ビフェニルのラット及びマウスを用いた
経口投与によるがん原性予備試験(混餌試験)報告書

APPENDIX

(B1-1～C2)
13 週間試験：ラット/0185；マウス/0186

APPENDIXES (CONTINUED)

APPENDIXES (CONTINUED)

APPENDIXES (CONTINUED)

APPENDIXES (CONTINUED)

APPENDIX B 1-1

CLINICAL OBSERVATION (THIRTEEN−WEEK STUDY: SUMMARY)

MOUSE: FEMALE

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1 13

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : FEMALE

Clinical sign	Group Name	Administration Week-day 1-7	2-7	3-7	4-7	5-7	6-7	7-7	8-7	9-7	10-7	11-7	12-7	13-7
		1	1	1	1	1	1	1	1	1	1	1	1	1
DEATH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0
	500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	4000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	8000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	16000 ppm	0	0	1	1	1	1	1	1	1	1	1	1	1
HUNCHBACK POSITION	Control	0	0	0	0	0	0	0	0	0	0	0	0	0
	500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	4000 ppm	0	0	0	0	0	0	0	1	0	0	0	0	0
	8000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	1	0	0	0	0	0	0	0	0	0	0
	16000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
PILOERECTION	Control	0	0	0	0	0	0	0	0	0	0	0	0	0
	500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	4000 ppm	0	0	0	0	0	0	0	1	0	0	0	0	0
	8000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	1	0	0	0	0	0	0	0	0	0	0
	16000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
IRREGULAR BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0
	500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	4000 ppm	0	0	0	0	0	0	0	1	0	0	0	0	0
	8000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	16000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
ABNORMAL RESPIRATION	Control	0	0	0	0	0	0	0	0	0	0	0	0	0
	500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	4000 ppm	0	0	0	0	0	0	0	1	0	0	0	0	0
	8000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	16000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1 13

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : FEMALE

Clinical sign	Group Name	Administration Week-day 1-7	2-7	3-7	4-7	5-7	6-7	7-7	8-7	9-7	10-7	11-7	12-7	13-7
		1	1	1	1	1	1	1	1	1	1	1	1	1
OLIGO-STOOL	Control	0	0	0	0	0	0	0	0	0	0	0	0	0
	500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	4000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	8000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	1	0	0	0	0	0	0	0	0	0	0
	16000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX B 2-1

BODY WEIGHT CHANGES (THIRTEEN−WEEK STUDY:SUMMARY)

RAT : MALE

STUDY NO. : 0185
ANIMAL : RAT F344
UNIT : g
REPORT TYPE : A1 13
SEX : MALE

BODY WEIGHT CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day 0-0	1-7	2-7	3-7	4-7	5-7	6-7
Control	125± 5	153± 8	182± 11	208± 14	227± 16	246± 18	264± 19
1000 ppm	125± 4	152± 6	181± 9	207± 12	227± 13	247± 14	265± 15
2000 ppm	125± 4	151± 7	180± 10	206± 10	224± 10	243± 12	259± 14
4000 ppm	125± 5	148± 7	175± 11	198± 13	218± 16	234± 18	249± 19
8000 ppm	125± 5	142± 4**	169± 6**	191± 7**	210± 8*	229± 6*	243± 7**
16000 ppm	125± 4	127± 4**	147± 6**	164± 10**	181± 13**	195± 14**	211± 14**

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

STUDY NO. : 0185
ANIMAL : RAT F344
UNIT : g
REPORT TYPE : A1 13
SEX : MALE

BODY WEIGHT CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day 7-7	8-7	9-7	10-7	11-7	12-7	13-7
Control	275± 22	287± 22	301± 25	313± 24	321± 24	328± 25	335± 26
1000 ppm	277± 17	289± 17	300± 17	313± 17	322± 17	331± 18	340± 20
2000 ppm	269± 17	282± 18	294± 19	303± 19	313± 20	319± 21	326± 22
4000 ppm	256± 19	270± 20	279± 20*	288± 21*	294± 20**	302± 20*	308± 20*
8000 ppm	247± 17**	262± 9**	274± 9**	285± 9**	291± 10**	298± 10**	304± 12**
16000 ppm	221± 14**	231± 14**	242± 12**	252± 13**	257± 13**	264± 14**	270± 13**

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

APPENDIX B 2-2

BODY WEIGHT CHANGES (THIRTEEN−WEEK STUDY: SUMMARY)

RAT : FEMALE

STUDY NO. : 0185
ANIMAL : RAT F344
UNIT : g
REPORT TYPE : A1 13
SEX : FEMALE

BODY WEIGHT CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day 0-0	1-7	2-7	3-7	4-7	5-7	6-7
Control	103± 4	118± 4	130± 4	141± 5	148± 6	157± 6	166± 7
1000 ppm	103± 4	117± 4	129± 5	138± 6	143± 6	151± 7	160± 8
2000 ppm	103± 4	117± 4	129± 4	137± 6	144± 6	152± 7	160± 7
4000 ppm	103± 4	113± 3**	125± 4*	132± 5**	140± 6*	148± 6*	156± 7**
8000 ppm	104± 4	110± 3**	122± 3**	130± 5**	137± 6**	144± 7**	151± 6**
16000 ppm	103± 4	103± 2**	115± 4**	123± 5**	130± 6**	137± 7**	143± 7**

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

STUDY NO. : 0185
ANIMAL : RAT F344
UNIT : g
REPORT TYPE : A1 13
SEX : FEMALE

BODY WEIGHT CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day 7-7	8-7	9-7	10-7	11-7	12-7	13-7
Control	169± 7	174± 9	180± 9	184± 10	188± 8	189± 9	192± 8
1000 ppm	162± 9	168± 7	174± 8	179± 8	183± 8	185± 9	187± 8
2000 ppm	162± 8	168± 7	173± 7	177± 7	182± 9	180± 12	189± 9
4000 ppm	157± 7**	162± 7**	167± 7**	172± 8**	175± 8**	172± 11**	179± 7**
8000 ppm	152± 6**	157± 7**	160± 7**	164± 7**	165± 7**	169± 8**	172± 8**
16000 ppm	147± 8**	150± 8**	154± 8**	158± 8**	160± 7**	163± 7**	166± 7**

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

APPENDIX B 2-3

BODY WEIGHT CHANGES (THIRTEEN−WEEK STUDY:SUMMARY)

MOSUE : MALE

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
UNIT : g
REPORT TYPE : A1 13
SEX : MALE

BODY WEIGHT CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day 0-0	1-7	2-7	3-7	4-7	5-7	6-7
Control	23.3± 0.7	23.9± 0.7	25.0± 1.2	25.9± 1.5	26.8± 1.2	27.6± 1.2	28.2± 1.0
500 ppm	23.3± 0.7	24.1± 0.6	25.6± 0.5	26.1± 0.5	27.2± 0.7	28.0± 0.9	28.4± 0.9
2000 ppm	23.3± 0.7	23.6± 0.9	25.2± 0.9	25.9± 1.0	26.7± 1.2	27.6± 1.4	28.0± 1.6
4000 ppm	23.3± 0.7	22.9± 0.8*	24.6± 0.8	25.2± 0.9	25.9± 0.8	26.6± 0.8	27.2± 0.9
8000 ppm	23.4± 0.7	22.8± 0.7*	21.7± 2.2**	22.7± 2.1**	23.8± 2.8*	24.4± 3.4*	24.8± 3.1**
10000 ppm	23.3± 0.7	23.2± 0.8	21.9± 2.0**	22.7± 1.1**	24.1± 1.2**	25.5± 1.0*	24.9± 1.7**
16000 ppm	23.3± 0.7	22.5± 1.7*	22.1± 0.5**	20.0± 0.7**	21.8± 1.0**	22.7± 1.0**	23.0± 0.8**

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

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
UNIT : g
REPORT TYPE : A1 13
SEX : MALE

BODY WEIGHT CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day 7-7	8-7	9-7	10-7	11-7	12-7	13-7
Control	28.2± 1.2	26.2± 1.6	29.0± 1.1	26.7± 1.2	30.2± 1.2	31.1± 1.6	32.5± 2.2
500 ppm	28.7± 1.2	25.4± 1.4	29.7± 1.1	26.6± 1.1	30.0± 1.1	30.9± 1.3	31.5± 1.6
2000 ppm	28.1± 1.7	25.5± 1.6	29.2± 1.8	25.8± 1.6	30.0± 2.0	30.8± 2.2	31.4± 2.3
4000 ppm	27.0± 0.6	24.0± 0.7*	27.8± 0.7	25.1± 1.3*	28.1± 0.8**	29.0± 0.7*	29.5± 0.7
8000 ppm	24.6± 3.0**	21.8± 2.4**	25.4± 2.1**	24.0± 1.4**	25.7± 1.6**	26.6± 2.2**	27.1± 2.2**
10000 ppm	24.1± 1.3**	22.1± 1.8**	25.7± 1.5**	23.5± 1.0**	27.6± 1.4**	27.0± 1.8**	27.6± 1.4**
16000 ppm	22.7± 1.2**	20.5± 1.5**	22.8± 1.5**	21.1± 1.3**	23.8± 1.2**	24.1± 1.4**	24.4± 1.4**

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

APPENDIX B 2-4

BODY WEIGHT CHANGES (THIRTEEN−WEEK STUDY: SUMMARY)

MOSUE: FEMALE

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
UNIT : g
REPORT TYPE : A1 13
SEX : FEMALE

BODY WEIGHT CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day 0-0	1-7	2-7	3-7	4-7	5-7	6-7
Control	18.8± 0.6	18.9± 0.8	19.7± 0.8	20.0± 0.9	20.7± 1.0	20.9± 1.0	21.9± 1.2
500 ppm	18.8± 0.6	19.0± 0.6	19.9± 0.8	20.1± 1.0	21.1± 0.9	21.3± 0.6	21.9± 1.1
2000 ppm	18.8± 0.6	18.7± 0.7	19.8± 0.8	19.6± 0.5	20.6± 0.7	20.9± 0.8	21.7± 0.8
4000 ppm	18.8± 0.6	18.5± 0.7	19.6± 0.7	19.6± 0.7	20.4± 0.7	20.5± 0.8	21.6± 0.6
8000 ppm	18.8± 0.5	18.7± 0.5	18.7± 0.8	19.6± 0.6	20.1± 0.6	20.4± 0.4	21.0± 0.5
10000 ppm	18.8± 0.5	18.3± 0.9	16.8± 1.0**	17.5± 2.5**	19.2± 0.8**	19.9± 1.3	18.8± 0.9**
16000 ppm	18.8± 0.5	18.1± 0.6	17.4± 1.3**	15.6± 1.1**	17.2± 1.0**	18.6± 1.0**	18.6± 1.0**

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

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
UNIT : g
REPORT TYPE : A1 13
SEX : FEMALE

BODY WEIGHT CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day 7-7	8-7	9-7	10-7	11-7	12-7	13-7
Control	22.0± 1.1	20.2± 0.8	22.9± 0.9	20.4± 1.2	23.5± 1.1	23.6± 1.1	23.9± 1.2
500 ppm	22.3± 0.9	18.0± 1.2**	23.7± 1.0	20.0± 1.0	23.5± 0.8	23.6± 1.0	24.2± 1.3
2000 ppm	22.4± 0.9	18.3± 1.2*	23.5± 0.8	20.6± 1.6	23.5± 1.0	23.4± 1.3	24.3± 1.1
4000 ppm	22.2± 0.6	18.8± 2.2	23.0± 0.8	19.7± 1.2	22.9± 0.6	22.9± 1.0	23.3± 0.9
8000 ppm	21.0± 0.8	18.2± 1.5*	22.1± 0.6	19.9± 0.9	22.1± 0.5**	22.3± 0.7*	22.4± 0.6**
10000 ppm	19.8± 1.1**	18.3± 1.6*	21.1± 1.2**	19.4± 1.1	21.5± 1.4**	21.1± 1.2**	21.9± 1.1**
16000 ppm	18.7± 0.9**	17.5± 1.0**	19.0± 1.3**	18.4± 0.9**	20.1± 0.8**	20.3± 0.8**	20.5± 0.8**

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

APPENDIX B 3-1

FOOD CONSUMPTION CHANGES (THIRTEEN−WEEK STUDY: SUMMARY)

RAT : MALE

STUDY NO. : 0185
ANIMAL : RAT F344
UNIT : g
REPORT TYPE : A1 13
SEX : MALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day(effective) 1-7(7)	2-7(7)	3-7(7)	4-7(7)	5-7(7)	6-7(7)	7-7(7)
Control	13.4± 0.8	14.4± 1.0	15.5± 1.4	15.4± 1.4	15.8± 1.3	15.4± 1.3	15.5± 1.8
1000 ppm	13.1± 0.6	14.4± 0.9	15.3± 1.2	15.3± 1.2	15.8± 1.0	15.6± 0.8	15.5± 0.9
2000 ppm	12.8± 0.6	14.1± 1.0	15.2± 1.1	15.1± 1.0	15.6± 1.1	15.2± 1.3	15.1± 2.1
4000 ppm	12.2± 0.8	13.9± 1.2	14.4± 1.4	14.3± 1.3	14.7± 1.6	14.3± 1.5	14.4± 1.5
8000 ppm	11.1± 1.6**	13.6± 0.6	14.3± 0.6	14.4± 0.9	14.6± 0.6	14.2± 0.6	14.3± 0.9
16000 ppm	8.6± 0.7**	12.3± 0.7**	12.6± 1.0**	12.7± 1.2**	12.7± 1.5**	12.8± 1.1**	12.9± 1.2**

