NO. of Animals	Control	6.3 ppm	12.5 ppm	25 ppm
			0 (%)	0 (%)	0 (%)	0 (%)
lung	red		- (-)	- (-)	- (-)	- (-)
	red zone		- (-)	- (-)	- (-)	- (-)
stomach	gas		- (-)	- (-)	- (-)	- (-)
small intes	gas		- (-)	- (-)	- (-)	- (-)
large intes	gas		- (-)	- (-)	- (-)	- (-)

(HPT080)

BAIS3

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 4

Organ	Findings	Group Name NO. of Animals	50 ppm	100 ppm
			1 (%)	10 (%)
lung	red		0 (0)	3 (30)
	red zone		1 (100)	5 (50)
stomach	gas		0 (0)	8 (80)
small intes	gas		1 (100)	8 (80)
large intes	gas		1 (100)	6 (60)

(HPT080)

BAIS 3

APPENDIX A 7-1

ORGAN WEIGHT (TWO-WEEK STUDY: SUMMARY),ABSOLUTE

RAT : MALE

STUDY NO. : 0286
 ANIMAL : RAT F344
 REPORT TYPE : A1
 SEX : MALE
 UNIT: g

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

PAGE : 1

Group Name	NO. of Animals	Body Weight		THYMUS		ADRENALS		TESTES		HEART		LUNGS	
Control	5	135±	8	0.269±	0.043	0.042±	0.013	1.806±	0.342	0.587±	0.064	0.663±	0.072
6.3 ppm	5	137±	9	0.262±	0.029	0.039±	0.005	1.956±	0.161	0.559±	0.048	0.683±	0.059
12.5 ppm	5	135±	8	0.257±	0.037	0.047±	0.010	2.037±	0.151	0.568±	0.054	0.698±	0.054
25 ppm	5	114±	2**	0.206±	0.017*	0.041±	0.005	1.684±	0.163	0.506±	0.015*	0.654±	0.059
50 ppm	4	87±	8**	0.071±	0.024**	0.046±	0.005	1.279±	0.462*	0.467±	0.040**	0.651±	0.079
100 ppm	0	-		-		-		-		-		-	

Significant difference ; * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

(HCL040)

BAIS 3

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE
UNIT: g

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

PAGE : 2

Group Name	NO. of Animals	KIDNEYS		SPLEEN		LIVER		BRAIN	
Control	5	1.102±	0.071	0.291±	0.049	4.246±	0.352	1.658±	0.067
6.3 ppm	5	1.118±	0.086	0.288±	0.025	4.230±	0.351	1.654±	0.032
12.5 ppm	5	1.142±	0.083	0.307±	0.029	4.238±	0.381	1.694±	0.028
25 ppm	5	1.019±	0.015	0.244±	0.024	3.401±	0.146**	1.665±	0.031
50 ppm	4	0.928±	0.005*	0.171±	0.029**	2.932±	0.177**	1.590±	0.056
100 ppm	0	-		-		-		-	

Significant difference ; * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

(HCL040)

BAIS3

APPENDIX A 7-2

ORGAN WEIGHT (TWO-WEEK STUDY: SUMMARY),ABSOLUTE

RAT : FEMALE

STUDY NO. : 0286
 ANIMAL : RAT F344
 REPORT TYPE : A1
 SEX : FEMALE
 UNIT: g

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

PAGE : 3

Group Name	NO. of Animals	Body Weight		THYMUS		ADRENALS		OVARIES		HEART		LUNGS	
Control	5	105±	3	0.230±	0.027	0.049±	0.009	0.066±	0.015	0.465±	0.014	0.586±	0.048
6.3 ppm	5	102±	4	0.234±	0.028	0.051±	0.007	0.069±	0.016	0.466±	0.037	0.579±	0.053
12.5 ppm	5	103±	3	0.256±	0.018	0.055±	0.014	0.072±	0.019	0.450±	0.026	0.608±	0.069
25 ppm	5	95±	5**	0.193±	0.022	0.052±	0.015	0.068±	0.013	0.457±	0.019	0.600±	0.053
50 ppm	5	75±	3**	0.082±	0.022**	0.050±	0.008	0.051±	0.013	0.430±	0.028	0.587±	0.067
100 ppm	0	-		-		-		-		-		-	

Significant difference : * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

(HCL040)

BAIS3

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

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

PAGE : 4

Group Name	NO. of Animals	KIDNEYS		SPLEEN		LIVER		BRAIN	
Control	5	0.928±	0.043	0.248±	0.028	3.200±	0.160	1.602±	0.061
6.3 ppm	5	0.917±	0.054	0.240±	0.036	3.157±	0.171	1.590±	0.071
12.5 ppm	5	0.933±	0.046	0.246±	0.039	3.230±	0.157	1.588±	0.073
25 ppm	5	0.908±	0.054	0.224±	0.035	2.942±	0.229	1.573±	0.052
50 ppm	5	0.852±	0.049	0.169±	0.033**	2.655±	0.133**	1.439±	0.214
100 ppm	0	-		-		-		-	

Significant difference ; * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

(HCL040)

BAIS3

APPENDIX A 7-3

ORGAN WEIGHT (TWO-WEEK STUDY: SUMMARY),ABSOLUTE

MOUSE : MALE

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 REPORT TYPE : A1
 SEX : MALE
 UNIT: g

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

PAGE : 1

Group Name	NO. of Animals	Body Weight	THYMUS	ADRENALS	TESTES	HEART	LUNGS
Control	5	20.9± 0.8	0.040± 0.007	0.007± 0.002	0.176± 0.023	0.117± 0.006	0.132± 0.012
6.3 ppm	5	20.6± 1.5	0.035± 0.004	0.008± 0.003	0.187± 0.008	0.114± 0.011	0.132± 0.010
12.5 ppm	5	19.0± 0.5*	0.027± 0.007**	0.008± 0.001	0.182± 0.016	0.107± 0.008	0.140± 0.006
25 ppm	5	18.1± 0.6**	0.017± 0.002**	0.008± 0.002	0.169± 0.012	0.100± 0.008*	0.141± 0.016
50 ppm	2	12.8± 0.3 ?	0.005± 0.001 ?	0.007± 0.001 ?	0.120± 0.001 ?	0.095± 0.025 ?	0.149± 0.023 ?
100 ppm	0	-	-	-	-	-	-

Significant difference ; * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

? : Significant test is not applied,because No. of data in this group is less than 3.

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 REPORT TYPE : A1
 SEX : MALE
 UNIT: g

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

PAGE : 2

Group Name	NO. of Animals	KIDNEYS		SPLEEN		LIVER		BRAIN	
Control	5	0.327±	0.017	0.038±	0.006	0.891±	0.037	0.431±	0.017
6.3 ppm	5	0.328±	0.024	0.037±	0.010	0.851±	0.059	0.424±	0.019
12.5 ppm	5	0.299±	0.022	0.033±	0.006	0.766±	0.041**	0.438±	0.017
25 ppm	5	0.280±	0.025**	0.030±	0.003	0.695±	0.044**	0.424±	0.015
50 ppm	2	0.247±	0.013 ?	0.012±	0.002 ?	0.471±	0.003 ?	0.409±	0.003 ?
100 ppm	0	-		-		-		-	

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

? : Significant test is not applied,because No. of data in this group is less than 3.

APENDIX A 7-4

ORGAN WEIGHT (TWO-WEEK STUDY: SUMMARY),ABSOLUTE

MOUSE : FEMALE

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 REPORT TYPE : A1
 SEX : FEMALE
 UNIT: g

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

PAGE : 3

Group Name	NO. of Animals	Body Weight	THYMUS	ADRENALS	OVARIES	HEART	LUNGS
Control	5	17.7± 0.9	0.060± 0.007	0.010± 0.002	0.015± 0.006	0.106± 0.005	0.136± 0.010
6.3 ppm	5	17.0± 0.6	0.056± 0.010	0.010± 0.003	0.017± 0.003	0.101± 0.005	0.129± 0.020
12.5 ppm	5	15.7± 0.4**	0.043± 0.009**	0.008± 0.001	0.014± 0.003	0.093± 0.007	0.127± 0.005
25 ppm	5	15.3± 0.6**	0.020± 0.003**	0.009± 0.002	0.015± 0.005	0.084± 0.001**	0.128± 0.012
50 ppm	2	11.6± 0.0 ?	0.005± 0.001 ?	0.006± 0.001 ?	0.007± 0.001 ?	0.073± 0.004 ?	0.118± 0.006 ?
100 ppm	0	-	-	-	-	-	-

Significant difference ; * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

? : Significant test is not applied,because No. of data in this group is less than 3.

(HCL040)

BAIS3

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 REPORT TYPE : A1
 SEX : FEMALE
 UNIT: g

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

PAGE : 4

Group Name	NO. of Animals	KIDNEYS		SPLEEN		LIVER		BRAIN	
Control	5	0.242±	0.013	0.045±	0.010	0.786±	0.070	0.439±	0.010
6.3 ppm	5	0.236±	0.006	0.043±	0.006	0.751±	0.045	0.436±	0.015
12.5 ppm	5	0.225±	0.009	0.035±	0.002	0.653±	0.017	0.426±	0.017
25 ppm	5	0.212±	0.013**	0.029±	0.002**	0.615±	0.023**	0.417±	0.011
50 ppm	2	0.210±	0.009 ?	0.013±	0.001 ?	0.405±	0.001 ?	0.406±	0.028 ?
100 ppm	0	-		-		-		-	

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

? : Significant test is not applied,because No. of data in this group is less than 3.

