アントラセン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

APPENDIXES

(B1-1～C2)
13 週間試験：ラット/0220；マウス/0221

APPENDIXES

APPENDIXES (CONTINUED)

APPENDIXES (CONTINUED)

APPENDIX A 1-1

BODY WEIGHT CHANGES (TWO-WEEK STUDY:SUMMARY)

RAT : MALE

STUDY NO. : 0193
ANIMAL : RAT F344
UNIT : g
REPORT TYPE : A1 2
SEX : MALE

BODY WEIGHT CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day 0-0	1-1	1-3	1-7	2-3	2-7
Control	120± 4	123± 5	130± 5	147± 5	159± 5	171± 5
80 ppm	120± 4	122± 5	130± 5	146± 5	158± 5	169± 6
400 ppm	120± 4	122± 5	129± 5	145± 7	157± 8	168± 9
2000 ppm	120± 4	121± 5	129± 5	145± 5	157± 6	167± 6
10000 ppm	120± 4	118± 5	126± 4	142± 4	154± 3	165± 4
50000 ppm	120± 4	117± 3*	123± 4**	140± 5**	152± 6*	161± 8**

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

APPENDIX A 1-2

BODY WEIGHT CHANGES (TWO-WEEK STUDY: SUMMARY)

RAT : FEMALE

STUDY NO. : 0193
ANIMAL : RAT F344
UNIT : g
REPORT TYPE : A1 2
SEX : FEMALE

BODY WEIGHT CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day 0-0		1-1		1-3		1-7		2-3		2-7	
Control	99±	3	101±	3	105±	4	113±	4	120±	4	124±	4
80 ppm	99±	3	101±	3	106±	3	114±	4	120±	5	125±	6
400 ppm	99±	3	100±	3	105±	4	114±	5	121±	5	127±	4
2000 ppm	99±	3	99±	3	103±	2	112±	3	117±	4	121±	4
10000 ppm	99±	3	96±	3**	101±	3*	110±	5	116±	4	121±	4
50000 ppm	99±	2	94±	3**	97±	3**	107±	3**	113±	5**	117±	3**

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

APPENDIX A 1-3

BODY WEIGHT CHANGES(TWO-WEEK STUDY:SUMMARY)

MOSUE : MALE

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
UNIT : g
REPORT TYPE : A1 2
SEX : MALE

BODY WEIGHT CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day 0-0	1-1	1-3	1-7	2-3	2-7
Control	23.5± 0.8	23.2± 1.0	22.7± 1.0	23.7± 1.1	23.7± 1.1	24.7± 1.0
80 ppm	23.6± 0.8	23.1± 1.0	22.9± 0.9	23.6± 0.8	23.9± 0.9	24.4± 1.2
400 ppm	23.5± 0.8	23.3± 0.9	22.9± 0.9	23.7± 1.1	23.9± 0.9	24.5± 1.0
2000 ppm	23.5± 0.8	23.3± 1.2	23.1± 1.1	23.6± 1.1	23.5± 1.3	24.2± 1.1
10000 ppm	23.5± 0.8	23.3± 0.8	22.9± 0.8	23.3± 0.8	23.3± 0.8	24.0± 0.8
50000 ppm	23.5± 0.8	22.2± 1.0	22.3± 1.1	22.4± 0.9*	22.6± 0.9	22.6± 1.3**

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

APPENDIX A 1-4

BODY WEIGHT CHANGES (TWO-WEEK STUDY: SUMMARY)

MOSUE: FEMALE

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
UNIT : g
REPORT TYPE : A1 2
SEX : FEMALE

BODY WEIGHT CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day 0-0	1-1	1-3	1-7	2-3	2-7
Control	18.9± 0.6	18.7± 0.6	18.4± 0.6	18.9± 0.7	18.9± 0.5	19.3± 0.6
80 ppm	18.9± 0.6	18.8± 0.8	18.6± 0.6	18.8± 0.5	19.4± 0.8	19.8± 0.6
400 ppm	18.9± 0.6	18.5± 0.6	18.3± 0.9	18.6± 0.8	19.8± 0.6*	19.3± 0.6
2000 ppm	18.9± 0.6	18.5± 0.5	18.3± 0.6	18.5± 0.8	19.0± 0.6	19.3± 0.7
10000 ppm	18.9± 0.7	18.2± 0.7	18.1± 0.8	18.5± 0.7	18.8± 0.7	18.5± 0.8*
50000 ppm	18.9± 0.6	17.7± 0.6**	17.6± 0.7*	18.0± 0.6	18.4± 0.7	18.3± 0.4**

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

APPENDIX A 2-1

FOOD CONSUMPTION CHANGES (TWO-WEEK STUDY: SUMMARY)

RAT : MALE

STUDY NO. : 0193
ANIMAL : RAT F344
UNIT : g
REPORT TYPE : A1 2
SEX : MALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day(effective) 1-3(3)	1-7(4)	2-3(3)	2-7(4)
Control	12.3± 0.6	13.4± 0.5	12.8± 0.6	13.4± 0.4
80 ppm	12.5± 0.7	13.4± 0.6	12.9± 0.8	13.1± 1.1
400 ppm	12.0± 0.8	13.1± 0.9	12.8± 0.9	13.2± 0.9
2000 ppm	11.4± 0.7*	12.8± 0.6	12.8± 0.8	13.2± 0.8
10000 ppm	10.3± 0.7**	12.8± 0.5	12.7± 0.5	13.0± 0.6
50000 ppm	9.4± 0.6**	12.8± 0.7	13.1± 0.6	13.4± 1.0