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

STUDY NO. : 0185
ANIMAL : RAT F344
UNIT : g
REPORT TYPE : A1 13
SEX : MALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day(effective) 8-7(7)	9-7(7)	10-7(7)	11-7(7)	12-7(7)	13-7(7)
Control	15.6± 1.3	16.1± 1.7	15.9± 1.2	15.6± 1.1	15.1± 1.1	15.4± 1.0
1000 ppm	16.2± 1.1	15.9± 1.3	16.4± 1.2	15.7± 0.8	15.5± 0.9	15.7± 1.1
2000 ppm	15.9± 1.3	15.6± 1.1	14.5± 2.4	15.7± 1.6	15.2± 1.3	15.1± 1.4
4000 ppm	15.2± 1.5	15.0± 1.3	15.1± 1.3	14.6± 1.6	14.9± 1.5	14.7± 1.4
8000 ppm	14.9± 0.7	15.2± 0.6	15.5± 0.4	14.9± 0.7	15.1± 0.6	15.0± 0.7
16000 ppm	13.5± 1.0**	14.0± 0.9**	14.5± 1.0	13.8± 0.7**	14.1± 1.2	14.0± 1.0*

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

APPENDIX B 3-2

FOOD CONSUMPTION CHANGES (THIRTEEN−WEEK STUDY: SUMMARY)

RAT : FEMALE

STUDY NO. : 0185
ANIMAL : RAT F344
UNIT : g
REPORT TYPE : A1 13
SEX : FEMALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day(effective) 1-7(7)	2-7(7)	3-7(7)	4-7(7)	5-7(7)	6-7(7)	7-7(7)
Control	11.2± 0.6	11.3± 0.6	11.7± 0.6	11.1± 0.7	11.8± 0.9	10.9± 0.7	11.2± 0.8
1000 ppm	10.7± 0.6	11.1± 0.8	11.5± 0.8	10.4± 0.7	10.7± 0.7*	10.7± 0.8	10.6± 0.8
2000 ppm	12.7± 2.3	11.1± 0.5	11.1± 0.9	10.7± 0.7	11.3± 1.2	11.6± 2.9	11.4± 2.4
4000 ppm	9.9± 0.5	10.4± 0.4**	10.2± 0.5**	10.3± 0.5*	10.7± 0.5*	10.3± 1.0	10.2± 0.7
8000 ppm	9.7± 1.7*	10.1± 0.4**	10.0± 0.6**	10.0± 0.6**	10.0± 0.5**	9.9± 0.4*	9.7± 0.4**
16000 ppm	8.4± 2.5**	9.8± 0.5**	9.6± 0.4**	9.5± 0.6**	9.3± 0.7**	9.6± 1.2**	9.5± 1.0**

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

STUDY NO. : 0185
ANIMAL : RAT F344
UNIT : g
REPORT TYPE : A1 13
SEX : FEMALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day(effective) 8-7(7)	9-7(7)	10-7(7)	11-7(7)	12-7(7)	13-7(7)
Control	11.4± 0.6	11.5± 0.7	11.7± 1.0	11.8± 1.3	11.1± 0.8	11.5± 0.9
1000 ppm	11.2± 0.5	11.4± 0.6	11.3± 0.5	11.3± 0.6	10.8± 0.8	11.1± 0.8
2000 ppm	11.3± 1.1	12.7± 3.1	11.4± 1.0	12.7± 2.8	11.5± 1.6	12.6± 3.8
4000 ppm	10.9± 0.8	11.0± 0.8	11.3± 1.3	10.6± 0.8	11.0± 1.0	11.0± 1.2
8000 ppm	10.2± 0.5*	10.6± 2.0	10.2± 0.6*	9.5± 0.5**	10.2± 0.6	10.0± 0.4**
16000 ppm	10.1± 2.7**	10.1± 2.4**	10.6± 4.5	10.5± 3.7**	11.5± 6.2	10.3± 2.9**

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

APPENDIX B 3-3

FOOD CONSUMPTION CHANGES (THIRTEEN−WEEK STUDY: SUMMARY)

MOSUE : MALE

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
UNIT : g
REPORT TYPE : A1 13
SEX : MALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day(effective) 1-7(7)	2-7(7)	3-7(7)	4-7(7)	5-7(7)	6-7(7)	7-7(7)
Control	6.0± 0.5	5.0± 0.6	5.1± 0.6	5.1± 0.5	5.5± 0.8	5.1± 0.4	4.6± 0.3
500 ppm	5.1± 0.4**	5.0± 0.3	5.0± 0.4	5.1± 0.4	6.0± 0.5	4.9± 0.3	5.1± 0.3
2000 ppm	5.0± 0.4**	5.0± 0.2	5.0± 0.3	4.8± 0.2	5.7± 0.4	5.2± 0.3	5.2± 0.4
4000 ppm	5.2± 0.4*	5.0± 0.4	5.0± 0.4	4.8± 0.3	5.8± 0.4	5.3± 0.4	4.9± 0.5
8000 ppm	5.0± 0.5**	5.3± 0.6	5.4± 0.7	5.0± 0.8	6.5± 1.7	5.6± 0.9	5.0± 1.1
10000 ppm	4.9± 0.4**	5.7± 0.4*	5.7± 0.7	5.0± 0.5	6.3± 0.9	5.6± 0.7	4.6± 0.5
16000 ppm	5.1± 0.9**	5.4± 0.7	5.5± 0.8	5.5± 0.7	6.2± 1.1	5.7± 0.7	5.5± 0.9*

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

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
UNIT : g
REPORT TYPE : A1 13
SEX : MALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day(effective) 8-7(7)	9-7(7)	10-7(7)	11-7(7)	12-7(7)	13-7(7)
Control	4.3± 0.4	5.0± 0.3	4.1± 0.4	5.5± 0.5	5.4± 0.4	5.5± 0.3
500 ppm	4.0± 0.5	5.9± 0.4**	4.0± 0.2	5.4± 0.3	5.4± 0.3	5.0± 0.3
2000 ppm	4.5± 0.4	5.5± 0.3	4.0± 0.3	5.8± 0.4	5.6± 0.5	5.2± 0.5
4000 ppm	4.0± 0.4	5.5± 0.5	4.2± 0.3	5.6± 0.8	5.8± 0.5	5.2± 0.4
8000 ppm	4.1± 0.4	6.2± 0.9**	4.7± 0.6	5.5± 0.7	5.7± 0.6	5.4± 0.4
10000 ppm	4.5± 0.7	6.1± 0.7**	4.3± 0.3	5.8± 0.3	5.6± 0.9	5.2± 0.5
16000 ppm	4.6± 0.5	5.7± 0.7*	4.7± 0.3**	5.9± 0.7	5.7± 0.9	5.5± 1.0

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

APPENDIX B 3-4

FOOD CONSUMPTION CHANGES (THIRTEEN−WEEK STUDY: SUMMARY)

MOSUE : FEMALE

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
UNIT : g
REPORT TYPE : A1 13
SEX : FEMALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day(effective) 1-7(7)	2-7(7)	3-7(7)	4-7(7)	5-7(7)	6-7(7)	7-7(7)
Control	5.1± 0.3	4.1± 0.3	5.0± 0.6	5.4± 0.7	5.3± 0.8	5.9± 0.8	5.1± 0.9
500 ppm	5.1± 0.5	4.3± 0.4	4.7± 0.3	5.2± 0.4	5.9± 0.8	5.6± 0.4	5.8± 0.8
2000 ppm	4.5± 0.4	4.0± 0.2	4.5± 0.4	4.9± 0.4	5.6± 0.6	5.6± 0.4	5.9± 0.4*
4000 ppm	4.9± 0.7	4.1± 0.4	4.7± 0.4	4.8± 0.4	5.7± 0.7	5.6± 0.5	5.9± 0.5*
8000 ppm	4.9± 0.6	4.6± 0.4	5.1± 0.6	5.0± 0.5	6.1± 0.7	5.7± 0.5	5.2± 0.5
10000 ppm	4.7± 0.5	5.4± 0.7**	6.0± 0.8	5.3± 1.2	6.4± 0.9*	6.0± 0.9	5.2± 0.5
16000 ppm	5.5± 0.8	6.2± 0.5**	6.5± 1.1*	6.0± 0.8	7.9± 1.0**	6.6± 0.7	5.7± 1.0

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

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
UNIT : g
REPORT TYPE : A1 13
SEX : FEMALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day(effectiue) 8-7(7)	9-7(7)	10-7(7)	11-7(7)	12-7(7)	13-7(7)
Control	4.4± 0.4	5.3± 0.5	4.4± 0.5	6.2± 0.7	5.7± 0.6	5.9± 1.0
500 ppm	3.9± 0.3	6.6± 0.5**	4.3± 0.6	6.4± 0.6	5.8± 0.7	5.7± 0.3
2000 ppm	4.3± 0.4	6.4± 0.7**	4.2± 0.4	6.2± 0.7	5.7± 0.7	5.3± 0.6
4000 ppm	4.0± 0.5	6.1± 0.6	4.0± 0.3	5.8± 0.8	5.7± 0.5	5.3± 0.5
8000 ppm	4.1± 0.4	6.3± 0.8*	4.3± 0.4	6.1± 0.8	5.9± 0.8	5.4± 0.5
10000 ppm	4.4± 1.0	6.2± 0.9*	4.0± 0.6	6.0± 1.0	6.1± 0.8	5.2± 0.8
16000 ppm	4.7± 0.6	5.7± 0.6	4.7± 0.5	6.5± 1.1	6.9± 1.0**	6.4± 1.1

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

APPENDIX B 4-1

CHEMICAL INTAKE CHANGES (THIRTEEN−WEEK STUDY: SUMMARY)

RAT : MALE

STUDY NO. : 0185
ANIMAL : RAT F344
UNIT : g/kg/day
REPORT TYPE : A1 13
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 1	2	3	4	5	6	7
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
1000 ppm	0.086± 0.002	0.080± 0.002	0.074± 0.002	0.067± 0.002	0.064± 0.002	0.059± 0.001	0.056± 0.002
2000 ppm	0.170± 0.004	0.157± 0.006	0.148± 0.006	0.135± 0.005	0.128± 0.006	0.117± 0.006	0.113± 0.013
4000 ppm	0.330± 0.014	0.317± 0.013	0.291± 0.013	0.265± 0.010	0.251± 0.011	0.230± 0.010	0.224± 0.010
8000 ppm	0.625± 0.089	0.643± 0.014	0.604± 0.016	0.550± 0.015	0.511± 0.016	0.469± 0.015	0.464± 0.029
16000 ppm	1.083± 0.088	1.337± 0.031	1.232± 0.046	1.121± 0.043	1.039± 0.054	0.972± 0.032	0.935± 0.049

STUDY NO. : 0185
ANIMAL : RAT F344
UNIT : g／kg／d a y
REPORT TYPE : A1 13
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 8	9	10	11	12	13
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
1000 ppm	0.056± 0.002	0.053± 0.002	0.052± 0.002	0.049± 0.001	0.047± 0.001	0.046± 0.002
2000 ppm	0.113± 0.005	0.106± 0.004	0.096± 0.015	0.100± 0.006	0.095± 0.008	0.093± 0.004
4000 ppm	0.226± 0.010	0.215± 0.009	0.210± 0.009	0.198± 0.013	0.197± 0.011	0.190± 0.011
8000 ppm	0.454± 0.013	0.444± 0.011	0.434± 0.007	0.410± 0.013	0.404± 0.013	0.394± 0.013
16000 ppm	0.934± 0.027	0.927± 0.036	0.922± 0.044	0.860± 0.028	0.855± 0.050	0.830± 0.038

APPENDIX B 4-2

CHEMICAL INTAKE CHANGES (THIRTEEN−WEEK STUDY: SUMMARY)

RAT : FEMALE

STUDY NO. : 0185
ANIMAL : RAT F344
UNIT : g/kg/d a y
REPORT TYPE : A1 13
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 1	2	3	4	5	6	7
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
1000 ppm	0.092± 0.004	0.086± 0.004	0.083± 0.004	0.072± 0.003	0.071± 0.003	0.067± 0.003	0.065± 0.002
2000 ppm	0.217± 0.036	0.172± 0.005	0.162± 0.009	0.149± 0.007	0.149± 0.013	0.145± 0.037	0.141± 0.031
4000 ppm	0.349± 0.021	0.334± 0.010	0.309± 0.015	0.293± 0.015	0.290± 0.015	0.264± 0.026	0.261± 0.013
8000 ppm	0.706± 0.128	0.664± 0.020	0.617± 0.037	0.584± 0.025	0.555± 0.016	0.524± 0.016	0.508± 0.021
16000 ppm	1.304± 0.380	1.360± 0.042	1.248± 0.044	1.174± 0.042	1.081± 0.074	1.065± 0.124	1.034± 0.074

STUDY NO. : 0185
ANIMAL : RAT F344
UNIT : g／kg／d a y
REPORT TYPE : A1 13
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 8	9	10	11	12	13
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
1000 ppm	0.067± 0.002	0.066± 0.003	0.063± 0.003	0.062± 0.004	0.059± 0.004	0.059± 0.004
2000 ppm	0.134± 0.008	0.147± 0.036	0.129± 0.008	0.139± 0.031	0.127± 0.015	0.134± 0.041
4000 ppm	0.269± 0.018	0.263± 0.018	0.263± 0.025	0.243± 0.015	0.257± 0.025	0.244± 0.025
8000 ppm	0.518± 0.017	0.531± 0.098	0.500± 0.016	0.460± 0.013	0.484± 0.022	0.467± 0.017
16000 ppm	1.062± 0.229	1.047± 0.187	1.074± 0.446	1.043± 0.327	1.120± 0.551	0.990± 0.242

APPENDIX B 4-3

CHEMICAL INTAKE CHANGES (THIRTEEN−WEEK STUDY: SUMMARY)