APPENDIX A 8-1

ORGAN WEIGHT (TWO-WEEK STUDY: SUMMARY),RELATIVE

RAT : MALE

STUDY NO. : 0286
 ANIMAL : RAT F344
 REPORT TYPE : A1
 SEX : MALE
 UNIT: %

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

PAGE : 1

Group Name	NO. of Animals	Body Weight (g)	THYMUS	ADRENALS	TESTES	HEART	LUNGS
Control	5	135± 8	0.199± 0.023	0.031± 0.007	1.330± 0.183	0.434± 0.030	0.491± 0.039
6.3 ppm	5	137± 9	0.192± 0.028	0.028± 0.005	1.422± 0.047	0.407± 0.016	0.497± 0.024
12.5 ppm	5	135± 8	0.189± 0.018	0.035± 0.008	1.504± 0.038	0.419± 0.028	0.515± 0.023
25 ppm	5	114± 2**	0.181± 0.017	0.037± 0.004	1.482± 0.146	0.446± 0.007	0.576± 0.060
50 ppm	4	87± 8**	0.080± 0.021**	0.053± 0.007**	1.452± 0.415	0.539± 0.027**	0.760± 0.142**
100 ppm	0	-	-	-	-	-	-

Significant difference ; * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

(HCL042)

BAIS3

STUDY NO. : 0286
 ANIMAL : RAT F344
 REPORT TYPE : A1
 SEX : MALE
 UNIT: %

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

PAGE : 2

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	5	0.816± 0.012	0.214± 0.023	3.143± 0.100	1.230± 0.034
6.3 ppm	5	0.814± 0.036	0.210± 0.017	3.077± 0.137	1.207± 0.066
12.5 ppm	5	0.844± 0.031	0.227± 0.010	3.126± 0.104	1.254± 0.066
25 ppm	5	0.897± 0.022*	0.215± 0.023	2.993± 0.106	1.466± 0.046**
50 ppm	4	1.075± 0.085**	0.196± 0.021	3.389± 0.192*	1.842± 0.159**
100 ppm	0	-	-	-	-

Significant difference ; * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

(HCL042)

BAIS3

APPENDIX A 8-2

ORGAN WEIGHT (TWO-WEEK STUDY: SUMMARY), RELATIVE

RAT : FEMALE

STUDY NO. : 0286
 ANIMAL : RAT F344
 REPORT TYPE : A1
 SEX : FEMALE
 UNIT: %

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

PAGE : 3

Group Name	NO. of Animals	Body Weight (g)	THYMUS	ADRENALS	OVARIES	HEART	LUNGS
Control	5	105± 3	0.219± 0.026	0.046± 0.010	0.063± 0.016	0.443± 0.012	0.559± 0.060
6.3 ppm	5	102± 4	0.228± 0.022	0.049± 0.007	0.067± 0.014	0.455± 0.027	0.565± 0.037
12.5 ppm	5	103± 3	0.249± 0.013	0.053± 0.013	0.070± 0.018	0.437± 0.020	0.589± 0.055
25 ppm	5	95± 5**	0.205± 0.030	0.054± 0.014	0.072± 0.011	0.485± 0.031*	0.634± 0.044
50 ppm	5	75± 3**	0.109± 0.028**	0.066± 0.011	0.068± 0.017	0.570± 0.022**	0.779± 0.088**
100 ppm	0	-	-	-	-	-	-

Significant difference ; * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

(HCL042)

BAIS3

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

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

PAGE : 4

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	5	0.884± 0.031	0.237± 0.027	3.048± 0.126	1.526± 0.037
6.3 ppm	5	0.895± 0.025	0.234± 0.029	3.082± 0.075	1.553± 0.054
12.5 ppm	5	0.906± 0.034	0.238± 0.032	3.136± 0.127	1.542± 0.072
25 ppm	5	0.960± 0.029**	0.236± 0.035	3.107± 0.113	1.664± 0.051
50 ppm	5	1.130± 0.051**	0.224± 0.042	3.524± 0.208**	1.911± 0.293
100 ppm	0	-	-	-	-

Significant difference : * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

(HCL042)

BAIS3

APPENDIX A 8-3

ORGAN WEIGHT (TWO-WEEK STUDY: SUMMARY), RELATIVE

MOUSE : MALE

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: %

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

PAGE : 1

Group Name	NO. of Animals	Body Weight (g)	THYMUS	ADRENALS	TESTES	HEART	LUNGS
Control	5	20.9± 0.8	0.193± 0.028	0.035± 0.007	0.844± 0.106	0.561± 0.046	0.635± 0.051
6.3 ppm	5	20.6± 1.5	0.168± 0.009	0.041± 0.018	0.930± 0.080	0.555± 0.051	0.644± 0.054
12.5 ppm	5	19.0± 0.5*	0.144± 0.037	0.041± 0.007	0.956± 0.093	0.561± 0.039	0.738± 0.035*
25 ppm	5	18.1± 0.6**	0.095± 0.011**	0.044± 0.012	0.936± 0.070	0.555± 0.037	0.779± 0.071**
50 ppm	2	12.8± 0.3 ?	0.036± 0.006 ?	0.051± 0.004 ?	0.938± 0.032 ?	0.745± 0.216 ?	1.167± 0.203 ?
100 ppm	0	-	-	-	-	-	-

Significant difference ; * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

? : Significant test is not applied,because No. of data in this group is less than 3.

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 REPORT TYPE : A1
 SEX : MALE
 UNIT: %

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

PAGE : 2

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	5	1.569± 0.057	0.184± 0.025	4.278± 0.236	2.067± 0.113
6.3 ppm	5	1.602± 0.174	0.177± 0.039	4.148± 0.339	2.066± 0.084
12.5 ppm	5	1.572± 0.115	0.175± 0.027	4.024± 0.137	2.301± 0.091**
25 ppm	5	1.550± 0.124	0.164± 0.017	3.849± 0.206	2.350± 0.091**
50 ppm	2	1.928± 0.148 ?	0.090± 0.015 ?	3.681± 0.103 ?	3.186± 0.048 ?
100 ppm	0	-	-	-	-

Significant difference ; * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

? : Significant test is not applied,because No. of data in this group is less than 3.

APENDIX A 8-4

ORGAN WEIGHT (TWO-WEEK STUDY: SUMMARY), RELATIVE

MOUSE : FEMALE

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 REPORT TYPE : A1
 SEX : FEMALE
 UNIT: %

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

PAGE : 3

Group Name	NO. of Animals	Body Weight (g)	THYMUS	ADRENALS	OVARIES	HEART	LUNGS
Control	5	17.7± 0.9	0.339± 0.038	0.056± 0.007	0.085± 0.033	0.598± 0.046	0.767± 0.034
6.3 ppm	5	17.0± 0.6	0.329± 0.054	0.056± 0.016	0.103± 0.021	0.592± 0.020	0.759± 0.114
12.5 ppm	5	15.7± 0.4**	0.272± 0.060	0.053± 0.010	0.089± 0.019	0.595± 0.055	0.808± 0.023
25 ppm	5	15.3± 0.6**	0.129± 0.019**	0.062± 0.017	0.099± 0.030	0.551± 0.017	0.836± 0.075
50 ppm	2	11.6± 0.0 ?	0.039± 0.006 ?	0.048± 0.006 ?	0.061± 0.012 ?	0.625± 0.031 ?	1.018± 0.049 ?
100 ppm	0	-	-	-	-	-	-

Significant difference ; * : $P \leq 0.05$ ** : $P \leq 0.01$

Test of Dunnett

? : Significant test is not applied,because No. of data in this group is less than 3.

(HCL042)

BAIS3

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

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

PAGE : 4

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	5	1.365± 0.044	0.254± 0.052	4.437± 0.199	2.484± 0.136
6.3 ppm	5	1.388± 0.031	0.253± 0.024	4.416± 0.123	2.568± 0.105
12.5 ppm	5	1.438± 0.053	0.222± 0.013	4.172± 0.100*	2.721± 0.074**
25 ppm	5	1.380± 0.052	0.188± 0.010*	4.007± 0.086**	2.720± 0.107**
50 ppm	2	1.806± 0.079 ?	0.108± 0.006 ?	3.492± 0.012 ?	3.496± 0.238 ?
100 ppm	0	-	-	-	-

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

? : Significant test is not applied,because No. of data in this group is less than 3.

(HCL042)

BAIS3

APPENDIX A 9-1

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS

(TWO-WEEK STUDY: SUMMARY)

RAT : MALE : SACRIFICED ANIMALS

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

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

PAGE : 1

Organ	Findings	Group Name No. of Animals on Study Grade	Control 2				6.3 ppm 2				12.5 ppm 2				25 ppm 2			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																		
nasal cavit			< 2>				< 2>				< 2>				< 2>			
	inflammatory infiltration		0	0	0	0	2	0	0	0	2	0	0	0	0	2	0	0
			(0)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(0)	(0)	(100)	(0)
	squamous cell metaplasia:respiratory epithelium		0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(50)	(50)	(0)	(0)	(100)	(0)	(0)	(0)
	atrophy:olfactory epithelium		0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(50)	(0)	(0)	(0)	(0)	(100)	(0)	(0)
	atrophy: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)
	necrosis:olfactory epithelium		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)	(50)	(0)	(0)	(0)
	necrosis:respiratory epithelium		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)	(100)	(0)	(0)	(0)
	hyperplasia:respiratory epithelium		0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(100)	(0)	(0)	(0)
nasopharynx			< 2>				< 2>				< 2>				< 2>			
	inflammatory infiltration		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)	(100)	(0)	(0)	(0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

(c) c : b / a * 100

STUDY NO. : 0286
 ANIMAL : RAT F344
 REPORT TYPE : A1
 SEX : MALE

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

PAGE : 2

Organ	Findings	Group Name No. of Animals on Study Grade	50 ppm				100 ppm			
			1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Respiratory system]

nasal cavit

		< 2>				< 0>			
inflammatory infiltration		0	0	2	0	-	-	-	-
		(0)	(0)	(100)	(0)	(-)	(-)	(-)	(-)
squamous cell metaplasia:respiratory epithelium		2	0	0	0	-	-	-	-
		(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
atrophy:olfactory epithelium		0	0	2	0	-	-	-	-
		(0)	(0)	(100)	(0)	(-)	(-)	(-)	(-)
atrophy:respiratory epithelium		2	0	0	0	-	-	-	-
		(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
necrosis:olfactory epithelium		1	1	0	0	-	-	-	-
		(50)	(50)	(0)	(0)	(-)	(-)	(-)	(-)
necrosis:respiratory epithelium		0	2	0	0	-	-	-	-
		(0)	(100)	(0)	(0)	(-)	(-)	(-)	(-)
hyperplasia:respiratory epithelium		2	0	0	0	-	-	-	-
		(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)

nasopharynx

		< 2>				< 0>			
inflammatory infiltration		1	1	0	0	-	-	-	-
		(50)	(50)	(0)	(0)	(-)	(-)	(-)	(-)