MOSUE : MALE

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
UNIT : g/kg/day
REPORT TYPE : A1 13
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 1	2	3	4	5	6	7
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500 ppm	0.106± 0.008	0.098± 0.006	0.097± 0.007	0.094± 0.005	0.108± 0.011	0.087± 0.006	0.089± 0.003
2000 ppm	0.424± 0.029	0.398± 0.017	0.389± 0.028	0.363± 0.020	0.416± 0.032	0.373± 0.028	0.370± 0.040
4000 ppm	0.914± 0.079	0.808± 0.061	0.791± 0.054	0.733± 0.039	0.874± 0.037	0.778± 0.050	0.727± 0.065
8000 ppm	0.877± 0.085	1.963± 0.217	1.935± 0.332	1.716± 0.425	2.275± 1.234	1.879± 0.709	1.703± 0.764
10000 ppm	0.852± 0.064	2.616± 0.331	2.522± 0.378	2.058± 0.227	2.473± 0.409	2.264± 0.365	1.905± 0.256
16000 ppm	0.905± 0.129	1.953± 0.288	4.390± 0.680	4.049± 0.409	4.381± 0.885	3.961± 0.591	3.924± 0.714

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
UNIT : g/kg/day
REPORT TYPE : A1 13
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 8	9	10	11	12	13
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500 ppm	0.079± 0.009	0.099± 0.007	0.074± 0.004	0.090± 0.005	0.087± 0.004	0.080± 0.005
2000 ppm	0.351± 0.033	0.374± 0.019	0.307± 0.019	0.388± 0.030	0.362± 0.032	0.331± 0.026
4000 ppm	0.669± 0.066	0.789± 0.063	0.669± 0.041	0.790± 0.109	0.803± 0.065	0.706± 0.057
8000 ppm	1.527± 0.313	1.966± 0.455	1.559± 0.219	1.731± 0.338	1.727± 0.288	1.593± 0.203
10000 ppm	2.029± 0.246	2.395± 0.374	1.838± 0.195	2.095± 0.100	2.078± 0.372	1.881± 0.186
16000 ppm	3.595± 0.530	4.013± 0.614	3.599± 0.425	3.943± 0.547	3.826± 0.711	3.663± 0.770

APPENDIX B 4-4

CHEMICAL INTAKE CHANGES (THIRTEEN−WEEK STUDY: SUMMARY)

MOUSE: FEMALE

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
UNIT : g/kg/day
REPORT TYPE : A1 13
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 1	2	3	4	5	6	7
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500 ppm	0.135± 0.014	0.107± 0.010	0.117± 0.008	0.122± 0.011	0.139± 0.017	0.128± 0.007	0.130± 0.015
2000 ppm	0.482± 0.044	0.403± 0.023	0.462± 0.048	0.479± 0.044	0.539± 0.073	0.514± 0.038	0.530± 0.043
4000 ppm	1.059± 0.142	0.846± 0.072	0.952± 0.096	0.941± 0.089	1.115± 0.134	1.027± 0.098	1.065± 0.110
8000 ppm	1.056± 0.143	1.944± 0.172	2.086± 0.220	2.002± 0.165	2.375± 0.306	2.177± 0.205	1.984± 0.199
10000 ppm	1.028± 0.127	3.226± 0.486	3.502± 0.760	2.794± 0.674	3.245± 0.524	3.173± 0.499	2.621± 0.318
16000 ppm	1.218± 0.185	2.876± 0.242	6.817± 1.282	5.585± 0.965	6.825± 1.115	5.745± 0.868	4.918± 0.988

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
UNIT : g/kg/day
REPORT TYPE : A1 13
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 8	9	10	11	12	13
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500 ppm	0.107± 0.005	0.139± 0.012	0.106± 0.013	0.137± 0.011	0.123± 0.011	0.118± 0.007
2000 ppm	0.465± 0.037	0.548± 0.054	0.413± 0.035	0.532± 0.066	0.486± 0.060	0.440± 0.057
4000 ppm	0.846± 0.056	1.054± 0.109	0.812± 0.068	1.008± 0.135	0.989± 0.089	0.900± 0.085
8000 ppm	1.826± 0.227	2.273± 0.264	1.722± 0.184	2.214± 0.300	2.133± 0.253	1.941± 0.174
10000 ppm	2.407± 0.528	2.968± 0.548	2.089± 0.330	2.809± 0.485	2.882± 0.442	2.400± 0.423
16000 ppm	4.273± 0.462	4.860± 0.717	4.073± 0.507	5.181± 0.940	5.438± 0.951	5.015± 0.943

APPENDIX B 5-1

HEMATOLOGY (THIRTEEN−WEEK STUDY: SUMMARY)

RAT : MALE

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

HEMATOLOGY(1) (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	RED BLOOD CELL $10^6/\mu\ell$	HEMOGLOBIN g/dℓ	HEMATOCRIT %	MCV f ℓ	MCH p g	MCHC g/dℓ	PLATELET $10^3/\mu\ell$
Control	10	9.56± 0.28	16.4± 0.4	45.8± 1.2	47.9± 0.5	17.1± 0.3	35.8± 0.5	765± 28
1000 ppm	10	9.38± 0.25	16.3± 0.3	45.4± 1.6	48.4± 0.8	17.4± 0.3	35.9± 0.9	720± 42
2000 ppm	10	9.29± 0.22*	16.1± 0.3	45.1± 1.2	48.6± 0.7*	17.3± 0.4	35.7± 0.7	729± 49
4000 ppm	10	9.06± 0.14**	16.0± 0.2*	44.6± 0.7	49.2± 0.5**	17.7± 0.2**	35.9± 0.4	762± 70
8000 ppm	10	8.91± 0.18**	15.8± 0.3**	44.1± 1.1*	49.5± 0.4**	17.7± 0.2**	35.7± 0.6	819± 71
16000 ppm	10	8.83± 0.28**	15.7± 0.3**	43.8± 1.4**	49.6± 0.6**	17.8± 0.4**	35.8± 0.9	856± 61**

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

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

HEMATOLOGY(2) (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	WBC $10^3/\mu\ell$	Differential WBC (%) N-BAND	N-SEG	EOSINO	BASO	MONO	LYMPHO	OTHER
Control	10	3.84± 1.57	0± 0	28± 7	2± 1	0± 0	5± 1	64± 8	1± 1
1000 ppm	10	5.37± 1.66	0± 0	26± 5	2± 1	0± 0	4± 1	68± 5	1± 1
2000 ppm	10	4.42± 1.42	1± 1	28± 5	1± 1	0± 0	4± 1	65± 6	1± 2
4000 ppm	10	4.36± 1.66	0± 0	30± 8	1± 1	0± 0	3± 1	65± 7	1± 1
8000 ppm	10	5.51± 1.96	0± 1	26± 8	2± 1	0± 0	4± 1	66± 8	2± 2
16000 ppm	10	4.74± 1.65	0± 0	24± 5	2± 1	0± 0	4± 1	69± 6	1± 1

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

APPENDIX B 5-2

HEMATOLOGY (THIRTEEN−WEEK STUDY: SUMMARY)

RAT: FEMALE

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

HEMATOLOGY(1) (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	RED BLOOD CELL $10^6/\mu\ell$	HEMOGLOBIN g/dℓ	HEMATOCRIT %	MCV f ℓ	MCH p g	MCHC g/dℓ	PLATELET $10^3/\mu\ell$
Control	10	8.55± 0.17	15.9± 0.3	43.9± 1.2	51.4± 0.6	18.6± 0.2	36.2± 0.7	807± 74
1000 ppm	10	8.46± 0.24	15.7± 0.5	43.7± 1.4	51.7± 0.6	18.6± 0.3	36.0± 0.6	782± 99
2000 ppm	10	8.41± 0.21	15.7± 0.3	43.5± 1.4	51.7± 0.6	18.7± 0.2	36.2± 0.6	834± 56
4000 ppm	9	8.33± 0.29	15.6± 0.5	42.9± 1.4	51.5± 0.5	18.8± 0.4	36.4± 0.7	845± 62
8000 ppm	10	8.14± 0.28**	15.2± 0.4**	41.9± 1.2**	51.5± 0.9	18.6± 0.3	36.1± 0.7	823± 96
16000 ppm	10	8.17± 0.19**	14.9± 0.5**	41.7± 1.0**	51.1± 1.1	18.2± 0.4*	35.7± 1.2	834± 86

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

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

HEMATOLOGY(2) (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	WBC $10^3/\mu\ell$		Differential WBC (%) N-BAND		N-SEG		EOSINO		BASO		MONO		LYMPHO		OTHER	
Control	10	2.54±	0.56	0±	1	26±	4	2±	1	0±	0	4±	1	67±	4	1±	1
1000 ppm	10	2.50±	0.71	0±	0	27±	6	2±	1	0±	0	3±	1	67±	7	1±	2
2000 ppm	10	2.65±	0.93	0±	1	30±	6	2±	1	0±	0	4±	1	61±	6	1±	1
4000 ppm	9	3.11±	1.22	0±	0	25±	5	1±	1	0±	0	4±	1	68±	6	2±	1
8000 ppm	10	3.63±	1.40	0±	0	22±	4	1±	1	0±	0	4±	1	71±	4	1±	1
16000 ppm	10	3.43±	2.19	0±	0	23±	6	2±	1	0±	0	4±	2	71±	6	1±	1

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

APPENDIX B 5-3

HEMATOLOGY (THIRTEEN−WEEK STUDY: SUMMARY)

MOSUE : MALE

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

HEMATOLOGY(1) (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	RED BLOOD CELL $10^6/\mu\ell$	HEMOGLOBIN g/dℓ	HEMATOCRIT %	MCV f ℓ	MCH p g	MCHC g/dℓ	PLATELET $10^3/\mu\ell$
Control	9	10.49± 0.43	15.6± 0.6	46.1± 1.4	43.9± 1.0	14.9± 0.3	34.0± 0.7	1486± 98
500 ppm	10	10.12± 0.34	15.2± 0.7	44.7± 2.1	44.2± 1.0	15.0± 0.3	34.0± 0.7	1380± 90
2000 ppm	10	10.31± 0.24	15.4± 0.4	44.9± 1.3	43.5± 0.7	15.0± 0.3	34.3± 0.3	1424± 104
4000 ppm	10	10.36± 0.34	15.4± 0.6	45.2± 1.7	43.6± 0.6	14.9± 0.4	34.2± 0.8	1489± 106
8000 ppm	9	10.69± 0.56	15.7± 0.6	46.3± 1.8	43.4± 1.1	14.6± 0.4	33.8± 0.8	1515± 86
10000 ppm	10	10.57± 0.32	15.7± 0.4	46.5± 1.2	43.8± 0.6	14.9± 0.4	33.8± 0.5	1562± 116
16000 ppm	10	10.69± 0.38	15.7± 0.6	46.5± 1.6	43.5± 0.9	14.7± 0.6	33.8± 0.9	1464± 113

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

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

HEMATOLOGY(2) (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	WBC $10^3/\mu\ell$	Differential WBC (%) N-BAND	N-SEG	EOSINO	BASO	MONO	LYMPHO	OTHER
Control	9	1.20± 0.68	0± 1	18± 5	1± 1	0± 0	4± 1	77± 5	0± 0
500 ppm	10	1.08± 0.75	1± 1	17± 4	2± 1	0± 0	4± 1	77± 4	0± 0
2000 ppm	10	1.06± 0.40	0± 0	21± 6	1± 2	0± 0	3± 1	74± 6	0± 0
4000 ppm	10	0.75± 0.62	1± 1	19± 5	1± 1	0± 0	3± 1	76± 6	0± 0
8000 ppm	9	0.75± 0.50	0± 0	19± 6	0± 1	0± 0	3± 1	77± 7	0± 0
10000 ppm	10	1.30± 0.72	0± 0	17± 3	1± 0	0± 0	3± 1	78± 4	0± 0
16000 ppm	10	0.80± 0.60	0± 0	24± 8	0± 1	0± 0	3± 1	72± 8	0± 0

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

APPENDIX B 5-4

HEMATOLOGY (THIRTEEN−WEEK STUDY: SUMMARY)

MOSUE : FEMALE

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

HEMATOLOGY(1) (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	RED BLOOD CELL $10^6/\mu\ell$	HEMOGLOBIN g/dℓ	HEMATOCRIT %	MCV f ℓ	MCH p g	MCHC g/dℓ	PLATELET $10^3/\mu\ell$
Control	10	10.08± 0.66	15.6± 0.6	45.3± 2.7	44.9± 1.0	15.5± 0.9	34.6± 1.5	1218± 195
500 ppm	9	10.40± 0.47	15.8± 0.7	45.7± 2.2	44.0± 0.5*	15.3± 0.5	34.7± 0.8	1378± 102
2000 ppm	10	10.38± 0.38	15.8± 0.5	45.9± 1.7	44.2± 0.6	15.2± 0.4	34.4± 1.0	1296± 140
4000 ppm	10	10.49± 0.29	15.8± 0.5	45.8± 0.8	43.7± 0.7**	15.1± 0.3	34.5± 0.5	1312± 90
8000 ppm	10	10.63± 0.42	15.7± 0.3	46.0± 1.6	43.3± 0.9**	14.8± 0.6*	34.3± 1.2	1371± 155*
10000 ppm	10	10.54± 0.33	15.7± 0.6	45.7± 1.9	43.3± 0.6**	14.9± 0.4	34.5± 0.7	1377± 68
16000 ppm	9	10.72± 0.42	15.7± 0.5	46.4± 1.4	43.3± 1.0**	14.7± 0.4**	33.9± 0.8	1304± 64

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

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

HEMATOLOGY(2) (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	WBC $10^3/\mu\ell$		Differential WBC (%) N-BAND		N-SEG		EOSINO		BASO		MONO		LYMPHO		OTHER	
Control	10	1.23±	0.75	0±	0	15±	4	2±	1	0±	0	4±	2	78±	5	0±	0
500 ppm	9	1.36±	0.81	0±	0	17±	7	2±	1	0±	0	3±	1	78±	6	0±	0
2000 ppm	10	1.06±	0.53	0±	1	15±	4	1±	1	0±	0	3±	1	81±	5	0±	0
4000 ppm	10	0.98±	0.94	0±	0	16±	5	1±	1	0±	0	3±	1	80±	3	0±	0
8000 ppm	10	1.14±	0.62	0±	0	17±	4	1±	1	0±	0	4±	1	78±	5	0±	0
10000 ppm	10	1.08±	0.85	0±	0	18±	5	1±	1	0±	0	4±	1	77±	6	0±	0
16000 ppm	9	0.92±	0.45	0±	1	17±	6	1±	1	0±	0	4±	1	78±	6	0±	0

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

APPENDIX B 6-1

BIOCHEMISTRY (THIRTEEN−WEEK STUDY: SUMMARY)

RAT : MALE

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (14)

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	10	6.7± 0.2	3.8± 0.1	1.3± 0.1	0.21± 0.04	206± 19	61± 4	79± 23
1000 ppm	10	6.8± 0.2	3.9± 0.1	1.3± 0.0	0.21± 0.03	207± 23	64± 4	99± 20
2000 ppm	10	6.8± 0.2	3.9± 0.1	1.4± 0.1	0.21± 0.03	204± 28	69± 6*	87± 24
4000 ppm	10	6.8± 0.3	4.0± 0.1**	1.4± 0.1*	0.18± 0.02	195± 21	77± 6**	69± 29
8000 ppm	10	7.0± 0.2	4.1± 0.1**	1.4± 0.1*	0.18± 0.02	200± 19	86± 9**	58± 11
16000 ppm	10	7.0± 0.2	4.1± 0.1**	1.4± 0.1**	0.20± 0.03	185± 15	89± 6**	58± 11

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

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (14)

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	10	111± 6	92± 29	29± 8	220± 72	308± 16	1± 1	93± 16
1000 ppm	10	119± 6	99± 21	29± 4	224± 54	323± 23	1± 1	93± 21
2000 ppm	10	125± 12	87± 24	25± 6	198± 47	319± 19	1± 1	80± 9
4000 ppm	10	134± 7**	94± 40	25± 7	203± 91	321± 18	1± 1	79± 6
8000 ppm	10	142± 14**	88± 30	24± 5	212± 59	324± 25	1± 1	86± 9
16000 ppm	10	149± 8**	64± 17	20± 4**	191± 61	322± 25	2± 1	87± 13

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

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (14)

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	10	18.0± 2.0	0.5± 0.1	143± 1	3.2± 0.3	106± 1	10.5± 0.1	5.1± 0.7
1000 ppm	10	18.2± 1.3	0.5± 0.0	143± 1	3.2± 0.2	105± 1	10.5± 0.2	5.2± 0.6
2000 ppm	10	17.4± 1.2	0.5± 0.1	143± 1	3.3± 0.3	106± 1	10.5± 0.2	4.9± 0.7
4000 ppm	10	18.9± 1.2	0.5± 0.0	142± 1	3.4± 0.3	107± 1	10.6± 0.2	4.9± 0.7
8000 ppm	10	20.0± 2.2	0.5± 0.1	142± 1	3.5± 0.3	106± 1	10.7± 0.1**	5.0± 0.4
16000 ppm	10	19.5± 1.9	0.5± 0.0	141± 1**	3.8± 0.3**	104± 1**	10.7± 0.2*	5.1± 0.5

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

APPENDIX B 6-2

BIOCHEMISTRY(THIRTEEN−WEEK STUDY: SUMMARY)

RAT : FEMALE

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (14)

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	10	6.5± 0.2	3.6± 0.1	1.3± 0.1	0.22± 0.03	147± 18	76± 6	35± 4
1000 ppm	10	6.5± 0.3	3.7± 0.1	1.3± 0.1	0.26± 0.10	157± 13	76± 8	37± 4
2000 ppm	10	6.7± 0.3	3.7± 0.2	1.3± 0.1	0.22± 0.08	155± 18	79± 6	36± 5
4000 ppm	9	6.5± 0.3	3.7± 0.2	1.3± 0.1	0.22± 0.04	152± 15	81± 5	32± 3
8000 ppm	10	6.6± 0.2	3.8± 0.1*	1.4± 0.1*	0.23± 0.09	159± 13	88± 7**	29± 4*
16000 ppm	10	6.6± 0.2	3.8± 0.1**	1.4± 0.0**	0.23± 0.06	155± 23	104± 4**	32± 6

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

(HCL074)

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (14)

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	10	133± 12	70± 10	21± 7	241± 152	222± 24	1± 1	100± 24
1000 ppm	10	135± 10	65± 10	19± 4	249± 116	225± 26	1± 1	104± 29
2000 ppm	10	136± 9	66± 7	20± 5	206± 77	223± 20	1± 1	98± 25
4000 ppm	9	137± 8	75± 13	23± 9	300± 71	221± 27	1± 1	117± 17
8000 ppm	10	144± 9	68± 6	20± 3	287± 104	217± 21	2± 1	109± 28
16000 ppm	10	163± 9**	62± 7	19± 3	296± 143	242± 35	3± 1**	109± 29

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

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (14)

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	10	16.2± 1.5	0.4± 0.0	144± 1	3.4± 0.3	109± 1	10.0± 0.3	4.6± 0.8
1000 ppm	10	15.6± 2.4	0.4± 0.1	143± 1	3.5± 0.2	109± 2	10.0± 0.4	4.5± 1.0
2000 ppm	10	15.5± 2.0	0.5± 0.1	144± 1	3.2± 0.2	109± 2	10.2± 0.1	4.5± 1.0
4000 ppm	9	17.3± 1.4	0.4± 0.1	143± 1	3.4± 0.2	109± 1	10.1± 0.2	4.7± 1.1
8000 ppm	10	18.6± 1.6*	0.4± 0.1	142± 1	3.4± 0.3	108± 1	10.2± 0.1	4.8± 0.8
16000 ppm	10	18.5± 2.2*	0.4± 0.1	141± 1**	4.1± 0.8**	107± 3	10.4± 0.4	5.1± 1.1

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

APPENDIX B 6-3

BIOCHEMISTRY (THIRTEEN－WEEK　STUDY: SUMMARY)

MOSUE : MALE

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (14)

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	10	5.4± 0.3	2.9± 0.1	1.1± 0.1	0.39± 0.17	234± 53	84± 12	64± 13
500 ppm	10	5.2± 0.3	2.8± 0.2	1.2± 0.0	0.36± 0.10	180± 62	78± 5	60± 12
2000 ppm	10	5.4± 0.2	2.9± 0.1	1.2± 0.0*	0.37± 0.14	186± 52	85± 7	64± 23
4000 ppm	10	5.4± 0.2	3.0± 0.1	1.3± 0.1**	0.38± 0.20	189± 63	88± 8	56± 22
8000 ppm	9	5.6± 0.2	3.1± 0.1**	1.2± 0.1**	0.38± 0.11	164± 40	99± 10**	53± 14
10000 ppm	10	5.5± 0.2	3.0± 0.1	1.3± 0.1**	0.44± 0.11	176± 48	92± 6	58± 14
16000 ppm	10	5.6± 0.3	3.2± 0.2**	1.3± 0.1**	0.43± 0.20	186± 32	101± 3**	42± 4**

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

(HCL074)

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (14)

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	10	40±	7	11±	2	216±	22	194±	17	43±	5	28.3±	7.7	153±	1
500 ppm	10	46±	13	12±	2	232±	71	192±	19	53±	28	28.8±	5.3	153±	3
2000 ppm	10	42±	6	12±	2	212±	14	201±	18	43±	9	28.4±	4.2	153±	2
4000 ppm	10	41±	7	12±	3	225±	45	215±	18	49±	17	27.9±	4.9	153±	2
8000 ppm	9	45±	9	12±	2	236±	69	269±	56**	58±	22	29.2±	5.1	154±	1
10000 ppm	10	43±	7	13±	2	226±	44	241±	15**	67±	26	27.6±	4.4	154±	1
16000 ppm	10	59±	17**	15±	2**	305±	93	348±	31**	154±	123**	28.5±	4.1	155±	3

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

(HCL074)

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	POTASSIUM mEq/ℓ		CHLORIDE mEq/ℓ		CALCIUM mg/dℓ		INORGANIC PHOSPHORUS mg/dℓ	
Control	10	4.3±	0.5	122±	3	9.0±	0.4	7.3±	1.0
500 ppm	10	4.5±	0.4	122±	2	8.8±	0.2	7.8±	1.6
2000 ppm	10	4.3±	0.4	122±	2	8.9±	0.3	7.5±	1.0
4000 ppm	10	4.3±	0.2	123±	2	8.9±	0.1	7.4±	1.1
8000 ppm	9	4.1±	0.5	122±	2	9.2±	0.2	8.0±	1.6
10000 ppm	10	4.4±	0.2	123±	3	9.0±	0.3	7.9±	1.0
16000 ppm	10	4.0±	0.7	124±	2	9.0±	0.2	7.6±	1.5

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

APPENDIX B 6-4

BIOCHEMISTRY (THIRTEEN−WEEK STUDY: SUMMARY)

MOSUE : FEMALE

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (14)

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	9	5.2± 0.3	3.1± 0.2	1.4± 0.1	0.42± 0.06	189± 17	66± 5	49± 10
500 ppm	10	5.4± 0.3	3.2± 0.2	1.5± 0.1	0.52± 0.12	171± 38	72± 13	49± 9
2000 ppm	10	5.5± 0.2	3.3± 0.1	1.5± 0.1	0.42± 0.16	163± 31	78± 9*	47± 5
4000 ppm	10	5.6± 0.2**	3.3± 0.1*	1.5± 0.0	0.40± 0.13	169± 31	83± 7**	47± 9
8000 ppm	10	5.5± 0.2	3.3± 0.1*	1.5± 0.1	0.56± 0.17	173± 20	96± 8**	44± 5
10000 ppm	10	5.5± 0.2*	3.3± 0.1	1.5± 0.1	0.49± 0.19	167± 29	90± 6**	42± 7
16000 ppm	9	5.5± 0.2*	3.4± 0.1**	1.5± 0.1	0.46± 0.13	146± 19	101± 9**	34± 6**

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

(HCL074)

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (14)

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	9	45±	3	12±	3	249±	39	276±	23	55±	20	21.1±	1.5	153±	2
500 ppm	10	50±	9	14±	5	257±	74	274±	37	59±	35	18.5±	2.7	153±	2
2000 ppm	10	52±	15	14±	2	261±	37	289±	31	64±	24	20.4±	4.0	153±	1
4000 ppm	10	53±	10	15±	3	270±	34	300±	32	83±	22	21.0±	3.2	153±	2
8000 ppm	10	52±	6	14±	2	253±	78	334±	27**	111±	165	21.4±	2.0	153±	1
10000 ppm	10	50±	9	12±	1	255±	66	324±	39*	59±	26	20.2±	2.8	153±	2
16000 ppm	9	59±	6**	16±	3**	270±	43	480±	59**	83±	30	22.4±	3.5	155±	2

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

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	POTASSIUM mEq/ℓ		CHLORIDE mEq/ℓ		CALCIUM mg/dℓ		INORGANIC PHOSPHORUS mg/dℓ	
Control	9	4.7±	0.5	122±	3	8.8±	0.2	6.3±	1.5
500 ppm	10	4.4±	0.6	123±	3	8.9±	0.3	7.0±	0.9
2000 ppm	10	4.7±	0.3	121±	4	8.9±	0.3	7.3±	0.9
4000 ppm	10	4.6±	0.5	121±	3	9.0±	0.4	6.6±	0.8
8000 ppm	10	4.4±	0.4	122±	2	9.1±	0.2	6.2±	0.6
10000 ppm	10	4.1±	0.5*	124±	2	9.1±	0.3	6.0±	1.0
16000 ppm	9	4.2±	0.3	122±	3	9.1±	0.3	6.2±	1.2

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

APPENDIX B 7-1

URINALYSIS (THIRTEEN−WEEK STUDY: SUMMARY)

RAT : MALE

STUDY NO. : 0185
ANIMAL : RAT F344
SAMPLING DATE : 013-6
SEX : MALE REPORT TYPE : A1

URINALYSIS

Group Name	NO. of Animals	pH 5.0	6.0	6.5	7.0	7.5	8.0	8.5	CHI	Protein −	±	+	2+	3+	4+	CHI	Glucose −	±	+	2+	3+	4+	CHI	Ketone body −	±	+	2+	3+	4+	CHI	Bilirubin −	+	2+	3+	CHI
Control	10	0	0	0	0	0	8	2		0	0	7	3	0	0		10	0	0	0	0	0		1	9	0	0	0	0		10	0	0	0	
1000 ppm	10	0	0	0	0	2	8	0		0	0	7	3	0	0		10	0	0	0	0	0		1	9	0	0	0	0		10	0	0	0	
2000 ppm	10	0	0	0	0	0	9	1		0	0	7	3	0	0		10	0	0	0	0	0		1	9	0	0	0	0		10	0	0	0	
4000 ppm	10	0	0	0	0	3	6	1		0	0	7	3	0	0		10	0	0	0	0	0		5	5	0	0	0	0		10	0	0	0	
8000 ppm	10	0	0	0	2	8	0	0	**	0	0	10	0	0	0		10	0	0	0	0	0		10	0	0	0	0	0	**	10	0	0	0	
16000 ppm	10	0	0	0	2	8	0	0	**	0	3	7	0	0	0	*	10	0	0	0	0	0		10	0	0	0	0	0	**	10	0	0	0	

Significent difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of CHI SQUARE

STUDY NO. : 0185
ANIMAL : RAT F344
SAMPLING DATE : 013-6
SEX : MALE REPORT TYPE : A1

URINALYSIS

Group Name	NO. of Animals	Occult blood −	±	+	2+	3+	CHI	Urobilinogen ±	+	2+	3+	4+	CHI
Control	10	10	0	0	0	0		10	0	0	0	0	
1000 ppm	10	10	0	0	0	0		10	0	0	0	0	
2000 ppm	10	10	0	0	0	0		10	0	0	0	0	
4000 ppm	10	8	1	1	0	0		10	0	0	0	0	
8000 ppm	10	9	1	0	0	0		10	0	0	0	0	
16000 ppm	10	9	0	1	0	0		10	0	0	0	0	

Significent difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of CHI SQUARE