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

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

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

PAGE : 3

Organ	Findings	Control				6.3 ppm				12.5 ppm				25 ppm			
		No. of Animals on Study				2				2				2			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																	
nasopharynx		< 2>				< 2>				< 2>				< 2>			
	squamous cell metaplasia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	hyperplasia:epithelium	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)	(100)	(0)	(0)	(0)
	atrophy: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		< 2>				< 2>				< 2>				< 2>			
	inflammatory infiltration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	squamous cell hyperplasia	0	0	0	0	0	0	0	0	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		< 2>				< 2>				< 2>				< 2>			
	inflammatory infiltration	0	0	0	0	0	0	0	0	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 : Number of animals with lesion
(c) c : b / a * 100

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

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

PAGE : 4

Organ_____	Findings_____	Group Name No. of Animals on Study				50 ppm				100 ppm			
		Grade				2				0			
		1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)
[Respiratory system]													
nasopharynx		< 2>				< 0>							
	squamous cell metaplasia	2 (100)	0 (0)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	hyperplasia:epithelium	0 (0)	0 (0)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	atrophy:epithelium	0 (0)	1 (50)	1 (50)	0 (0)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
larynx		< 2>				< 0>							
	inflammatory infiltration	1 (50)	1 (50)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	squamous cell hyperplasia	2 (100)	0 (0)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	necrosis:epithelium	0 (0)	1 (50)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
trachea		< 2>				< 0>							
	inflammatory infiltration	1 (50)	1 (50)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)

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

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

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

PAGE : 5

Organ_____	Findings_____	Group Name	Control				6.3 ppm				12.5 ppm				25 ppm			
		No. of Animals on Study	2				2				2				2			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Respiratory system]																		
trachea		< 2>																
	squamous cell metaplasia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	hyperplasia:epithelium	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)	(0)	(100)	(0)	(0)	(0)	(0)
	atrophy: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)	(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)	(0)	(0)
	lung		< 2>															
edema		0	0	0	0	0	0	0	0	0	0	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 infiltration		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	hyperplasia:epithelium,bronchus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	dilatation:alveolus	0	0	0	0	0	0	0	0	0	0	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			

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. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

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

PAGE : 6

Organ_____	Findings_____	50 ppm				100 ppm				
		No. of Animals on Study				0				
		Grade	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]										
trachea			< 2>				< 0>			
	squamous cell metaplasia	2	0	0	0	-	-	-	-	
		(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	
	hyperplasia:epithelium	2	0	0	0	-	-	-	-	
		(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	
	atrophy:epithelium	0	1	1	0	-	-	-	-	
		(0)	(50)	(50)	(0)	(-)	(-)	(-)	(-)	
	necrosis:epithelium	0	1	0	0	-	-	-	-	
		(0)	(50)	(0)	(0)	(-)	(-)	(-)	(-)	
lung			< 2>				< 0>			
	edema	1	0	0	0	-	-	-	-	
		(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	
	inflammatory infiltration	1	0	0	0	-	-	-	-	
		(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	
	hyperplasia:epithelium,bronchus	2	0	0	0	-	-	-	-	
		(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	
	dilatation:alveolus	1	0	0	0	-	-	-	-	
		(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	

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

STUDY NO. : 0286
 ANIMAL : RAT F344
 REPORT TYPE : A1
 SEX : MALE

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

PAGE : 7

		Group Name	Control				6.3 ppm				12.5 ppm				25 ppm			
		No. of Animals on Study	2				2				2				2			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Organ	Findings		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Hematopoietic system]																		
thymus			< 2>				< 2>				< 2>				< 2>			
	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)
	karyorrhexis		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
[Digestive system]																		
Liver			< 2>				< 2>				< 2>				< 2>			
	herniation		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(50)	(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																	

(HPT150)

BAIS3

STUDY NO. : 0286
 ANIMAL : RAT F344
 REPORT TYPE : A1
 SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)
 SACRIFICED ANIMALS (30)

PAGE : 8

Organ	Findings	Group Name No. of Animals on Study Grade	50 ppm				100 ppm			
			2				0			
			1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Hematopoietic system]

thymus	atrophy	< 2>				< 0>			
		0	1	0	0	-	-	-	-
		(0)	(50)	(0)	(0)	(-)	(-)	(-)	(-)
	karyorrhexis	1	0	0	0	-	-	-	-
		(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)

[Digestive system]

liver	herniation	< 2>				< 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

(HPT150)

BAIS3

APPENDIX A 9-2

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS

(TWO-WEEK STUDY: SUMMARY)

RAT : FEMALE : SACRIFICED ANIMALS

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 9

Organ	Findings	Control				6.3 ppm				12.5 ppm				25 ppm			
		No. of Animals on Study				2				2				2			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																	
nasal cavity		< 2>				< 2>				< 2>				< 2>			
	inflammatory infiltration	0	0	0	0	1	0	0	0	2	0	0	0	0	2	0	0
		(0)	(0)	(0)	(0)	(50)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(0)	(0)	(100)	(0)
	squamous cell metaplasia:respiratory epithelium	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0
		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(100)	(0)	(0)	(0)
	atrophy:olfactory epithelium	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0
		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(50)	(0)	(0)	(0)	(0)	(100)	(0)	(0)
	atrophy: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)
	necrosis:olfactory 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: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)
	hyperplasia:respiratory epithelium	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0
		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(100)	(0)	(0)	(0)
nasopharynx		< 2>				< 2>				< 2>				< 2>			
	inflammatory infiltration	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)	(50)	(0)	(0)	(0)

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

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 10

		Group Name	50 ppm				100 ppm				
		No. of Animals on Study	2				0				
Organ_____	Findings_____	Grade	1	2	3	4	1	2	3	4	
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	
[Respiratory system]											
nasal cavity			< 2>				< 0>				
	inflammatory infiltration		0	0	2	0	-	-	-	-	
			(0)	(0)	(100)	(0)	(-)	(-)	(-)	(-)	
	squamous cell metaplasia:respiratory epithelium		2	0	0	0	-	-	-	-	
			(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	
	atrophy:olfactory epithelium		0	0	2	0	-	-	-	-	
			(0)	(0)	(100)	(0)	(-)	(-)	(-)	(-)	
	atrophy:respiratory epithelium		1	0	0	0	-	-	-	-	
			(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	
	necrosis:olfactory epithelium		1	1	0	0	-	-	-	-	
		(50)	(50)	(0)	(0)	(-)	(-)	(-)	(-)		
	necrosis:respiratory epithelium		0	2	0	0	-	-	-	-	
			(0)	(100)	(0)	(0)	(-)	(-)	(-)	(-)	
	hyperplasia:respiratory epithelium		1	0	0	0	-	-	-	-	
			(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	
	nasopharynx		< 2>				< 0>				
		inflammatory infiltration		2	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 : Number of animals with lesion
(c) c : b / a * 100

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 11

Organ	Findings	Group Name	Control				6.3 ppm				12.5 ppm				25 ppm			
		No. of Animals on Study	2				2				2				2			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																		
nasopharynx			< 2>				< 2>				< 2>				< 2>			
	squamous cell metaplasia		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)	(100)	(0)	(0)	(0)	(0)
	hyperplasia:epithelium		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)	(50)	(0)	(0)	(0)	(0)	(0)
	atrophy: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			< 2>				< 2>				< 2>				< 2>			
	inflammatory infiltration		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	squamous cell hyperplasia		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	atrophy: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			< 2>				< 2>				< 2>				< 2>			
	inflammatory infiltration		0	0	0	0	0	0	0	0	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 : Number of animals with lesion
(c) c : b / a * 100

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 12

		Group Name No. of Animals on Study				50 ppm				100 ppm				
		Grade				2				0				
Organ	Findings	1	2	3	4	1	2	3	4	1	2	3	4	
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	
[Respiratory system]														
nasopharynx		< 2>				< 0>								
	squamous cell metaplasia	2	0	0	0	-	-	-	-	-	-	-	-	
		(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	
	hyperplasia:epithelium	0	0	0	0	-	-	-	-	-	-	-	-	
		(0)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	
	atrophy:epithelium	0	0	2	0	-	-	-	-	-	-	-	-	
		(0)	(0)	(100)	(0)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	
	larynx		< 2>				< 0>							
		inflammatory infiltration	2	0	0	0	-	-	-	-	-	-	-	-
			(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
squamous cell hyperplasia		2	0	0	0	-	-	-	-	-	-	-	-	
		(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	
	atrophy:epithelium	1	0	0	0	-	-	-	-	-	-	-	-	
		(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	
	necrosis:epithelium	2	0	0	0	-	-	-	-	-	-	-	-	
		(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	
	trachea		< 2>				< 0>							
inflammatory infiltration		2	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 : Number of animals with lesion
(c) c : b / a * 100

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 13

Organ_____	Findings_____	Group Name	Control				6.3 ppm				12.5 ppm				25 ppm			
		No. of Animals on Study	2				2				2				2			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																		
trachea			< 2>				< 2>				< 2>				< 2>			
	squamous cell metaplasia		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	hyperplasia:epithelium		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)	(100)	(0)	(0)	(0)
	atrophy: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)	
lung			< 2>				< 2>				< 2>				< 2>			
	edema		0	0	0	0	0	0	0	0	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 infiltration		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	granulation		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	
	hyperplasia:epithelium,bronchus		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	
	dilatation:alveolus		0	0	0	0	0	0	0	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 : Number of animals with lesion
(c) c : b / a * 100

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 14

Organ_____	Findings_____	Group Name	50 ppm				100 ppm			
		No. of Animals on Study	2				0			
		Grade	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]										
trachea			< 2>				< 0>			
	squamous cell metaplasia	2	0	0	0	-	-	-	-	
		(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	
	hyperplasia:epithelium	2	0	0	0	-	-	-	-	
		(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	
	atrophy:epithelium	0	0	2	0	-	-	-	-	
		(0)	(0)	(100)	(0)	(-)	(-)	(-)	(-)	
lung			< 2>				< 0>			
	edema	1	0	0	0	-	-	-	-	
		(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	
	inflammatory infiltration	1	0	0	0	-	-	-	-	
		(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	
	granulation	1	0	0	0	-	-	-	-	
	(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)		
	hyperplasia:epithelium,bronchus	1	0	0	0	-	-	-	-	
		(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	
	dilatation:alveolus	1	0	0	0	-	-	-	-	
		(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	