APPENDIX B 7-2

URINALYSIS (THIRTEEN−WEEK STUDY: SUMMARY)

RAT : FEMALE

STUDY NO. : 0185
ANIMAL : RAT F344
SAMPLING DATE : 013-6
SEX : FEMALE REPORT TYPE : A1

URINALYSIS

Group Name	NO. of Animals	pH 5.0	6.0	6.5	7.0	7.5	8.0	8.5	CHI	Protein −	±	+	2+	3+	4+	CHI	Glucose −	±	+	2+	3+	4+	CHI	Ketone body −	±	+	2+	3+	4+	CHI	Bilirubin −	+	2+	3+	CHI
Control	10	0	0	0	0	3	7	0		0	9	1	0	0	0		10	0	0	0	0	0		10	0	0	0	0	0		10	0	0	0	
1000 ppm	10	0	0	0	1	2	7	0		0	8	2	0	0	0		10	0	0	0	0	0		9	1	0	0	0	0		10	0	0	0	
2000 ppm	10	0	0	0	0	5	5	0		0	9	1	0	0	0		10	0	0	0	0	0		10	0	0	0	0	0		10	0	0	0	
4000 ppm	10	0	0	0	0	7	3	0		0	10	0	0	0	0		10	0	0	0	0	0		10	0	0	0	0	0		10	0	0	0	
8000 ppm	10	0	0	0	1	6	3	0		0	10	0	0	0	0		10	0	0	0	0	0		10	0	0	0	0	0		10	0	0	0	
16000 ppm	10	0	0	1	3	6	0	0	**	0	10	0	0	0	0		10	0	0	0	0	0		10	0	0	0	0	0		10	0	0	0	

Significent difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of CHI SQUARE

STUDY NO. : 0185
ANIMAL : RAT F344
SAMPLING DATE : 013-6
SEX : FEMALE REPORT TYPE : A1

URINALYSIS

Group Name	NO. of Animals	Occult blood −	±	+	2+	3+	CHI	Urobilinogen ±	+	2+	3+	4+	CHI
Control	10	10	0	0	0	0		10	0	0	0	0	
1000 ppm	10	10	0	0	0	0		10	0	0	0	0	
2000 ppm	10	10	0	0	0	0		10	0	0	0	0	
4000 ppm	10	10	0	0	0	0		10	0	0	0	0	
8000 ppm	10	10	0	0	0	0		10	0	0	0	0	
16000 ppm	10	10	0	0	0	0		10	0	0	0	0	

Significent difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of CHI SQUARE

APPENDIX B 7-3

URINALYSIS (THIRTEEN−WEEK STUDY: SUMMARY)

MOSUE : MALE

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
SAMPLING DATE : 013-6
SEX : MALE REPORT TYPE : A1

URINALYSIS

Group Name	NO. of Animals	pH 5.0	6.0	6.5	7.0	7.5	8.0	8.5	CHI	Protein −	±	+	2+	3+	4+	CHI	Glucose −	±	+	2+	3+	4+	CHI	Ketone body −	±	+	2+	3+	4+	CHI	Occult blood −	±	+	2+	3+	CHI
Control	10	0	0	1	4	4	1	0		0	0	5	5	0	0		10	0	0	0	0	0		5	5	0	0	0	0		10	0	0	0	0	
500 ppm	10	0	0	4	5	1	0	0		0	0	3	6	1	0		10	0	0	0	0	0		6	4	0	0	0	0		10	0	0	0	0	
2000 ppm	10	0	1	4	1	3	1	0		0	0	4	6	0	0		10	0	0	0	0	0		2	8	0	0	0	0		10	0	0	0	0	
4000 ppm	10	0	0	3	2	3	2	0		0	0	2	8	0	0		10	0	0	0	0	0		5	5	0	0	0	0		10	0	0	0	0	
8000 ppm	9	0	1	2	5	1	0	0		0	0	3	6	0	0		9	0	0	0	0	0		6	3	0	0	0	0		9	0	0	0	0	
10000 ppm	10	0	0	6	2	2	0	0		0	0	5	5	0	0		10	0	0	0	0	0		4	6	0	0	0	0		9	1	0	0	0	
16000 ppm	10	0	1	1	2	5	1	0		0	1	7	2	0	0		10	0	0	0	0	0		7	3	0	0	0	0		10	0	0	0	0	

Significent difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of CHI SQUARE

STUDY NO. : 0186 URINALYSIS
ANIMAL : MOUSE BDF1
SAMPLING DATE : 013-6
SEX : MALE REPORT TYPE : A1

Group Name	NO. of Animals	Urobilinogen ±	+	2+	3+	4+	CHI
Control	10	10	0	0	0	0	
500 ppm	10	10	0	0	0	0	
2000 ppm	10	10	0	0	0	0	
4000 ppm	10	10	0	0	0	0	
8000 ppm	9	9	0	0	0	0	
10000 ppm	10	10	0	0	0	0	
16000 ppm	10	10	0	0	0	0	

Significent difference : * : P ≦ 0.05 ** : P ≦ 0.01 Test of CHI SQUARE

APPENDIX B 7-4

URINALYSIS (THIRTEEN−WEEK STUDY: SUMMARY)

MOSUE : FEMALE

STUDY NO. : 0186 URINALYSIS

ANIMAL : MOUSE BDF1

SAMPLING DATE : 013-6

SEX : FEMALE REPORT TYPE : A1

Group Name	NO. of Animals	pH 5.0	6.0	6.5	7.0	7.5	8.0	8.5	CHI	Protein −	±	+	2+	3+	4+	CHI	Glucose −	±	+	2+	3+	4+	CHI	Ketone body −	±	+	2+	3+	4+	CHI	Occult blood −	±	+	2+	3+	CHI
Control	10	0	0	8	2	0	0	0		0	4	6	0	0	0		10	0	0	0	0	0		4	6	0	0	0	0		10	0	0	0	0	
500 ppm	10	0	5	5	0	0	0	0	*	0	0	10	0	0	0	*	10	0	0	0	0	0		5	5	0	0	0	0		10	0	0	0	0	
2000 ppm	10	0	3	4	1	2	0	0		0	4	6	0	0	0		10	0	0	0	0	0		8	2	0	0	0	0		10	0	0	0	0	
4000 ppm	10	0	5	3	2	0	0	0	*	0	5	5	0	0	0		10	0	0	0	0	0		9	1	0	0	0	0	*	10	0	0	0	0	
8000 ppm	10	0	1	8	1	0	0	0		0	5	5	0	0	0		10	0	0	0	0	0		10	0	0	0	0	0	**	10	0	0	0	0	
10000 ppm	10	0	4	2	4	0	0	0	*	0	7	3	0	0	0		10	0	0	0	0	0		10	0	0	0	0	0	**	10	0	0	0	0	
16000 ppm	9	0	0	1	2	4	2	0	**	0	7	2	0	0	0		9	0	0	0	0	0		7	2	0	0	0	0		9	0	0	0	0	

Significent difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of CHI SQUARE

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
SAMPLING DATE : 013-6
SEX : FEMALE REPORT TYPE : A1

URINALYSIS

Group Name	NO. of Animals	Urobilinogen ±	+	2+	3+	4+	CHI
Control	10	10	0	0	0	0	
500 ppm	10	10	0	0	0	0	
2000 ppm	10	10	0	0	0	0	
4000 ppm	10	10	0	0	0	0	
8000 ppm	10	10	0	0	0	0	
10000 ppm	10	10	0	0	0	0	
16000 ppm	9	9	0	0	0	0	

Significent difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of CHI SQUARE

APPENDIX B 8-1

GROSS FINDINGS (THIRTEEN−WEEK STUDY: SUMMARY)

RAT : MALE :SACRIFICED ANIMALS

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (14W)

Organ	Findings	Group Name / NO. of Animals	Control 10 (%)	1000 ppm 10 (%)	2000 ppm 10 (%)	4000 ppm 10 (%)
liver	herniation		0 (0)	0 (0)	0 (0)	0 (0)
kidney	white patch/zone		0 (0)	0 (0)	0 (0)	0 (0)
	white zone		0 (0)	0 (0)	0 (0)	0 (0)
	elevated		0 (0)	0 (0)	0 (0)	0 (0)

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (14W)

Organ	Findings	Group Name	8000 ppm		16000 ppm	
		NO. of Animals	10	(%)	10	(%)
liver	herniation		0	(0)	1	(10)
kidney	white patch/zone		0	(0)	1	(10)
	white zone		1	(10)	0	(0)
	elevated		1	(10)	0	(0)

APPENDIX B 8-2

GROSS FINDINGS (THIRTEEN−WEEK STUDY: SUMMARY)

RAT : FEMALE :SACRIFICED ANIMALS

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (14W)

Organ	Findings	Group Name / NO. of Animals	Control 10 (%)	1000 ppm 10 (%)	2000 ppm 10 (%)	4000 ppm 10 (%)
ovary	cyst		0 (0)	0 (0)	1 (10)	0 (0)

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (14W)

Organ	Findings	Group Name	8000 ppm		16000 ppm	
		NO. of Animals	10	(%)	10	(%)
ovary	cyst		0	(0)	0	(0)

APPENDIX B 8-3

GROSS FINDINGS (THIRTEEN−WEEK STUDY: SUMMARY)

MOSUE : FEMALE DEAD AND MORIBUND ANIMALS

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 14W)

Organ	Findings	Group Name NO. of Animals	Control 0 (%)	500 ppm 0 (%)	2000 ppm 0 (%)	4000 ppm 0 (%)
skin/app	absence		- (-)	- (-)	- (-)	- (-)
thymus	atrophic		- (-)	- (-)	- (-)	- (-)
whole body	wasting		- (-)	- (-)	- (-)	- (-)

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 14W)

Organ	Findings	Group Name NO. of Animals	8000 ppm 0 (%)	10000 ppm 0 (%)	16000 ppm 1 (%)
skin/app	absence		- (-)	- (-)	1 (100)
thymus	atrophic		- (-)	- (-)	1 (100)
whole body	wasting		- (-)	- (-)	1 (100)

APPENDIX B 8-4

GROSS FINDINGS (THIRTEEN−WEEK STUDY: SUMMARY)

MOSUE : MALE :SACRIFICED ANIMALS

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (14W)

Organ	Findings	Group Name / NO. of Animals	Control 10 (%)	500 ppm 10 (%)	2000 ppm 10 (%)	4000 ppm 10 (%)
spleen	black zone		0 (0)	1 (10)	0 (0)	0 (0)
liver	dark		0 (0)	0 (0)	0 (0)	0 (0)
kidney	white zone		1 (10)	1 (10)	0 (0)	0 (0)
	hydronephrosis		1 (10)	0 (0)	0 (0)	0 (0)

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (14W)

Organ	Findings	Group Name NO. of Animals	8000 ppm 9 (%)	10000 ppm 10 (%)	16000 ppm 10 (%)
spleen	black zone		0 (0)	0 (0)	1 (10)
liver	dark		9 (100)	10 (100)	10 (100)
kidney	white zone		1 (11)	0 (0)	0 (0)
	hydronephrosis		1 (11)	0 (0)	0 (0)

APPENDIX B 8-5

GROSS FINDINGS (THIRTEEN−WEEK STUDY: SUMMARY)

MOSUE : FEMALE :SACRIFICED ANIMALS

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (14W)

Organ	Findings	Group Name / NO. of Animals	Control 10 (%)	500 ppm 10 (%)	2000 ppm 10 (%)	4000 ppm 10 (%)
spleen	black zone		0 (0)	2 (20)	0 (0)	0 (0)
liver	dark		0 (0)	0 (0)	0 (0)	0 (0)
ovary	cyst		0 (0)	0 (0)	0 (0)	0 (0)

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (14W)

Organ	Findings	Group Name NO. of Animals	8000 ppm 10 (%)	10000 ppm 10 (%)	16000 ppm 9 (%)
spleen	black zone		1 (10)	1 (10)	0 (0)
liver	dark		9 (90)	8 (80)	9 (100)
ovary	cyst		0 (0)	1 (10)	0 (0)

APPENDIX B 9-1

ORGAN WEIGHT (THIRTEEN−WEEK STUDY: SUMMARY),ABSOLUTE

RAT : MALE

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	Body Weight	THYMUS	ADRENALS	TESTES	HEART	LUNGS
Control	10	315± 25	0.231± 0.025	0.049± 0.006	2.879± 0.105	0.947± 0.077	1.012± 0.081
1000 ppm	10	320± 19	0.256± 0.035	0.051± 0.004	2.876± 0.083	0.944± 0.059	1.025± 0.079
2000 ppm	10	307± 20	0.231± 0.026	0.051± 0.005	2.865± 0.111	0.925± 0.068	1.016± 0.083
4000 ppm	10	289± 20*	0.195± 0.027**	0.050± 0.004	2.809± 0.254	0.882± 0.084	0.967± 0.091
8000 ppm	10	285± 11**	0.198± 0.015*	0.052± 0.007	2.837± 0.209	0.844± 0.041**	0.963± 0.064
16000 ppm	10	252± 12**	0.170± 0.015**	0.047± 0.004	2.866± 0.085	0.787± 0.038**	0.879± 0.052**

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

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	10	1.838± 0.109	0.524± 0.046	7.688± 0.851	1.859± 0.046
1000 ppm	10	1.910± 0.090	0.536± 0.023	8.403± 0.520	1.886± 0.071
2000 ppm	10	1.868± 0.148	0.498± 0.033	8.346± 0.911	1.891± 0.052
4000 ppm	10	1.895± 0.148	0.500± 0.050	8.393± 0.754	1.874± 0.045
8000 ppm	10	1.935± 0.060	0.481± 0.023*	8.985± 0.412**	1.916± 0.162
16000 ppm	10	1.931± 0.097	0.445± 0.029**	8.784± 0.481**	1.799± 0.057

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

APPENDIX B 9-2

ORGAN WEIGHT (THIRTEEN−WEEK STUDY: SUMMARY),ABSOLUTE

RAT : FEMALE

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	Body Weight	THYMUS	ADRENALS	OVARIES	HEART	LUNGS
Control	10	182± 8	0.187± 0.025	0.052± 0.003	0.097± 0.016	0.625± 0.027	0.762± 0.035
1000 ppm	10	176± 8	0.187± 0.016	0.052± 0.004	0.091± 0.011	0.618± 0.020	0.747± 0.026
2000 ppm	10	178± 9	0.189± 0.013	0.053± 0.004	0.115± 0.089	0.624± 0.027	0.759± 0.052
4000 ppm	10	168± 7**	0.176± 0.014	0.054± 0.003	0.094± 0.015	0.580± 0.030**	0.771± 0.046
8000 ppm	10	161± 8**	0.169± 0.015	0.051± 0.005	0.081± 0.012	0.548± 0.039**	0.718± 0.046
16000 ppm	10	156± 8**	0.162± 0.016**	0.046± 0.006**	0.074± 0.006**	0.535± 0.029**	0.696± 0.046**

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

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	10	1.189± 0.038	0.356± 0.019	4.266± 0.329	1.749± 0.070
1000 ppm	10	1.185± 0.031	0.340± 0.028	4.234± 0.210	1.747± 0.029
2000 ppm	10	1.162± 0.054	0.349± 0.030	4.310± 0.236	1.730± 0.031
4000 ppm	10	1.145± 0.083	0.350± 0.034	4.466± 0.419	1.763± 0.038
8000 ppm	10	1.140± 0.078	0.330± 0.033	4.663± 0.190*	1.716± 0.045
16000 ppm	10	1.171± 0.080	0.327± 0.036	5.117± 0.469**	1.761± 0.046

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

APPENDIX B 9-3

ORGAN WEIGHT (THIRTEEN−WEEK STUDY: SUMMARY),ABSOLUTE

MOUSE: MALE

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	Body Weight	THYMUS	ADRENALS	TESTES	HEART	LUNGS
Control	10	29.4± 1.6	0.035± 0.009	0.013± 0.004	0.190± 0.027	0.140± 0.017	0.157± 0.014
500 ppm	10	28.7± 1.5	0.036± 0.006	0.011± 0.002	0.193± 0.023	0.135± 0.009	0.150± 0.013
2000 ppm	10	28.7± 2.3	0.036± 0.007	0.011± 0.004	0.188± 0.026	0.140± 0.012	0.153± 0.007
4000 ppm	10	26.9± 0.6	0.033± 0.004	0.011± 0.002	0.202± 0.020	0.134± 0.010	0.149± 0.007
8000 ppm	9	24.4± 1.9**	0.030± 0.005	0.010± 0.002	0.209± 0.021	0.127± 0.007	0.144± 0.012*
10000 ppm	10	25.1± 1.5**	0.033± 0.007	0.012± 0.004	0.197± 0.035	0.126± 0.010*	0.143± 0.006*
16000 ppm	10	21.9± 1.2**	0.028± 0.006	0.010± 0.002	0.190± 0.026	0.113± 0.012**	0.135± 0.009**

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

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	10	0.521± 0.376	0.047± 0.007	1.044± 0.053	0.444± 0.015
500 ppm	10	0.416± 0.030	0.040± 0.008	1.044± 0.052	0.443± 0.021
2000 ppm	10	0.406± 0.023	0.043± 0.004	1.066± 0.082	0.441± 0.019
4000 ppm	10	0.399± 0.020	0.044± 0.005	1.099± 0.042	0.445± 0.019
8000 ppm	9	0.372± 0.027	0.045± 0.008	1.090± 0.094	0.438± 0.013
10000 ppm	10	0.371± 0.015	0.043± 0.006	1.084± 0.052	0.427± 0.025
16000 ppm	10	0.325± 0.026**	0.042± 0.008	1.077± 0.044	0.423± 0.013

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

APPENDIX B 9-4

ORGAN WEIGHT (THIRTEEN−WEEK STUDY: SUMMARY),ABSOLUTE

MOUSE: FEMALE

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	Body Weight	THYMUS	ADRENALS	OVARIES	HEART	LUNGS
Control	10	21.4± 1.1	0.042± 0.005	0.011± 0.002	0.018± 0.005	0.114± 0.007	0.143± 0.008
500 ppm	10	21.7± 1.5	0.041± 0.007	0.012± 0.002	0.019± 0.003	0.115± 0.009	0.145± 0.011
2000 ppm	10	21.5± 1.3	0.044± 0.007	0.013± 0.002	0.019± 0.004	0.116± 0.011	0.146± 0.012
4000 ppm	10	20.7± 0.8	0.041± 0.005	0.013± 0.001	0.021± 0.005	0.109± 0.008	0.143± 0.010
8000 ppm	10	20.3± 0.7	0.041± 0.004	0.012± 0.002	0.018± 0.004	0.106± 0.008	0.136± 0.009
10000 ppm	10	19.4± 1.0**	0.039± 0.005	0.012± 0.002	0.022± 0.009	0.105± 0.010	0.132± 0.005*
16000 ppm	9	18.6± 0.5**	0.041± 0.004	0.011± 0.003	0.020± 0.005	0.090± 0.007**	0.132± 0.010

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

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	10	0.284± 0.015	0.051± 0.004	0.854± 0.038	0.448± 0.019
500 ppm	10	0.288± 0.014	0.052± 0.005	0.883± 0.063	0.446± 0.015
2000 ppm	10	0.289± 0.015	0.049± 0.007	0.874± 0.051	0.454± 0.024
4000 ppm	10	0.273± 0.013	0.051± 0.006	0.899± 0.055	0.447± 0.016
8000 ppm	10	0.268± 0.020	0.051± 0.008	0.996± 0.050**	0.454± 0.022
10000 ppm	10	0.258± 0.013**	0.046± 0.009	0.897± 0.074	0.446± 0.010
16000 ppm	9	0.253± 0.012**	0.045± 0.007	1.009± 0.064**	0.424± 0.013*

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

APPENDIX B 10-1

ORGAN WEIGHT (THIRTEEN−WEEK STUDY: SUMMARY), RELATIVE

RAT : MALE

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	Body Weight (g)	THYMUS	ADRENALS	TESTES	HEART	LUNGS
Control	10	315± 25	0.073± 0.007	0.016± 0.001	0.917± 0.056	0.301± 0.017	0.322± 0.025
1000 ppm	10	320± 19	0.080± 0.009	0.016± 0.001	0.901± 0.042	0.296± 0.016	0.321± 0.017
2000 ppm	10	307± 20	0.075± 0.006	0.017± 0.002	0.936± 0.042	0.302± 0.011	0.332± 0.020
4000 ppm	10	289± 20*	0.067± 0.008	0.017± 0.002	0.872± 0.082	0.305± 0.017	0.334± 0.025
8000 ppm	10	285± 11**	0.069± 0.003	0.018± 0.002*	0.996± 0.070*	0.296± 0.013	0.338± 0.021
16000 ppm	10	252± 12**	0.068± 0.006	0.019± 0.002**	1.139± 0.046**	0.313± 0.017	0.349± 0.015*

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

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	10	0.584± 0.028	0.166± 0.005	2.437± 0.162	0.593± 0.046
1000 ppm	10	0.598± 0.025	0.168± 0.009	2.627± 0.054	0.591± 0.028
2000 ppm	10	0.609± 0.019	0.162± 0.008	2.715± 0.144	0.618± 0.035
4000 ppm	10	0.655± 0.027**	0.173± 0.021	2.898± 0.122**	0.650± 0.047*
8000 ppm	10	0.679± 0.016**	0.169± 0.006	3.152± 0.062**	0.673± 0.066**
16000 ppm	10	0.766± 0.028**	0.177± 0.007*	3.486± 0.130**	0.715± 0.037**

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

APPENDIX B 10-2

ORGAN WEIGHT (THIRTEEN−WEEK STUDY: SUMMARY), RELATIVE

RAT : FEMALE

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	Body Weight (g)	THYMUS	ADRENALS	OVARIES	HEART	LUNGS
Control	10	182± 8	0.103± 0.011	0.029± 0.002	0.053± 0.007	0.344± 0.016	0.420± 0.020
1000 ppm	10	176± 8	0.107± 0.010	0.029± 0.002	0.052± 0.007	0.352± 0.017	0.425± 0.016
2000 ppm	10	178± 9	0.107± 0.007	0.030± 0.003	0.064± 0.048	0.352± 0.017	0.427± 0.022
4000 ppm	10	168± 7**	0.105± 0.006	0.032± 0.002*	0.056± 0.010	0.346± 0.013	0.459± 0.017**
8000 ppm	10	161± 8**	0.105± 0.007	0.032± 0.003*	0.050± 0.006	0.341± 0.020	0.447± 0.020*
16000 ppm	10	156± 8**	0.104± 0.007	0.030± 0.003	0.047± 0.003	0.344± 0.027	0.447± 0.022*

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

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	10	0.655± 0.032	0.196± 0.013	2.349± 0.164	0.963± 0.037
1000 ppm	10	0.675± 0.038	0.193± 0.011	2.408± 0.115	0.994± 0.043
2000 ppm	10	0.655± 0.027	0.196± 0.015	2.427± 0.115	0.976± 0.046
4000 ppm	10	0.682± 0.039	0.208± 0.015	2.663± 0.240*	1.052± 0.041**
8000 ppm	10	0.709± 0.027**	0.205± 0.013	2.903± 0.054**	1.069± 0.035**
16000 ppm	10	0.751± 0.027**	0.210± 0.015	3.282± 0.209**	1.132± 0.054**

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

APPENDIX B 10-3

ORGAN WEIGHT (THIRTEEN−WEEK STUDY: SUMMARY), RELATIVE

MOUSE: MALE

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	Body Weight (g)	THYMUS	ADRENALS	TESTES	HEART	LUNGS
Control	10	29.4± 1.6	0.117± 0.031	0.045± 0.013	0.645± 0.080	0.477± 0.069	0.534± 0.065
500 ppm	10	28.7± 1.5	0.126± 0.021	0.037± 0.008	0.673± 0.081	0.473± 0.036	0.525± 0.055
2000 ppm	10	28.7± 2.3	0.125± 0.024	0.040± 0.012	0.659± 0.103	0.488± 0.036	0.534± 0.048
4000 ppm	10	26.9± 0.6	0.122± 0.015	0.041± 0.006	0.751± 0.078	0.499± 0.034	0.556± 0.026
8000 ppm	9	24.4± 1.9**	0.121± 0.019	0.042± 0.009	0.862± 0.110**	0.523± 0.037	0.592± 0.025
10000 ppm	10	25.1± 1.5**	0.131± 0.026	0.047± 0.016	0.786± 0.137*	0.501± 0.037	0.570± 0.036
16000 ppm	10	21.9± 1.2**	0.127± 0.025	0.045± 0.009	0.869± 0.112**	0.515± 0.047	0.618± 0.020**

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

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	10	1.815± 1.456	0.159± 0.030	3.556± 0.230	1.511± 0.080
500 ppm	10	1.452± 0.098	0.138± 0.025	3.638± 0.092	1.549± 0.106
2000 ppm	10	1.415± 0.071	0.151± 0.017	3.709± 0.076	1.542± 0.142
4000 ppm	10	1.484± 0.074	0.163± 0.019	4.092± 0.127*	1.657± 0.067*
8000 ppm	9	1.531± 0.154	0.182± 0.023	4.468± 0.113**	1.805± 0.150**
10000 ppm	10	1.483± 0.089	0.171± 0.023	4.324± 0.171**	1.707± 0.143**
16000 ppm	10	1.485± 0.083	0.191± 0.030*	4.931± 0.113**	1.938± 0.093**

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

APPENDIX B 10-4

ORGAN WEIGHT (THIRTEEN−WEEK STUDY: SUMMARY), RELATIVE

MOUSE: FEMALE

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	Body Weight (g)	THYMUS	ADRENALS	OVARIES	HEART	LUNGS
Control	10	21.4± 1.1	0.194± 0.018	0.051± 0.007	0.086± 0.023	0.532± 0.022	0.669± 0.027
500 ppm	10	21.7± 1.5	0.187± 0.026	0.054± 0.010	0.088± 0.012	0.529± 0.056	0.666± 0.036
2000 ppm	10	21.5± 1.3	0.204± 0.028	0.060± 0.010	0.087± 0.016	0.538± 0.051	0.679± 0.038
4000 ppm	10	20.7± 0.8	0.199± 0.022	0.062± 0.005	0.101± 0.024	0.527± 0.044	0.691± 0.052
8000 ppm	10	20.3± 0.7	0.203± 0.017	0.057± 0.008	0.091± 0.018	0.524± 0.041	0.672± 0.032
10000 ppm	10	19.4± 1.0**	0.199± 0.019	0.061± 0.014	0.115± 0.048	0.545± 0.049	0.681± 0.030
16000 ppm	9	18.6± 0.5**	0.221± 0.021	0.060± 0.014	0.105± 0.028	0.482± 0.042	0.707± 0.048

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

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (14)

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	10	1.327± 0.071	0.239± 0.020	3.989± 0.194	2.095± 0.122
500 ppm	10	1.331± 0.076	0.239± 0.019	4.065± 0.201	2.060± 0.170
2000 ppm	10	1.345± 0.078	0.226± 0.030	4.063± 0.192	2.115± 0.116
4000 ppm	10	1.323± 0.081	0.249± 0.030	4.354± 0.205**	2.166± 0.125
8000 ppm	10	1.324± 0.061	0.254± 0.036	4.917± 0.145**	2.240± 0.081*
10000 ppm	10	1.333± 0.052	0.238± 0.039	4.631± 0.194**	2.308± 0.119**
16000 ppm	9	1.359± 0.066	0.239± 0.038	5.411± 0.270**	2.274± 0.079**

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

APPENDIX B 11-1

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS

(THIRTEEN−WEEK STUDY: SUMMARY)

RAT : MALE : SACRIFICED ANIMALS

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS (SUMMARY)
SACRIFICED ANIMALS (14W)