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

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 15

Organ_____	Findings_____	Group Name	Control				6.3 ppm				12.5 ppm				25 ppm			
		No. of Animals on Study	2				2				2				2			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Hematopoietic system]																		
thymus																		
			< 2>				< 2>				< 2>				< 2>			
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)
karyorrhexis			0	0	0	0	0	0	0	0	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			

(HPT150)

BAIS3

STUDY NO. : 0286
 ANIMAL : RAT F344
 REPORT TYPE : A1
 SEX : FEMALE

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

PAGE : 16

Organ	Findings	Group Name		50 ppm				100 ppm			
		No. of Animals on Study		2				0			
		Grade		1	2	3	4	1	2	3	4
				(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Hematopoietic system]

thymus		< 2>				< 0>			
	atrophy	2	0	0	0	-	-	-	-
		(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
	karyorrhexis	1	0	0	0	-	-	-	-
		(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)

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

(HPT150)

BAIS3

APPENDIX A 9-3

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS

(TWO-WEEK STUDY: SUMMARY)

RAT: MALE : DEAD AND MORIBUND ANIMALS

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

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

PAGE : 1

		Group Name	Control				6.3 ppm				12.5 ppm				25 ppm			
		No. of Animals on Study	0				0				0				0			
Organ	Findings	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>			
	inflammatory infiltration		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	squamous cell metaplasia:respiratory epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	atrophy:olfactory epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	
atrophy:respiratory epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:olfactory epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
necrosis:respiratory epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	nasopharynx		< 0>				< 0>				< 0>				< 0>			
inflammatory infiltration		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
squamous cell metaplasia		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
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. : 0286
 ANIMAL : RAT F344
 REPORT TYPE : A1
 SEX : MALE

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

PAGE : 2

Organ	Findings	50 ppm				100 ppm			
		3				3			
		1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]									
nasal cavity		< 3>				< 3>			
	inflammatory infiltration	0	0	3	0	0	0	3	0
		(0)	(0)	(100)	(0)	(0)	(0)	(100)	(0)
	squamous cell metaplasia:respiratory epithelium	1	0	0	0	0	0	0	0
		(33)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	atrophy:olfactory epithelium	0	3	0	0	0	2	0	0
		(0)	(100)	(0)	(0)	(0)	(67)	(0)	(0)
	atrophy:respiratory epithelium	2	0	0	0	1	0	0	0
		(67)	(0)	(0)	(0)	(33)	(0)	(0)	(0)
	necrosis:olfactory epithelium	0	3	0	0	0	3	0	0
		(0)	(100)	(0)	(0)	(0)	(100)	(0)	(0)
	necrosis:respiratory epithelium	0	2	1	0	1	1	1	0
		(0)	(67)	(33)	(0)	(33)	(33)	(33)	(0)
nasopharynx		< 3>				< 3>			
	inflammatory infiltration	0	3	0	0	0	3	0	0
		(0)	(100)	(0)	(0)	(0)	(100)	(0)	(0)
	squamous cell metaplasia	1	0	0	0	0	0	0	0
		(33)	(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 : Number of animals with lesion
 (c) c : b / a * 100

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

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

PAGE : 3

Organ	Findings	Group Name	Control				6.3 ppm				12.5 ppm				25 ppm			
		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]																		
nasopharynx			< 0>				< 0>				< 0>				< 0>			
	atrophy:epithelium		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	necrosis:epithelium		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
larynx			< 0>				< 0>				< 0>				< 0>			
	inflammatory infiltration		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	squamous cell hyperplasia		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	necrosis:epithelium		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
trachea			< 0>				< 0>				< 0>				< 0>			
	inflammatory infiltration		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	squamous cell metaplasia		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
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. : 0286
 ANIMAL : RAT F344
 REPORT TYPE : A1
 SEX : MALE

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

PAGE : 4

Organ_____	Findings_____	50 ppm				100 ppm					
		No. of Animals on Study				No. of Animals on Study					
		Grade	1	2	3	4	Grade	1	2	3	4
		(%)	(%)	(%)	(%)		(%)	(%)	(%)	(%)	
[Respiratory system]											
nasopharynx		< 3>				< 3>					
	atrophy:epithelium	0	0	1	0	0	0	0	0		
		(0)	(0)	(33)	(0)	(0)	(0)	(0)	(0)		
	necrosis:epithelium	0	1	2	0	0	0	3	0		
		(0)	(33)	(67)	(0)	(0)	(0)	(100)	(0)		
larynx		< 3>				< 3>					
	inflammatory infiltration	0	0	3	0	1	0	2	0		
		(0)	(0)	(100)	(0)	(33)	(0)	(67)	(0)		
	squamous cell hyperplasia	1	0	0	0	0	0	0	0		
		(33)	(0)	(0)	(0)	(0)	(0)	(0)	(0)		
	necrosis:epithelium	0	0	3	0	0	0	3	0		
		(0)	(0)	(100)	(0)	(0)	(0)	(100)	(0)		
trachea		< 3>				< 3>					
	inflammatory infiltration	0	0	3	0	0	0	3	0		
		(0)	(0)	(100)	(0)	(0)	(0)	(100)	(0)		
	squamous cell metaplasia	1	0	0	0	0	0	0	0		
		(33)	(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

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

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

PAGE : 5

Organ_____	Findings_____	Group Name	Control				6.3 ppm				12.5 ppm				25 ppm			
		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]																		
trachea			< 0>				< 0>				< 0>				< 0>			
	atrophy:epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
lung			< 0>				< 0>				< 0>				< 0>			
	congestion		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	hemorrhage		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	edema		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	hyperplasia:epithelium,bronchus		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	
	necrosis:epithelium,bronchus		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	dilatation:alveolus		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)

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

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

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

PAGE : 6

		Group Name No. of Animals on Study Grade				50 ppm 3				100 ppm 3			
Organ_____	Findings_____	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]													
trachea		< 3>				< 3>							
	atrophy:epithelium	1	0	0	0	0	0	0	0	0	0	0	0
		(33)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	necrosis:epithelium	0	0	2	1	0	0	0	3	0	0	0	3
		(0)	(0)	(67)	(33)	(0)	(0)	(0)	(0)	(0)	(0)	(100)	(100)
lung		< 3>				< 3>							
	congestion	0	3	0	0	1	2	0	0	1	2	0	0
		(0)	(100)	(0)	(0)	(33)	(67)	(0)	(0)	(33)	(67)	(0)	(0)
	hemorrhage	0	0	0	0	1	0	0	0	1	0	0	0
		(0)	(0)	(0)	(0)	(33)	(0)	(0)	(0)	(33)	(0)	(0)	(0)
	edema	2	0	0	0	3	0	0	0	3	0	0	0
		(67)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(100)	(0)	(0)	(0)
	hyperplasia:epithelium,bronchus	1	0	0	0	0	0	0	0	0	0	0	0
		(33)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	necrosis:epithelium,bronchus	0	1	0	0	0	3	0	0	0	3	0	0
		(0)	(33)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(100)	(0)	(0)
	dilatation:alveolus	1	0	0	0	1	0	0	0	1	0	0	0
		(33)	(0)	(0)	(0)	(33)	(0)	(0)	(0)	(33)	(0)	(0)	(0)

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

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

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

PAGE : 7

Organ_____	Findings_____	Group Name	Control				6.3 ppm				12.5 ppm				25 ppm			
		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	karyorrhexis		< 0>				< 0>				< 0>				< 0>			
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
[Digestive system]																		
liver	necrosis:focal		< 0>				< 0>				< 0>				< 0>			
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
[Special sense organs/appandage]																		
eye	degeneration:cornea		< 0>				< 0>				< 0>				< 0>			
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)

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

(HPT150)

BAIS3

STUDY NO. : 0286
 ANIMAL : RAT F344
 REPORT TYPE : A1
 SEX : MALE

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

PAGE : 8

Organ	Findings	Group Name		50 ppm				100 ppm			
		No. of Animals on Study		3				3			
		Grade		1	2	3	4	1	2	3	4
				(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Hematopoietic system]

thymus	karyorrhexis	< 2>				< 3>			
		0	1	1	0	0	0	3	0
		(0)	(50)	(50)	(0)	(0)	(0)	(100)	(0)

[Digestive system]

liver	necrosis:focal	< 2>				< 3>			
		1	0	0	0	2	0	0	0
		(50)	(0)	(0)	(0)	(67)	(0)	(0)	(0)

[Special sense organs/appandage]

eye	degeneration:cornea	< 3>				< 3>			
		1	0	0	0	3	0	0	0
		(33)	(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 : Number of animals with lesion
 (c) c : b / a * 100

(HPT150)

BAIS3

APENDIX A 9-4

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS

(TWO-WEEK STUDY: SUMMARY)

RAT: FEMALE : DEAD AND MORIBUND ANIMALS

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 9

		Group Name	Control				6.3 ppm				12.5 ppm				25 ppm			
		No. of Animals on Study	0				0				0				0			
Organ	Findings	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>			
	inflammatory infiltration		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	atrophy:olfactory epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	atrophy:respiratory epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:olfactory epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:respiratory epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
nasopharynx			< 0>				< 0>				< 0>				< 0>			
	inflammatory infiltration		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	atrophy:epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	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																	

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 10

Organ	Findings	Group Name No. of Animals on Study				50 ppm				100 ppm			
		Grade				1				3			
		1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]													
nasal cavity		< 1>				< 3>							
	inflammatory infiltration	0	0	1	0	0	0	3	0	0	0	3	0
		(0)	(0)	(100)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(100)	(0)
	atrophy:olfactory epithelium	0	1	0	0	3	0	0	0	0	0	0	0
		(0)	(100)	(0)	(0)	(100)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	atrophy:respiratory epithelium	1	0	0	0	0	0	0	0	0	0	0	0
		(100)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	necrosis:olfactory epithelium	0	1	0	0	0	3	0	0	0	3	0	0
		(0)	(100)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(100)	(0)	(0)
	necrosis:respiratory epithelium	0	0	1	0	0	0	3	0	0	0	3	0
		(0)	(0)	(100)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(100)	(0)
nasopharynx		< 1>				< 3>							
	inflammatory infiltration	0	1	0	0	0	3	0	0	0	3	0	0
		(0)	(100)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(100)	(0)	(0)
	atrophy:epithelium	0	1	0	0	0	0	0	0	0	0	0	0
		(0)	(100)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	necrosis:epithelium	0	1	0	0	0	1	2	0	0	33	67	0
		(0)	(100)	(0)	(0)	(0)	(33)	(67)	(0)	(0)	(33)	(67)	(0)