Organ	Findings	Group Name	Control				1000 ppm				2000 ppm				4000 ppm			
		No. of Animals	10				10				10				10			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Respiratory system]																		
nasal cavit	respiratory metaplasia:gland		4 (40)	0 (0)	0 (0)	0 (0)	3 (30)	0 (0)	0 (0)	0 (0)	6 (60)	0 (0)	0 (0)	0 (0)	3 (30)	0 (0)	0 (0)	0 (0)
lung	osseous 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)	2 (20)	0 (0)	0 (0)	0 (0)
[Circulatory system]																		
heart	granulation		0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	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	granulation		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	swelling of liver cell		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Urinary system]																		
kidney	basophilic change		0 (0)	0 (0)	0 (0)	0 (0)	2 (20)	0 (0)	0 (0)	0 (0)	2 (20)	0 (0)	0 (0)	0 (0)	3 (30)	0 (0)	0 (0)	0 (0)
	eosinophilic body		0 (0)	10 (100)	0 (0)	0 (0)	0 (0)	10 (100)	0 (0)	0 (0)	2 (20)	7 (70)	0 (0)	0 (0)	1 (10)	9 (90)	0 (0)	0 (0)
	hyaline cast		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)
	mineralization:cortico-medullary junction		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	2 (20)	0 (0)	0 (0)

Significant difference : * : P ≦ 0.05 ** : P ≦ 0.01 Test of Chi Square <1>:Slight <2>:Moderate <3>:Marked <4>:Severe

Organ	Findings	Group Name	8000 ppm				16000 ppm			
		No. of Animals	10				10			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Respiratory system]										
nasal cavit	respiratory metaplasia:gland		2 (20)	0 (0)	0 (0)	0 (0)	2 (20)	0 (0)	0 (0)	0 (0)
lung	osseous metaplasia		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Circulatory system]										
heart	granulation		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Digestive system]										
liver	granulation		1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	swelling of liver cell		7 (70)	0 (0)	0 (0)	0 ** (0)	10 (100)	0 (0)	0 (0)	0 ** (0)
[Urinary system]										
kidney	basophilic change		7 (70)	3 (30)	0 (0)	0 ** (0)	0 (0)	10 (100)	0 (0)	0 ** (0)
	eosinophilic body		1 (10)	8 (80)	1 (10)	0 (0)	2 (20)	8 (80)	0 (0)	0 (0)
	hyaline cast		0 (0)	2 (20)	0 (0)	0 (0)	1 (10)	4 (40)	0 (0)	0 * (0)
	mineralization:cortico-medullary junction		3 (30)	3 (30)	0 (0)	0 * (0)	5 (50)	1 (10)	0 (0)	0 * (0)

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Chi Square <1>:Slight <2>:Moderate <3>:Marked <4>:Severe

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS (SUMMARY)
SACRIFICED ANIMALS (14W)

Organ	Findings	Group Name	Control				1000 ppm				2000 ppm				4000 ppm			
		No. of Animals	10				10				10				10			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Urinary system]																		
kidney	mineralization:papilla		0 (0)	0 (0)	0 (0)	0 (0)	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:tubular lumen		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	desquamation:pelvis		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
urin bladd	mineralization		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Endocrine system]																		
pituitary	cyst		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)
[Reproductive system]																		
testis	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)	1 (10)	0 (0)
prostate	lymphocytic infiltration		1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Significant difference : * : P ≦ 0.05 ** : P ≦ 0.01 Test of Chi Square <1>:Slight <2>:Moderate <3>:Marked <4>:Severe

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS (SUMMARY)
SACRIFICED ANIMALS (14W)

Organ	Findings	Group Name	8000 ppm				16000 ppm			
		No. of Animals	10				10			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Urinary system]										
kidney	mineralization:papilla		1 (10)	0 (0)	0 (0)	0 (0)	3 (30)	2 (20)	0 (0)	0 * (0)
	dilatation:tubular lumen		0 (0)	0 (0)	0 (0)	0 (0)	2 (20)	3 (30)	0 (0)	0 * (0)
	desquamation:pelvis		0 (0)	0 (0)	0 (0)	0 (0)	2 (20)	3 (30)	0 (0)	0 * (0)
urin bladd	mineralization		2 (20)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Endocrine system]										
pituitary	cyst		1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Reproductive system]										
testis	atrophy		0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
prostate	lymphocytic infiltration		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Chi Square <1>:Slight <2>:Moderate <3>:Marked <4>:Severe

APPENDIX B 11-2

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS

(THIRTEEN−WEEK STUDY: SUMMARY)

RAT : FEMALE : SACRIFICED ANIMALS

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS (SUMMARY)
SACRIFICED ANIMALS (14W)

Organ	Findings	Group Name	Control				1000 ppm				2000 ppm				4000 ppm			
		No. of Animals	10				10				10				10			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Respiratory system]																		
nasal cavit	inflammation:squamous 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)	1 (10)	0 (0)	0 (0)	0 (0)
	respiratory metaplasia:gland		2 (20)	0 (0)	0 (0)	0 (0)	2 (20)	0 (0)	0 (0)	0 (0)	2 (20)	0 (0)	0 (0)	0 (0)	3 (30)	0 (0)	0 (0)	0 (0)
lung	osseous 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)
[Hematopoietic system]																		
bone marrow	granulation		1 (10)	2 (20)	0 (0)	0 (0)	0 (0)	2 (20)	0 (0)	0 (0)	1 (10)	2 (20)	0 (0)	0 (0)	2 (20)	0 (0)	0 (0)	0 (0)
spleen	deposit of hemosiderin		3 (30)	0 (0)	0 (0)	0 (0)	2 (20)	0 (0)	0 (0)	0 (0)	2 (20)	0 (0)	0 (0)	0 (0)	4 (40)	0 (0)	0 (0)	0 (0)
[Digestive system]																		
tongue	inflammation:foreign body		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)
liver	granulation		1 (10)	1 (10)	0 (0)	0 (0)	2 (20)	1 (10)	0 (0)	0 (0)	2 (20)	0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)
	swelling of liver cell		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)
[Urinary system]																		
kidney	basophilic change		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Significant difference : * : P ≦ 0.05 ** : P ≦ 0.01 Test of Chi Square <1>:Slight <2>:Moderate <3>:Marked <4>:Severe

Organ	Findings	Group Name	8000 ppm				16000 ppm			
		No. of Animals	10				10			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Respiratory system]										
nasal cavit	inflammation:squamous epithelium		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	respiratory metaplasia:gland		4 (40)	0 (0)	0 (0)	0 (0)	3 (30)	0 (0)	0 (0)	0 (0)
lung	osseous metaplasia		1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Hematopoietic system]										
bone marrow	granulation		1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
spleen	deposit of hemosiderin		3 (30)	0 (0)	0 (0)	0 (0)	4 (40)	0 (0)	0 (0)	0 (0)
[Digestive system]										
tongue	inflammation:foreign body		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
liver	granulation		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	swelling of liver cell		8 (80)	0 (0)	0 (0)	0 ** (0)	10 (100)	0 (0)	0 (0)	0 ** (0)
[Urinary system]										
kidney	basophilic change		1 (10)	0 (0)	0 (0)	0 (0)	1 (10)	1 (10)	0 (0)	0 (0)

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Chi Square <1>:Slight <2>:Moderate <3>:Marked <4>:Severe

STUDY NO. : 0185
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS (SUMMARY)
SACRIFICED ANIMALS (14W)

Organ	Findings	Group Name	Control				1000 ppm				2000 ppm				4000 ppm			
		No. of Animals	10				10				10				10			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Urinary system]																		
kidney	hyaline cast		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	mineralization:cortico-medullary junction		6 (60)	3 (30)	0 (0)	0 (0)	4 (40)	6 (60)	0 (0)	0 (0)	3 (30)	6 (60)	0 (0)	0 (0)	4 (40)	6 (60)	0 (0)	0 (0)
	dilatation:tubular lumen		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	desquamation:pelvis		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Reproductive system]																		
ovary	cyst		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Special sense organs/appandage]																		
Harder gl	lymphocytic infiltration		0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Chi Square <1>:Slight <2>:Moderate <3>:Marked <4>:Severe

Organ	Findings	Group Name	8000 ppm				16000 ppm			
		No. of Animals	10				10			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Urinary system]										
kidney	hyaline cast		2 (20)	0 (0)	0 (0)	0 (0)	1 (10)	5 (50)	0 (0)	0 * (0)
	mineralization:cortico-medullary junction		4 (40)	5 (50)	0 (0)	0 (0)	2 (20)	4 (40)	0 (0)	0 (0)
	dilatation:tubular lumen		0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	2 (20)	0 (0)	0 (0)
	desquamation:pelvis		1 (10)	0 (0)	0 (0)	0 (0)	3 (30)	4 (40)	0 (0)	0 ** (0)
[Reproductive system]										
ovary	cyst		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Special sense organs/appandage]										
Harder gl	lymphocytic infiltration		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Significant difference : * : P ≦ 0.05 ** : P ≦ 0.01 Test of Chi Square <1>:Slight <2>:Moderate <3>:Marked <4>:Severe

APPENDIX B 11-3

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS

(THIRTEEN−WEEK STUDY: SUMMARY)

MOUSE: MALE : SACRIFICED ANIMALS

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS (SUMMARY)
SACRIFICED ANIMALS (14W)

Organ	Findings	Group Name	Control				500 ppm				2000 ppm				4000 ppm			
		No. of Animals	10				10				10				10			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Respiratory system]																		
nasal cavit	eosinophilic change: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)	1 (10)	0 (0)	0 (0)	0 (0)
[Hematopoietic system]																		
spleen	deposit of melanin		0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Digestive system]																		
stomach	hyperplasia:forestomach		0 (0)	0 (0)	0 (0)	0 (0)	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	granulation		4 (40)	0 (0)	0 (0)	0 (0)	3 (30)	0 (0)	0 (0)	0 (0)	5 (50)	0 (0)	0 (0)	0 (0)	5 (50)	0 (0)	0 (0)	0 (0)
	swelling of liver cell		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Urinary system]																		
kidney	basophilic change		1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)
	hyaline cast		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	osseous 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)
	inflammatory polyp		0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Chi Square <1>:Slight <2>:Moderate <3>:Marked <4>:Severe

Organ	Findings	Group Name	8000 ppm				10000 ppm				16000 ppm			
		No. of Animals	9				10				10			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Respiratory system]														
nasal cavit	eosinophilic change:olfactory epithelium		0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)
[Hematopoietic system]														
spleen	deposit of melanin		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)
[Digestive system]														
stomach	hyperplasia:forestomach		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
liver	granulation		5 (56)	0 (0)	0 (0)	0 (0)	4 (40)	0 (0)	0 (0)	0 (0)	3 (30)	0 (0)	0 (0)	0 (0)
	swelling of liver cell		9 (100)	0 (0)	0 (0)	0 (0) **	10 (100)	0 (0)	0 (0)	0 (0) **	10 (100)	0 (0)	0 (0)	0 (0) **
[Urinary system]														
kidney	basophilic change		1 (11)	0 (0)	0 (0)	0 (0)	3 (30)	0 (0)	0 (0)	0 (0)	2 (20)	0 (0)	0 (0)	0 (0)
	hyaline cast		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	4 (40)	0 (0)	0 (0)	0 (0)
	osseous metaplasia		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)
	inflammatory polyp		0 (0)	0 (0)	1 (11)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Chi Square <1>:Slight <2>:Moderate <3>:Marked <4>:Severe

Organ	Findings	Group Name	Control				500 ppm				2000 ppm				4000 ppm			
		No. of Animals	10				10				10				10			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Urinary system]																		
kidney	vacuolization of proximal tubule		3 (30)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)
	hydronephrosis		0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	mineralization:papilla		0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)
	desquamation:pelvis		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Chi Square <1>:Slight <2>:Moderate <3>:Marked <4>:Severe

Organ	Findings	Group Name	8000 ppm				10000 ppm				16000 ppm			
		No. of Animals	9				10				10			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Urinary system]														
kidney	vacuolization of proximal tubule		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	hydronephrosis		0 (0)	0 (0)	1 (11)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	mineralization:papilla		1 (11)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	desquamation:pelvis		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	8 (80)	0 (0)	0 (0)	0 ** (0)

Significant difference : * : P ≦ 0.05 ** : P ≦ 0.01 Test of Chi Square <1>:Slight <2>:Moderate <3>:Marked <4>:Severe

APPENDIX B 11-4

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS

(THIRTEEN−WEEK STUDY: SUMMARY)

MOUSE: FEMALE : SACRIFICED ANIMALS

Organ	Findings	Group Name	Control				500 ppm				2000 ppm				4000 ppm			
		No. of Animals	10				10				10				10			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Respiratory system]																		
nasal cavit	eosinophilic change:olfactory epithelium		1 (10)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)
	eosinophilic change:respiratory epithelium		0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	3 (30)	0 (0)	0 (0)	0 (0)
[Hematopoietic system]																		
spleen	deposit of melanin		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (20)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Digestive system]																		
liver	necrosis:focal		0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	granulation		5 (50)	0 (0)	0 (0)	0 (0)	5 (50)	1 (10)	0 (0)	0 (0)	3 (30)	0 (0)	0 (0)	0 (0)	4 (40)	0 (0)	0 (0)	0 (0)
	eosinophilic fine granular change:liver cell		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Urinary system]																		
kidney	basophilic change		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	hyaline cast		0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	mineralization:papilla		1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Chi Square <1>:Slight <2>:Moderate <3>:Marked <4>:Severe

Organ	Findings	Group Name	8000 ppm				10000 ppm				16000 ppm			
		No. of Animals	10				10				9			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Respiratory system]														
nasal cavit	eosinophilic change:olfactory epithelium		1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	eosinophilic change:respiratory epithelium		1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Hematopoietic system]														
spleen	deposit of melanin		0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Digestive system]														
liver	necrosis:focal		0 (0)	0 (0)	0 (0)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	granulation		6 (60)	0 (0)	0 (0)	0 (0)	6 (60)	0 (0)	0 (0)	0 (0)	5 (56)	0 (0)	0 (0)	0 (0)
	eosinophilic fine granular change:liver cell		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	7 (78)	2 (22)	0 (0)	0 (0) **
[Urinary system]														
kidney	basophilic change		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (11)	0 (0)	0 (0)
	hyaline cast		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	mineralization:papilla		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Chi Square <1>:Slight <2>:Moderate <3>:Marked <4>:Severe

STUDY NO. : 0186
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS (SUMMARY)
SACRIFICED ANIMALS (14W)

Organ	Findings	Group Name	Control				500 ppm				2000 ppm				4000 ppm			
		No. of Animals	10				10				10				10			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Urinary system]																		
kidney	desquamation:pelvis		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Nervous system]																		
spinal cord	epidermal cyst		1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Chi Square <1>:Slight <2>:Moderate <3>:Marked <4>:Severe

Organ	Findings	Group Name	8000 ppm				10000 ppm				16000 ppm			
		No. of Animals	10				10				9			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Urinary system]														
kidney	desquamation:pelvis		1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (11)	0 (0)	0 (0)	0 (0)
[Nervous system]														
spinal cord	epidermal cyst		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Significant difference : * : P ≦ 0.05 ** : P ≦ 0.01 Test of Chi Square <1>:Slight <2>:Moderate <3>:Marked <4>:Severe

APPENDIX B 12-1

IDENTITY AND PURITY OF BIPHENYL

PERFORMED AT THE JAPAN BIOASSAY LABORATORY

(THIRTEEN−WEEK STUDY)

IDENTITY AND PURITY OF BIPHENYL PERFORMED AT THE JAPANBIOASSAY LABORATORY
(THIRTEEN-WEEK STUDIES)

Lot no.DSK6646

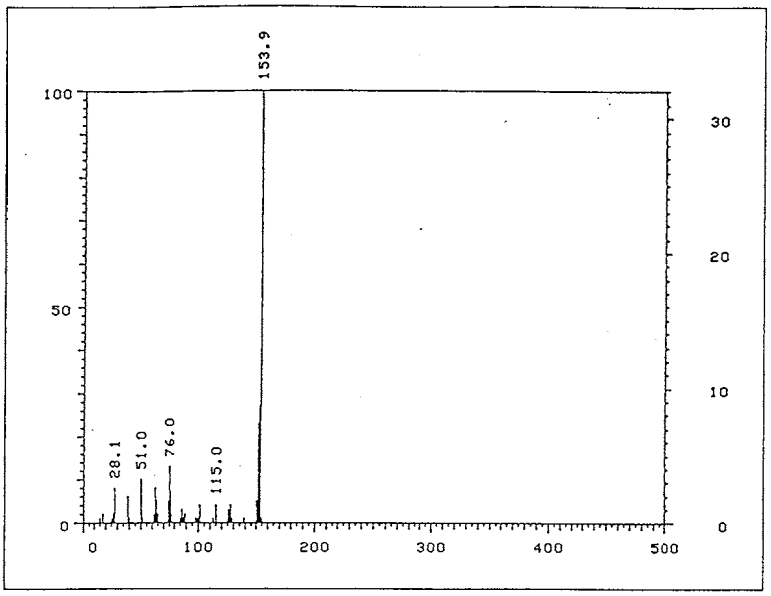
1. Spectral data

Mass Spectrometry

Instrument: Hitachi M-80B

Ionization: EI(Electron Ionization)

Ionization Voltage: 70eV



Mass Spectrum of BIPHENYL

Result:

	Molecule Weight
Theoretical Value	154.1(Calculated)
Determined	153.9

ULTRA VIOLET SPECTRUM

Instrument: SHIMADZU UV-240

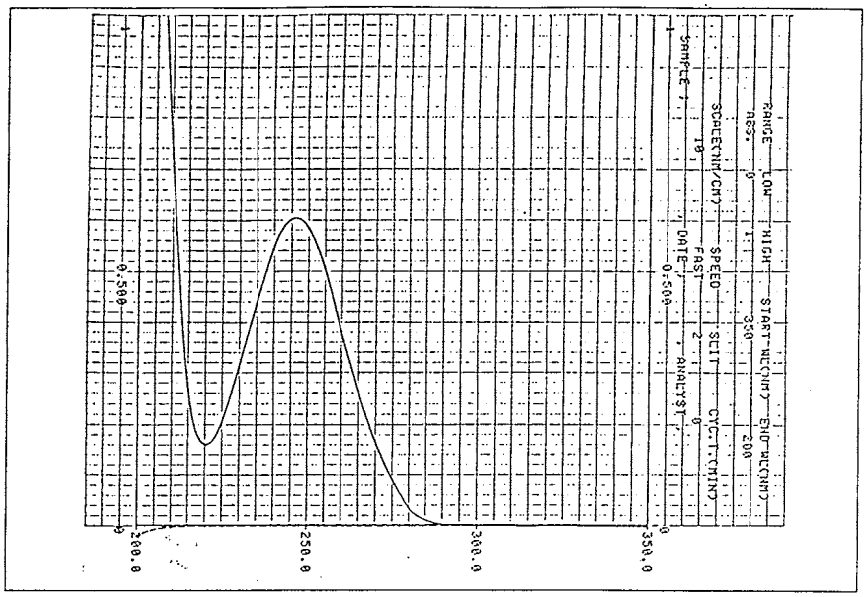
Cell: 1 mm Cell

Solvent: Methanol

Slit: 2 nm

Range: 0-1

Concentration(mg/l): 50



Ultra Violet Spectrum of BIPHENYL

Results:	Determined	Literature Value (Sadtler handbook by Sadtler Research Laboratories, Inc.)
Wave Length (nm)	246.5	246.5

2. Gas Chromatography

Instrument:	Hewlett Packard 5890A
Column:	Methyl Silicone(0.2mmϕ × 50m)
Column Temperature:	180°C
Flow Rate:	1 ml/min
Detector:	FID(Hydrogen Flame Ionization)
Injection Volume:	1 μ l

Results: Only major peak(except solvent peek)

Peak No.	Retention Time(min)	Retention Time Relative to Major Peak	AREA (percent of major peak)
1	3.27	1.00	100

3. Conclusions: The result of the Mass spectrum agreed with the theoretical value and the ultra violet spectrum agreed with the literature values. Gas chromtography indicated only the major peak.

APPENDIX B 12-2

STABILITY OF BIPHENYL AT THE JAPAN BIOASSAY LABORATORY

(THIRTEEN−WEEK STUDY)

STABILITY OF BIPHENYL AT THE JAPAN BIOASSAY LABORATORY(THIRTEEN-WEEK STUDIES)

Lot no.DSK6646

1.Sample storage: Biphenyl were stored for about 13 weeks at 5°C.

2.Gas Chromatography

Instrument:	Hewlett Packard 5890A
Column:	Methyl Silicone(0.2mmϕ × 50m)
Column Temperature:	180°C
Flow Rate:	1 ml/min
Detector:	FID(Hydrogen Flame Ionization)
Injection Volume:	1 μ l

Results: Only major peak(except solvent peek)

Date	Retention Time(min)	Retention Time Relative to Major Peak	Area (percent of Major peak)
11/01/91	3.27	1.00	100
03/02/92	3.268	1.00	100

3. Conclusions: Gas chromatography indicates only the major peak. Consequently,Biphenyl was stable as the chemical when stored for about 13 weeks at 5°C.

APPENDIX B 12-3

ANALYSYS OF BIPHENYL CONCENTRATION IN FORMULATED DIETS OF THE THIRTEEN −WEEK STUDIES

ANALYSIS OF BIPHENYL CONCENTRATION IN FORMULATED DIETS OF THE THIRTEEN-WEEK STUDIES

(Rat)

Concentration of BIPHENYL in feed for Target Concentration(ppm)				
1000 (a)	2000 (a)	4000 (a)	8000 (a)	16000 (a)
1080.2(110.4)	1983.2(99.2)	4383.2(97.9)	8925.6(111.6)	16744.1(104.7)

(Mouse)

Concentration of BIPHENYL in feed for Target Concentration(ppm)					
500 (a)	2000 (a)	4000 (a)	8000 (a)	10000 (a)	16000 (a)
555.8(110.4)	1983.2(99.2)	4383.2(109.6)	8925.6(111.6)	10598.5(106.0)	16744.1(104.7)

(a) Determined as a percent of target concentration

APPENDIX B 12-4

STABILITY OF BIPHENYL IN FORMULATED DIETS

OF THE THIRTEEN - WEEK STUDIES

STABILITY OF BIPHENYL IN FORMULATED DIETS OF THE THIRTEEN-WEEK STUDIES

(Rat)

	Concentration of BIPHENYL in feed for Target Concentration(ppm)	
Date Mixed	500 (a)	16000 (a)
10/29/91	471.3	17720.3
11/05/91	478.6(101.5)	15082.6(85.1)

(Mouse)

	Concentration of BIPHENYL in feed for Target Concentration(ppm)	
Date Mixed	500 (a)	16000 (a)
10/29/91	471.3	17720.3
11/05/91	491.4(104.3)	14411.1(81.3)

(a) Determined as a percent of target concentration

APPENDIX C 1

METHODS FOR HEMATOLOGY, BIOCHEMISTRY AND URINALSYS

METHODS FOR HEMATOLOGY, BIOCHEMISTRY AND URINALYSIS

Item	Method	Unit
Hematology		
Red blood cell (RBC)	Light scattering method [1]	$\times 10^6/\mu l$
Hemoglobin (Hgb)	Cyanmethemoglobin method [1]	g/dl
Hematocrit (Hct)	Calculated as RBC×MCV/10 [1]	%
Mean corpuscular volume (MCV)	Light scattering method [1]	fl
Mean corpuscular hemoglobin (MCH)	Calculated as Hgb/RBC×10 [1]	pg
Mean corpuscular hemoglobin concentration (MCHC)	Calculated as Hgb/Hct×100 [1]	g/dl
Platelet	Light scattering method [1]	$\times 10^3/\mu l$
White blood cell (WBC)	Light scattering method [1]	$\times 10^3/\mu l$
Differential WBC	Pattern recognition method [2] (May-Grunwald-Giemsa staining)	%
Biochemistry		
Total protein (TP)	Biuret method [3]	g/dl
Albumin (Alb)	BCG method [3]	g/dl
A/G ratio	Calculated as Alb/ (TP−Alb) [3]	
T-bilirubin	Michaelson method [3]	mg/dl
Glucose	Enzymatic method (HK·G-6-PDH) [3]	mg/dl
T-cholesterol	Enzymatic method (CEH·COD·POD) [3]	mg/dl
Triglyceride	Enzymatic method (GK·GPO·POD) [3]	mg/dl
Phospholipid	Enzymatic method (PLD·COD·POD) [3]	mg/dl
Glutamic oxaloacetic transaminase (GOT)	Karmen method [3]	IU/l
Glutamic pyruvic transaminase (GPT)	Karmen method [3]	IU/l
Lactate dehydrogenase (LDH)	Wroblewski-LaDue method [3]	IU/l
Alkaline phosphatase (ALP)	GSCC method [3]	IU/l
γ-Glutamyl transpeptidase (G-GTP)	L-γ-Glutamyl-p-nitroanilide substrate method [3]	IU/l
Creatine phosphokinase (CPK)	GSCC method [3]	IU/l
Urea nitrogen	Enzymatic method (Urease·GLDH) [3]	mg/dl
Creatinine	Jaffe method [3]	mg/dl
Sodium	Flame photometry [4]	mEq/l
Potassium	Flame photometry [4]	mEq/l
Chloride	Coulometric titration [4]	mEq/l
Calcium	OCPC method [3]	mg/dl
Inorganic phosphorus	Enzymatic method (SPL·PGM·G-6-PDH) [3]	mg/dl
Urinalysis		
pH, Protein, Glucose, Ketone body, Bilirubin, Occult blood, Urobilinogen	Urinalysis reagent paper method [5]	

1) Automatic blood cell analyzer (Technicon H·1 : Technicon Instruments Corporation,USA)
2) Automatic blood cell differential analyzer (Hitachi 8200 : Hitachi,Ltd.,Japan)
3) Automatic analyzer (Hitachi 705 : Hitachi,Ltd.,Japan)
4) Flame photometer (Hitachi 750 : Hitachi,Ltd.,Japan)
5) Ames reagent strips for urinalysis (Multistix, Uro-Labstix : Miles Sankyo Co.,Ltd.,Japan)

APPENDIX C 2

UNITS AND DECIMAL PLACE FOR HEMATOLOGY AND BIOCHEMISTRY

UNITS AND DECIMNAL PLACE FOR HEMATOLOGY AND BIOCHEMISTRY

	TEST ITEM	DECIMAL PLACE	UNIT
HEMATOLOGY	Red blood cell	2	$\times 10^6/\mu l$
	Hemoglobin	1	g/dl
	Hematocrit	1	%
	MCV	1	fl
	MCH	1	pg
	MCHC	1	g/dl
	Platelet	0	$\times 10^3/\mu l$
	White blood cell	2	$\times 10^3/\mu l$
	Differntial WBC	0	%
BIOCHEMISTRY	Total protein	1	g/dl
	Albumin	1	g/dl
	A/G ratio	1	
	T-bilirubin	2	mg/dl
	Glucose	0	mg/dl
	T-cholesterol	0	mg/dl
	Triglyceride	0	mg/dl
	Phospholipid	0	mg/dl
	GOT	0	IU/l
	GPT	0	IU/l
	LDH	0	IU/l
	ALP	0	IU/l
	γ -GTP	0	IU/l
	CPK	0	IU/l
	Urea nitrogen	1	mg/dl
	Creatinine	1	mg/dl
	Sodium	0	mEq/l
	Potassium	1	mEq/l
	Chloride	0	mEq/l
	Calcium	1	mg/dl
	Inorganic phosphorus	1	mg/dl