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

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 11

Organ	Findings	Group Name No. of Animals on Study Grade	Control 0				6.3 ppm 0				12.5 ppm 0				25 ppm 0			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																		
larynx			< 0>				< 0>				< 0>				< 0>			
	inflammatory infiltration		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
trachea			< 0>				< 0>				< 0>				< 0>			
	inflammatory infiltration		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	atrophy:epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
lung			< 0>				< 0>				< 0>				< 0>			
	congestion		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	hemorrhage		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)

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

STUDY NO. : 0286
 ANIMAL : RAT F344
 REPORT TYPE : A1
 SEX : FEMALE

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

PAGE : 12

Organ	Findings	Group Name No. of Animals on Study Grade				50 ppm				100 ppm			
		1				3				4			
		1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]													
Larynx		< 1>				< 3>							
	inflammatory infiltration	0	0	1	0	0	0	3	0	0	0	0	0
		(0)	(0)	(100)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(100)	(0)
	necrosis:epithelium	0	0	1	0	0	0	1	2	0	0	33	67
		(0)	(0)	(100)	(0)	(0)	(0)	(33)	(67)	(0)	(0)	(100)	(0)
trachea		< 1>				< 3>							
	inflammatory infiltration	0	0	1	0	0	3	0	0	0	0	0	0
		(0)	(0)	(100)	(0)	(0)	(100)	(0)	(0)	(0)	(0)	(100)	(0)
	atrophy:epithelium	0	1	0	0	0	0	0	0	0	0	0	0
		(0)	(100)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(100)	(0)
	necrosis:epithelium	0	0	1	0	0	0	0	3	0	0	0	100
		(0)	(0)	(100)	(0)	(0)	(0)	(0)	(100)	(0)	(0)	(100)	(0)
Lung		< 1>				< 3>							
	congestion	1	0	0	0	1	1	1	0	0	0	0	0
		(100)	(0)	(0)	(0)	(33)	(33)	(33)	(0)	(0)	(0)	(100)	(0)
	hemorrhage	0	1	0	0	2	0	0	0	0	0	0	0
		(0)	(100)	(0)	(0)	(67)	(0)	(0)	(0)	(0)	(0)	(100)	(0)

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

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 13

Organ	Findings	Group Name No. of Animals on Study Grade				Control 0				6.3 ppm 0				12.5 ppm 0				25 ppm 0			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																					
lung		< 0>				< 0>				< 0>				< 0>				< 0>			
	edema	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:epithelium,bronchus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	dilatation:alveolus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
[Hematopoietic system]																					
thymus		< 0>				< 0>				< 0>				< 0>				< 0>			
	karyorrhexis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
spleen		< 0>				< 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 : Number of animals with lesion
(c) c : b / a * 100

STUDY NO. : 0286
 ANIMAL : RAT F344
 REPORT TYPE : A1
 SEX : FEMALE

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

PAGE : 14

Organ	Findings	Group Name		50 ppm				100 ppm			
		No. of Animals on Study		1				3			
		Grade		1	2	3	4	1	2	3	4
				(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]											
Lung	edema			< 1>				< 3>			
				1	0	0	0	2	1	0	0
				(100)	(0)	(0)	(0)	(67)	(33)	(0)	(0)
	necrosis:epithelium,bronchus			1	0	0	0	0	3	0	0
				(100)	(0)	(0)	(0)	(0)	(100)	(0)	(0)
	dilatation:alveolus			0	0	0	0	3	0	0	0
				(0)	(0)	(0)	(0)	(100)	(0)	(0)	(0)
[Hematopoietic system]											
thymus	karyorrhexis			< 1>				< 3>			
				0	0	0	1	0	0	0	3
				(0)	(0)	(0)	(100)	(0)	(0)	(0)	(100)
spleen	atrophy			< 1>				< 3>			
				1	0	0	0	1	0	0	0
				(100)	(0)	(0)	(0)	(33)	(0)	(0)	(0)
	karyorrhexis			1	0	0	0	0	0	0	0
				(100)	(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

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 15

Organ_____	Findings_____	Group Name No. of Animals on Study				Control 0				6.3 ppm 0				12.5 ppm 0				25 ppm 0			
		Grade																			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)			

[Special sense organs/appandage]

eye		< 0>				< 0>				< 0>				< 0>			
	degeneration:cornea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)

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

(HPT150)

BAIS3

STUDY NO. : 0286
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 16

Organ_____	Findings_____	Group Name		50 ppm				100 ppm			
		No. of Animals on Study		1				3			
		Grade		1	2	3	4	1	2	3	4
				(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Special sense organs/appandage]

eye		< 1>				< 3>			
degeneration:cornea		1	0	0	0	0	0	0	0
		(100)	(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 : Number of animals with lesion
(c) c : b / a * 100

(HPT150)

BAIS3

APPENDIX A 9-5

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS

(TWO-WEEK STUDY: SUMMARY)

MOUSE: MALE : SACRIFICED ANIMALS

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

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

PAGE : 1

Organ	Findings	Group Name No. of Animals on Study Grade				Control 2				6.3 ppm 2				12.5 ppm 2				25 ppm 2			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																					
nasal cavity		< 2>				< 2>				< 2>				< 2>				< 2>			
	inflammatory infiltration	0	0	0	0	0	0	0	0	2	0	0	0	1	1	0	0	(50)	(50)	(0)	(0)
		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(50)	(50)	(0)	(0)				
	squamous cell metaplasia:respiratory epithelium	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	(100)	(0)	(0)	(0)
		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(100)	(0)	(0)	(0)				
	atrophy:olfactory epithelium	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	(0)	(100)	(0)	(0)
		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(0)	(0)	(100)	(0)				
	atrophy:respiratory epithelium	0	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0	(50)	(50)	(0)	(0)
		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(50)	(50)	(0)	(0)	(50)	(50)	(0)	(0)				
	necrosis:respiratory epithelium	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	(100)	(0)	(0)	(0)
		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(50)	(0)	(0)	(0)	(100)	(0)	(0)	(0)				
larynx		< 2>				< 2>				< 2>				< 2>				< 2>			
	inflammatory infiltration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	(0)	(0)	(0)	(0)
		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)				
	squamous cell metaplasia	0	0	0	0	0	0	0	0	0	0	0	0	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)	(0)	(0)	(0)	(0)				

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

STUDY NO. : 0287
ANIMAL : MOUSE B6F1
REPORT TYPE : A1
SEX : MALE

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

PAGE : 2

Organ	Findings	Group Name No. of Animals on Study				50 ppm				100 ppm			
		Grade				2				0			
		1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Respiratory system]

nasal cavity

< 2>					< 0>				
inflammatory infiltration	1	1	0	0	-	-	-	-	-
	(50)	(50)	(0)	(0)	(-)	(-)	(-)	(-)	(-)
squamous cell metaplasia:respiratory epithelium	1	0	0	0	-	-	-	-	-
	(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	(-)
atrophy:olfactory epithelium	0	2	0	0	-	-	-	-	-
	(0)	(100)	(0)	(0)	(-)	(-)	(-)	(-)	(-)
atrophy:respiratory epithelium	0	0	0	0	-	-	-	-	-
	(0)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	(-)
necrosis:respiratory epithelium	0	0	0	0	-	-	-	-	-
	(0)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	(-)

larynx

< 2>					< 0>				
inflammatory infiltration	2	0	0	0	-	-	-	-	-
	(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	(-)
squamous cell metaplasia	2	0	0	0	-	-	-	-	-
	(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)	(-)
necrosis:epithelium	2	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 : Number of animals with lesion
(c) c : b / a * 100

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 REPORT TYPE : A1
 SEX : MALE

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

PAGE : 3

Organ	Findings	Group Name No. of Animals on Study Grade	Control 2				6.3 ppm 2				12.5 ppm 2				25 ppm 2			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																		
trachea			< 2>				< 2>				< 2>				< 2>			
	inflammatory infiltration		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	atrophy: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)
lung			< 2>				< 2>				< 2>				< 2>			
	congestion		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	hemorrhage		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	hyperplasia:epithelium,bronchus		0	0	0	0	0	0	0	0	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,bronchus		0	0	0	0	0	0	0	0	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			< 2>				< 2>				< 2>				< 2>			
	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 : Number of animals with lesion
 (c) c : b / a * 100

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

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

PAGE : 4

		Group Name	50 ppm				100 ppm			
		No. of Animals on Study	2				0			
		Grade	1	2	3	4	1	2	3	4
Organ_____	Findings_____		($\frac{a}{b}$)	($\frac{a}{b}$)	($\frac{a}{b}$)	($\frac{a}{b}$)	($\frac{a}{b}$)	($\frac{a}{b}$)	($\frac{a}{b}$)	($\frac{a}{b}$)

[Respiratory system]

trachea	inflammatory infiltration	< 2>				< 0>			
		2	0	0	0	-	-	-	-
		(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
	atrophy:epithelium	0	0	2	0	-	-	-	-
		(0)	(0)	(100)	(0)	(-)	(-)	(-)	(-)
	necrosis:epithelium	2	0	0	0	-	-	-	-
		(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
lung	congestion	< 2>				< 0>			
		1	0	0	0	-	-	-	-
		(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
	hemorrhage	1	0	0	0	-	-	-	-
		(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
	hyperplasia:epithelium,bronchus	2	0	0	0	-	-	-	-
		(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
	necrosis:epithelium,bronchus	1	0	0	0	-	-	-	-
		(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)

[Hematopoietic system]

thymus	atrophy	< 1>				< 0>			
		0	1	0	0	-	-	-	-
		(0)	(100)	(0)	(0)	(-)	(-)	(-)	(-)

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

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 REPORT TYPE : A1
 SEX : MALE

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

PAGE : 5

		Group Name	Control				6.3 ppm				12.5 ppm				25 ppm			
		No. of Animals on Study	2				2				2				2			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Hematopoietic system]																		
spleen			< 2>				< 2>				< 2>				< 2>			
	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)
	deposit of melanin		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(50)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
[Circulatory system]																		
heart			< 2>				< 2>				< 2>				< 2>			
	necrosis		0	0	0	0	0	0	0	0	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																	

(HPT150)

BAIS3

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 REPORT TYPE : A1
 SEX : MALE

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

PAGE : 6

Organ	Findings	Group Name		50 ppm				100 ppm			
		No. of Animals on Study		2				0			
		Grade		1	2	3	4	1	2	3	4
				(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Hematopoietic system]

spleen	atrophy	< 2>				< 0>			
		2	0	0	0	-	-	-	-
		(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
	deposit of melanin	< 2>				< 0>			
		0	0	0	0	-	-	-	-
		(0)	(0)	(0)	(0)	(-)	(-)	(-)	(-)

[Circulatory system]

heart	necrosis	< 2>				< 0>			
		1	1	0	0	-	-	-	-
		(50)	(50)	(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

(HPT150)

BA1S3

APPENDIX A 9-6

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS

(TWO-WEEK STUDY: SUMMARY)

MOUSE: FEMALE : SACRIFICED ANIMALS

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 REPORT TYPE : A1
 SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)
 SACRIFICED ANIMALS (34)

PAGE : 7

Organ	Findings	Group Name	Control				6.3 ppm				12.5 ppm				25 ppm			
		No. of Animals on Study	2				2				2				2			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																		
nasal cavit			< 2>				< 2>				< 2>				< 2>			
	inflammatory infiltration		0	0	0	0	0	0	0	0	2	0	0	0	2	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	1	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(50)	(0)	(0)	(0)
larynx			< 2>				< 2>				< 2>				< 2>			
	inflammatory infiltration		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	squamous cell metaplasia		0	0	0	0	0	0	0	0	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			< 2>				< 2>				< 2>				< 2>			
	inflammatory infiltration		0	0	0	0	0	0	0	0	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																	

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 8

Organ	Findings	Group Name		50 ppm				100 ppm			
		No. of Animals on Study		2				0			
		Grade		1	2	3	4	1	2	3	4
				(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Respiratory system]

nasal cavit

		< 2>				< 0>			
inflammatory infiltration		0	1	0	0	-	-	-	-
		(0)	(50)	(0)	(0)	(-)	(-)	(-)	(-)
squamous cell metaplasia:respiratory epithelium		0	0	0	0	-	-	-	-
		(0)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
atrophy:olfactory epithelium		1	1	0	0	-	-	-	-
		(50)	(50)	(0)	(0)	(-)	(-)	(-)	(-)
atrophy:respiratory epithelium		0	1	0	0	-	-	-	-
		(0)	(50)	(0)	(0)	(-)	(-)	(-)	(-)

larynx

		< 2>				< 0>			
inflammatory infiltration		2	0	0	0	-	-	-	-
		(100)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
squamous cell metaplasia		1	0	0	0	-	-	-	-
		(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)

trachea

		< 2>				< 0>			
inflammatory infiltration		2	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

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 REPORT TYPE : A1
 SEX : FEMALE

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

PAGE : 9

Organ	Findings	Control				6.3 ppm				12.5 ppm				25 ppm			
		No. of Animals on Study				2				2				2			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																	
trachea		< 2>				< 2>				< 2>				< 2>			
	hyperplasia: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)
	atrophy: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)
[Hematopoietic system]																	
thymus		< 2>				< 2>				< 2>				< 2>			
	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		< 2>				< 2>				< 2>				< 2>			
	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)
	deposit of melanin	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		(50)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(50)	(0)	(0)	(0)

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

(HPT150)

BA1S3

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 REPORT TYPE : A1
 SEX : FEMALE

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

PAGE : 10

		Group Name	50 ppm				100 ppm			
		No. of Animals on Study	2				0			
Organ_____	Findings_____	Grade	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]										
trachea			< 2>				< 0>			
	hyperplasia:epithelium		1	0	0	0	-	-	-	-
			(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
	atrophy:epithelium		1	1	0	0	-	-	-	-
			(50)	(50)	(0)	(0)	(-)	(-)	(-)	(-)
	necrosis:epithelium		1	0	0	0	-	-	-	-
			(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
[Hematopoietic system]										
thymus			< 2>				< 0>			
	atrophy		0	2	0	0	-	-	-	-
			(0)	(100)	(0)	(0)	(-)	(-)	(-)	(-)
spleen			< 2>				< 0>			
	atrophy		1	0	0	0	-	-	-	-
			(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)
	deposit of melanin		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 : Number of animals with lesion
 (c) c : b / a * 100

(HPT150)

BAIS3

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 REPORT TYPE : A1
 SEX : FEMALE

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

PAGE : 11

Organ_____	Findings_____	Group Name				Control				6.3 ppm				12.5 ppm				25 ppm			
		No. of Animals on Study				2				2				2				2			
		Grade																			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)			

[Digestive system]

stomach		< 2>				< 2>				< 2>				< 2>			
	erosion:glandular stomach	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	

liver		< 2>				< 2>				< 2>				< 2>			
	necrosis:focal	0	0	0	0	0	0	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

(HPT150)

BAIS3

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 REPORT TYPE : A1
 SEX : FEMALE

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

PAGE : 12

		Group Name				50 ppm				100 ppm			
		No. of Animals on Study				2				0			
		Grade											
Organ	Findings	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Digestive system]

stomach	erosion:glandular stomach	< 2>				< 0>			
		1	0	0	0	-	-	-	-
		(50)	(0)	(0)	(0)	(-)	(-)	(-)	(-)

liver	necrosis:focal	< 2>				< 0>			
		1	1	0	0	-	-	-	-
		(50)	(50)	(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

(HPT150)

BAIS3

APPENDIX A 9-7

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS

(TWO-WEEK STUDY: SUMMARY)

MOUSE: MALE : DEAD AND MORIBUND ANIMALS

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

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

PAGE : 1

Organ	Findings	Group Name No. of Animals on Study Grade				Control 0				6.3 ppm 0				12.5 ppm 0				25 ppm 0			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																					
nasal cavit		< 0>				< 0>				< 0>				< 0>				< 0>			
	inflammatory infiltration	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	atrophy:olfactory epithelium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	atrophy:respiratory epithelium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:olfactory epithelium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:respiratory epithelium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
nasopharynx		< 0>				< 0>				< 0>				< 0>				< 0>			
	inflammatory infiltration	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:epithelium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
larynx		< 0>				< 0>				< 0>				< 0>				< 0>			
	inflammatory infiltration	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)

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

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

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

PAGE : 2

Organ	Findings	Group Name No. of Animals on Study				50 ppm				100 ppm			
		Grade				2				3			
		1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]													
nasal cavit													
		< 2>				< 3>							
	inflammatory infiltration	0	1	1	0	0	2	1	0	0	0	0	0
		(0)	(50)	(50)	(0)	(0)	(67)	(33)	(0)	(0)	(0)	(0)	(0)
	atrophy:olfactory epithelium	1	1	0	0	0	1	0	0	0	0	0	0
		(50)	(50)	(0)	(0)	(0)	(33)	(0)	(0)	(0)	(0)	(0)	(0)
	atrophy:respiratory epithelium	0	2	0	0	0	1	0	0	0	0	0	0
		(0)	(100)	(0)	(0)	(0)	(33)	(0)	(0)	(0)	(0)	(0)	(0)
	necrosis:olfactory epithelium	1	0	0	0	3	0	0	0	0	0	0	0
		(50)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	necrosis:respiratory epithelium	1	0	1	0	0	0	3	0	0	0	0	0
		(50)	(0)	(50)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(0)	(0)
nasopharynx													
		< 2>				< 3>							
	inflammatory infiltration	1	0	0	0	3	0	0	0	0	0	0	0
		(50)	(0)	(0)	(0)	(100)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	necrosis:epithelium	0	1	0	0	2	0	1	0	0	0	0	0
		(0)	(50)	(0)	(0)	(67)	(0)	(33)	(0)	(0)	(0)	(0)	(0)
larynx													
		< 2>				< 3>							
	inflammatory infiltration	2	0	0	0	1	0	2	0	0	0	0	0
		(100)	(0)	(0)	(0)	(33)	(0)	(67)	(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. : 0287
 ANIMAL : MOUSE BDF1
 REPORT TYPE : A1
 SEX : MALE

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

PAGE : 3

Organ	Findings	Group Name No. of Animals on Study Grade				Control 0				6.3 ppm 0				12.5 ppm 0				25 ppm 0			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																					
larynx		< 0>				< 0>				< 0>				< 0>				< 0>			
	squamous cell metaplasia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	atrophy:epithelium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:epithelium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
trachea		< 0>				< 0>				< 0>				< 0>				< 0>			
	inflammatory infiltration	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	atrophy:epithelium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:epithelium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
lung		< 0>				< 0>				< 0>				< 0>				< 0>			
	congestion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)

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

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 REPORT TYPE : A1
 SEX : MALE

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

PAGE : 4

		50 ppm				100 ppm			
		No. of Animals on Study				3			
		Grade				Grade			
Organ	Findings	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]									
larynx		< 2>				< 3>			
	squamous cell metaplasia	1	0	0	0	0	0	0	0
		(50)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	atrophy:epithelium	0	1	0	0	0	0	0	0
		(0)	(50)	(0)	(0)	(0)	(0)	(0)	(0)
	necrosis:epithelium	1	0	1	0	0	0	1	2
	(50)	(0)	(50)	(0)	(0)	(0)	(33)	(67)	
trachea		< 2>				< 3>			
	inflammatory infiltration	2	0	0	0	2	0	0	0
		(100)	(0)	(0)	(0)	(67)	(0)	(0)	(0)
	atrophy:epithelium	0	2	0	0	0	0	0	0
		(0)	(100)	(0)	(0)	(0)	(0)	(0)	(0)
	necrosis:epithelium	0	1	1	0	0	0	1	2
	(0)	(50)	(50)	(0)	(0)	(0)	(33)	(67)	
lung		< 2>				< 3>			
	congestion	1	1	0	0	1	2	0	0
		(50)	(50)	(0)	(0)	(33)	(67)	(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. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

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

PAGE : 5

Organ	Findings	Group Name No. of Animals on Study Grade				Control 0				6.3 ppm 0				12.5 ppm 0				25 ppm 0			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																					
lung	edema	< 0>				< 0>				< 0>				< 0>				< 0>			
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:epithelium,bronchus	< 0>				< 0>				< 0>				< 0>				< 0>			
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
[Hematopoietic system]																					
thymus	atrophy	< 0>				< 0>				< 0>				< 0>				< 0>			
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	karyorrhexis	< 0>				< 0>				< 0>				< 0>				< 0>			
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
spleen	atrophy	< 0>				< 0>				< 0>				< 0>				< 0>			
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	karyorrhexis	< 0>				< 0>				< 0>				< 0>				< 0>			
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)

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

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

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

PAGE : 6

		Group Name				50 ppm				100 ppm			
		No. of Animals on Study				2				3			
		Grade				1	2	3	4	1	2	3	4
Organ	Findings	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Respiratory system]

Lung	edema	< 2>				< 3>			
		2	0	0	0	3	0	0	0
		(100)	(0)	(0)	(0)	(100)	(0)	(0)	(0)
	necrosis:epithelium,bronchus								
		0	0	0	0	0	3	0	0
		(0)	(0)	(0)	(0)	(0)	(100)	(0)	(0)

[Hematopoietic system]

thymus	atrophy	< 1>				< 3>			
		1	0	0	0	0	0	1	0
		(100)	(0)	(0)	(0)	(0)	(0)	(33)	(0)
	karyorrhexis								
		0	0	0	0	0	0	0	2
		(0)	(0)	(0)	(0)	(0)	(0)	(0)	(67)
spleen	atrophy	< 2>				< 3>			
		0	1	0	0	0	1	0	0
		(0)	(50)	(0)	(0)	(0)	(33)	(0)	(0)
	karyorrhexis								
		0	0	0	0	2	0	0	0
		(0)	(0)	(0)	(0)	(67)	(0)	(0)	(0)

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

STUDY NO. : 0287
 ANIMAL : MOUSE B6F1
 REPORT TYPE : A1
 SEX : MALE

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

PAGE : 7

Organ	Findings	Group Name No. of Animals on Study				Control 0				6.3 ppm 0				12.5 ppm 0				25 ppm 0			
		Grade				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
						(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Digestive system]

liver		< 0>				< 0>				< 0>				< 0>			
	necrosis:focal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)

[Musculoskeletal system]

muscle		< 0>				< 0>				< 0>				< 0>			
	necrosis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)

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

(HPT150)

BAIS3

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 REPORT TYPE : A1
 SEX : MALE

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

PAGE : 8

Organ	Findings	Group Name		50 ppm				100 ppm			
		No. of Animals on Study		2				3			
		Grade		1	2	3	4	1	2	3	4
				(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Digestive system]

liver	necrosis:focal	< 2>				< 3>			
		0	0	0	0	1	0	0	0
		(0)	(0)	(0)	(0)	(33)	(0)	(0)	(0)

[Musculoskeletal system]

muscle	necrosis	< 2>				< 3>			
		1	0	0	0	0	0	0	0
		(50)	(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

(IPT150)

BAIS3

APPENDIX A 9-8

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS

(TWO-WEEK STUDY: SUMMARY)

MOUSE: FEMALE : DEAD AND MORIBUND ANIMALS

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 9

		Group Name	Control				6.3 ppm				12.5 ppm				25 ppm			
		No. of Animals on Study	0				0				0				0			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																		
nasal cavity			< 0>				< 0>				< 0>				< 0>			
	inflammatory infiltration		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	atrophy:olfactory epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	atrophy:respiratory epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:olfactory epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:respiratory epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
nasopharynx			< 0>				< 0>				< 0>				< 0>			
	inflammatory infiltration		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:epithelium		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
larynx			< 0>				< 0>				< 0>				< 0>			
	inflammatory infiltration		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)

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

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 10

		50 ppm				100 ppm			
		No. of Animals on Study				3			
		Grade				3			
Organ_____	Findings_____	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]									
nasal cavity		< 1>				< 3>			
	inflammatory infiltration	0	1	0	0	2	1	0	0
		(0)	(100)	(0)	(0)	(67)	(33)	(0)	(0)
	atrophy:olfactory epithelium	1	0	0	0	1	0	0	0
		(100)	(0)	(0)	(0)	(33)	(0)	(0)	(0)
	atrophy:respiratory epithelium	0	1	0	0	0	0	0	0
		(0)	(100)	(0)	(0)	(0)	(0)	(0)	(0)
	necrosis:olfactory epithelium	0	0	0	0	2	0	0	0
		(0)	(0)	(0)	(0)	(67)	(0)	(0)	(0)
	necrosis:respiratory epithelium	0	0	1	0	0	0	3	0
		(0)	(0)	(100)	(0)	(0)	(0)	(100)	(0)
nasopharynx		< 1>				< 3>			
	inflammatory infiltration	1	0	0	0	1	1	0	0
		(100)	(0)	(0)	(0)	(33)	(33)	(0)	(0)
	necrosis:epithelium	0	1	0	0	1	1	0	0
		(0)	(100)	(0)	(0)	(33)	(33)	(0)	(0)
larynx		< 1>				< 3>			
	inflammatory infiltration	0	1	0	0	1	0	2	0
		(0)	(100)	(0)	(0)	(33)	(0)	(67)	(0)

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

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 11

Organ	Findings	Control No. of Animals on Study Grade				6.3 ppm 0				12.5 ppm 0				25 ppm 0			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																	
Larynx		< 0>				< 0>				< 0>				< 0>			
	squamous cell metaplasia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:epithelium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
trachea		< 0>				< 0>				< 0>				< 0>			
	inflammatory infiltration	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	necrosis:epithelium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
lung		< 0>				< 0>				< 0>				< 0>			
	congestion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	hemorrhage	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	edema	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)

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

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 REPORT TYPE : A1
 SEX : FEMALE

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

PAGE : 12

Organ_____	Findings_____	Group Name	50 ppm				100 ppm			
		No. of Animals on Study	1				3			
		Grade	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]										
larynx			< 1>				< 3>			
	squamous cell metaplasia		0	0	0	0	1	0	0	0
			(0)	(0)	(0)	(0)	(33)	(0)	(0)	(0)
	necrosis:epithelium		0	0	1	0	0	0	2	0
			(0)	(0)	(100)	(0)	(0)	(0)	(67)	(0)
trachea			< 1>				< 3>			
	inflammatory infiltration		1	0	0	0	2	0	1	0
			(100)	(0)	(0)	(0)	(67)	(0)	(33)	(0)
	necrosis:epithelium		0	0	1	0	0	0	1	2
			(0)	(0)	(100)	(0)	(0)	(0)	(33)	(67)
lung			< 1>				< 3>			
	congestion		0	1	0	0	2	0	0	0
			(0)	(100)	(0)	(0)	(67)	(0)	(0)	(0)
	hemorrhage		0	0	0	0	0	1	0	0
			(0)	(0)	(0)	(0)	(0)	(33)	(0)	(0)
	edema		1	0	0	0	2	0	0	0
			(100)	(0)	(0)	(0)	(67)	(0)	(0)	(0)

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

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 REPORT TYPE : A1
 SEX : FEMALE

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

PAGE : 13

Organ	Findings	Group Name	Control				6.3 ppm				12,5 ppm				25 ppm			
		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	necrosis:epithelium,bronchus		< 0>				< 0>				< 0>				< 0>			
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
[Hematopoietic system]																		
thymus	atrophy		< 0>				< 0>				< 0>				< 0>			
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
	karyorrhexis		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
spleen	atrophy		< 0>				< 0>				< 0>				< 0>			
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
[Circulatory system]																		
heart	necrosis		< 0>				< 0>				< 0>				< 0>			
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)

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

STUDY NO. : 0287
 ANIMAL : MOUSE B6F1
 REPORT TYPE : A1
 SEX : FEMALE

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

PAGE : 14

		Group Name	50 ppm				100 ppm			
		No. of Animals on Study	1				3			
Organ	Findings	Grade	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]										
lung			< 1>				< 3>			
	necrosis:epithelium,bronchus		0	0	0	0	1	2	0	0
			(0)	(0)	(0)	(0)	(33)	(67)	(0)	(0)
[Hematopoietic system]										
thymus			< 1>				< 3>			
	atrophy		0	1	0	0	0	0	1	0
			(0)	(100)	(0)	(0)	(0)	(0)	(33)	(0)
	karyorrhexis		0	0	0	0	1	0	0	1
			(0)	(0)	(0)	(0)	(33)	(0)	(0)	(33)
spleen			< 1>				< 3>			
	atrophy		0	0	0	0	2	0	0	0
			(0)	(0)	(0)	(0)	(67)	(0)	(0)	(0)
[Circulatory system]										
heart			< 1>				< 3>			
	necrosis		0	0	0	0	1	0	0	0
			(0)	(0)	(0)	(0)	(33)	(0)	(0)	(0)

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

STUDY NO. : 0287
 ANIMAL : MOUSE BDF1
 REPORT TYPE : A1
 SEX : FEMALE

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

PAGE : 15

Organ	Findings	Group Name				Control				6.3 ppm				12.5 ppm				25 ppm			
		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				
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)			

[Digestive system]

Liver	necrosis:focal	< 0>				< 0>				< 0>				< 0>			
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)

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

(HPT150)

BAIS3

STUDY NO. : 0287
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

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

PAGE : 16

Organ	Findings	Group Name		50 ppm				100 ppm			
		No. of Animals on Study		1				3			
		Grade		1	2	3	4	1	2	3	4
				(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Digestive system]

Liver	necrosis: focal	< 1>				< 3>			
		0	0	0	0	0	1	0	0
		(0)	(0)	(0)	(0)	(0)	(33)	(0)	(0)

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

(HPT150)

BAIS3

APPENDIX A 10-1

IDENTITY OF CROTONALDEHYDE

(TWO-WEEK STUDY)

IDENTITY OF CROTONALDEHYDE(TWO-WEEK STUDIES)

Lot no. SKR5498

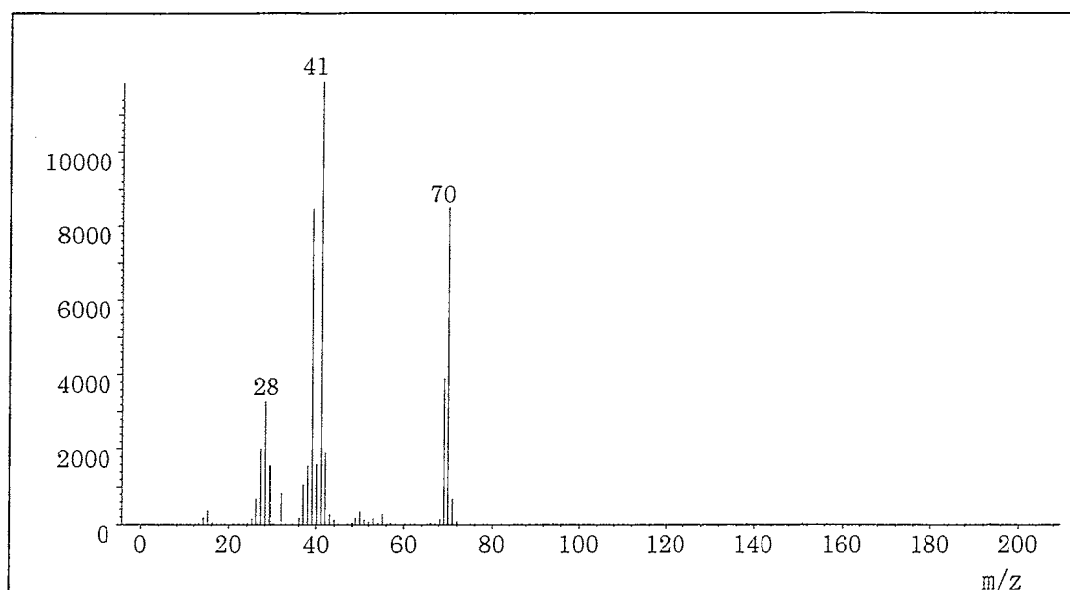
1. Spectral data

Mass Spectrometry

Instrument : HP 5989B Mass Spectrometer

Ionization : EI(Electron Ionization)

Ionization Voltage : 70eV



Mass Spectrum of Test Substance

Results: The mass spectrum was consistent with literature spectrum.

Determined Values

Molecular and Fragment Peak(M/Z)

28
41(Base Peak)
70

Literature Values*

Molecular and Fragment Peak(M/Z)

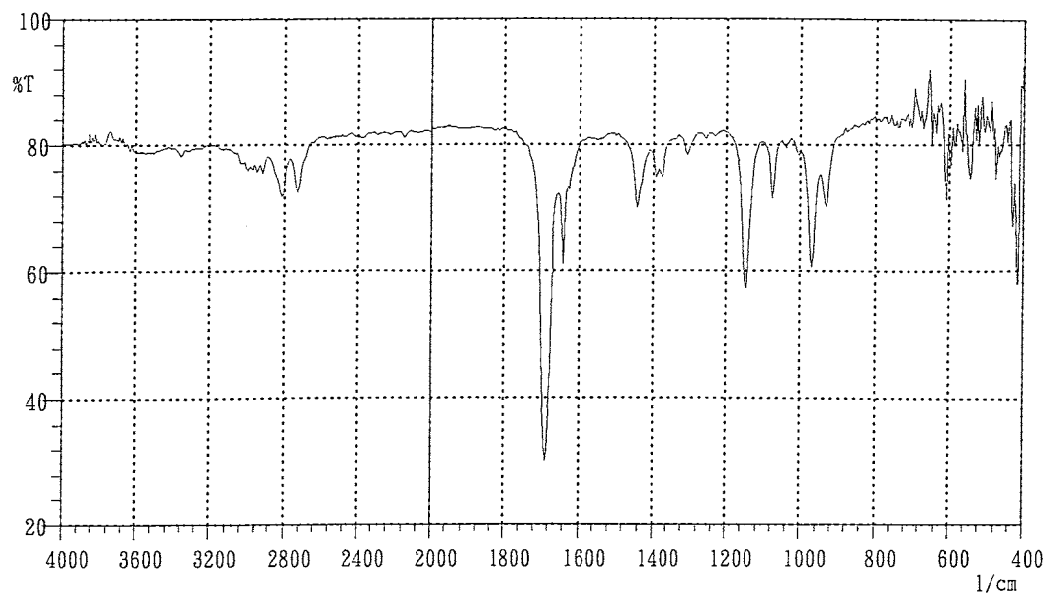
28
41(Base Peak)
70
(*EPA/NIH Mass Spectral
Data Base (1978) Vol. 1,
p. 16.)

Infrared Spectrometry

Instrument : SIMADZU FT-IR 8200PC Infrared Spectrometer

Cell : KBr

Resolution : 2nm



Infrared Spectrum of Test Substance

Results: The infrared spectrum was consistent with literature spectrum.

<u>Determined Values</u>	<u>Literature Values*</u>
Wave Number(cm^{-1})	Wave Number(cm^{-1})
910~950	910~950
950~1000	950~1000
1050~1100	1050~1100
1100~1200	1100~1200
1270~1330	1270~1330
1360~1410	1360~1410
1410~1460	1410~1460
1620~1660	1620~1660
1660~1730	1660~1730
2690~2770	2690~2770
2770~2880	2770~2880
2880~3100	2880~3100

(*Performed by the WAKO
PURE CHEMICAL INDUSTRIES,
LTD.)

2. Conclusions: The result of the mass spectrum and the infrared spectrum agreed with the literature values.
Consequently, the test substance was identified as Crotonaldehyde.

APPENDIX A 10-2

STABILITY OF CROTONALDEHYDE

(TWO-WEEK STUDY)

STABILITY OF CROTONALDEHYDE(TWO-WEEK STUDIES)

Lot no. SKR5498

1. Sample storage: This lot was used from 1995.3.15 to 1995.4.13. Test substance was stored at room temperature.

2. Gas Chromatography

Instrument: Hewlett Packard 5890A Gas Chromatograph

Column: FALM(2mm ϕ $\times$ 2m)

Column Temperature: 60°C~150°C step 10°C/min.

Flow Rate: 25 ml/min

Detector: FID(Flame Ionization Detector)

Injection Volume: 1 μ l

Results: Gas chromatography indicated one major peak(peak No.1) and two impurities(peak No.2,3 < 0.2% of total area) analyzed at 1995.3.7 and one major peak(peak No.1) and two impurities(peak No.2,3 < 0.2% of total area) analyzed at 1995.4.14. It was identified only by comparing its gas chromatograph with that of the Crotonic Acid(peak No.3) in the Crotonaldehyde, the amount in the test substance was 0.11% at 1995.3.7. No new trace impurity peak in the test substance analyzed at 1995.4.14 was detected.

Date	Peak No.	Retention Time(min)	Area Count
1995.03.07 (date analyzed)	1	2.241	9570000
	2	5.184	12400
	3	8.135	5420
1995.04.14 (date analyzed)	1	2.246	9650000
	2	5.185	11700
	3	8.132	6410

3. Conclusions: The results indicated that the test substance did not change when stored in the dark at room temperature during this period(for about 5 weeks).

APPENDIX A 11-1

CONCENTRATION OF CROTONALDEHYDE IN INHALATION OF THE
(TWO-WEEK STUDIES)

CONCENTRATION OF CROTONALDEHYDE

IN INHALTION CHAMBER

(RAT: TWO-WEEK STUDY)

Group Name	Concentration (ppm)		
	Mean	±	S.D.
Control	0.0	±	0.0
6.3ppm	6.3	±	0.1
12.5ppm	12.5	±	0.2
25 ppm	25.2	±	0.4
50 ppm	50.6	±	0.7
100 ppm	101.8	±	1.4

CONCENTRATION OF CROTONALDEHYDE

IN INHALTION CHAMBER

(MOUSE: TWO-WEEK STUDY)

Group Name	Concentration (ppm)		
	Mean	±	S.D.
Control	0.0	±	0.0
6.3ppm	6.3	±	0.1
12.5ppm	12.6	±	0.2
25 ppm	24.9	±	0.4
50 ppm	50.3	±	0.8
100 ppm	102.1	±	1.3

APPENDIX A 11-2

ENVIRONMENT OF INHALATION CHAMBER

(TWO-WEEK STUDIES)

ENVIRONMENT OF IN INHALTION CHAMBER (RAT:TWO-WEEK STUDY)

Group Name	Temperature(°C)			Humidity(%)			Ventilation Rate(L/min)			Room Air Change(time/h)	
	Mean	±	S.D.	Mean	±	S.D.	Mean	±	S.D.	Mean	
Control	22.7	±	0.1	55.6	±	0.7	211.9	±	1.2	12.0	
6.3ppm	22.5	±	0.2	55.1	±	0.8	211.4	±	1.9	12.0	
12.5ppm	22.2	±	0.1	53.0	±	1.0	211.7	±	0.9	12.0	
25 ppm	22.0	±	0.2	54.1	±	0.6	212.4	±	1.1	12.0	
50 ppm	21.8	±	0.3	53.6	±	0.6	212.9	±	1.0	12.1	
100 ppm	21.5	±	0.7	52.5	±	0.9	211.7	±	1.6	12.0	

ENVIRONMENT OF IN INHALTION CHAMBER (MOUSE:TWO-WEEK STUDY)

Group Name	Temperature(°C)			Humidity(%)			Ventilation Rate(L/min)			Room Air Change(time/h)	
	Mean	±	S.D.	Mean	±	S.D.	Mean	±	S.D.	Mean	
Control	21.8	±	0.1	55.0	±	0.4	105.3	±	0.8	12.2	
6.3ppm	21.7	±	0.1	53.8	±	0.3	105.0	±	0.7	12.1	
12.5ppm	21.2	±	0.1	56.7	±	0.6	104.6	±	0.5	12.1	
25 ppm	21.4	±	0.2	52.2	±	0.4	104.1	±	0.6	12.0	
50 ppm	21.5	±	0.3	52.2	±	0.4	105.3	±	0.6	12.2	
100 ppm	21.3	±	0.4	54.8	±	0.4	104.8	±	0.4	12.1	