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

APPENDIX A 2-2

FOOD CONSUMPTION CHANGES (TWO-WEEK STUDY: SUMMARY)

RAT : FEMALE

STUDY NO. : 0193
ANIMAL : RAT F344
UNIT : g
REPORT TYPE : A1 2
SEX : FEMALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day(effective) 1-3(3)	1-7(4)	2-3(3)	2-7(4)
Control	10.1± 0.5	11.1± 0.6	10.5± 0.6	10.8± 0.9
80 ppm	10.5± 0.5	11.3± 0.7	10.9± 0.7	11.4± 0.7
400 ppm	10.2± 0.6	10.9± 0.6	11.0± 0.6	11.5± 0.6
2000 ppm	9.0± 0.3	10.3± 0.5*	10.2± 0.5	10.5± 0.6
10000 ppm	8.0± 0.4**	10.1± 0.6**	10.2± 0.4	10.4± 0.8
50000 ppm	6.5± 0.9**	9.9± 0.4**	9.9± 0.6	10.0± 0.6*

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

APPENDIX A 2-3

FOOD CONSUMPTION CHANGES (TWO-WEEK STUDY: SUMMARY)

MOSUE : MALE

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
UNIT : g
REPORT TYPE : A1 2
SEX : MALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day(effective) 1-3(3)	1-7(4)	2-3(3)	2-7(4)
Control	4.9± 0.4	5.4± 0.5	4.7± 0.2	5.1± 0.4
80 ppm	4.4± 0.3	4.9± 0.3	4.3± 0.3	5.0± 0.8
400 ppm	4.9± 0.7	5.3± 0.8	4.6± 0.6	4.9± 0.4
2000 ppm	5.1± 0.6	5.3± 0.6	4.5± 0.5	4.8± 0.4
10000 ppm	4.6± 0.5	5.1± 0.8	4.4± 0.4	4.8± 0.4
50000 ppm	4.5± 0.5	5.1± 0.7	4.3± 0.5	4.6± 0.5

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

APPENDIX A 2-4

FOOD CONSUMPTION CHANGES(TWO-WEEK STUDY: SUMMARY)

MOSUE : FEMALE

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
UNIT : g
REPORT TYPE : A1 2
SEX : FEMALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day(effective) 1-3(3)	1-7(4)	2-3(3)	2-7(4)
Control	4.3± 0.5	4.6± 0.5	4.1± 0.6	4.5± 0.4
80 ppm	4.8± 0.8	4.7± 0.4	4.4± 0.9	4.4± 0.3
400 ppm	4.5± 0.6	4.7± 0.7	4.4± 0.4	4.5± 0.3
2000 ppm	4.2± 0.5	4.5± 0.4	4.1± 0.4	4.4± 0.2
10000 ppm	4.0± 0.4	4.2± 0.5	3.9± 0.4	4.0± 0.3**
50000 ppm	3.9± 0.8	4.5± 0.8	4.0± 0.6	4.1± 0.5*

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

APPENDIX A 3-1

CHEMICAL INTAKE CHANGES (TWO-WEEK STUDY: SUMMARY)

RAT : MALE

STUDY NO. : 0193
ANIMAL : RAT F344
UNIT : g／kg／d a y
REPORT TYPE : A1 2
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 1	2
Control	0.000± 0.000	0.000± 0.000
80 ppm	0.007± 0.000	0.006± 0.001
400 ppm	0.036± 0.002	0.031± 0.001
2000 ppm	0.177± 0.007	0.158± 0.006
10000 ppm	0.897± 0.029	0.791± 0.039
50000 ppm	4.595± 0.170	4.138± 0.144

APPENDIX A 3-2

CHEMICAL INTAKE CHANGES (TWO-WEEK STUDY: SUMMARY)

RAT : FEMALE

STUDY NO. : 0193
ANIMAL : RAT F344
UNIT : g/kg/day
REPORT TYPE : A1 2
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 1	2
Control	0.000± 0.000	0.000± 0.000
80 ppm	0.008± 0.000	0.007± 0.000
400 ppm	0.038± 0.001	0.036± 0.002
2000 ppm	0.184± 0.007	0.173± 0.007
10000 ppm	0.915± 0.030	0.861± 0.040
50000 ppm	4.603± 0.138	4.257± 0.277

APPENDIX A 3-3

CHEMICAL INTAKE CHANGES (TWO-WEEK STUDY: SUMMARY)

MOSUE : MALE

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
UNIT : g／kg／d a y
REPORT TYPE : A1 2
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 1	2
Control	0.000± 0.000	0.000± 0.000
80 ppm	0.017± 0.001	0.017± 0.003
400 ppm	0.089± 0.012	0.080± 0.008
2000 ppm	0.446± 0.051	0.400± 0.030
10000 ppm	2.182± 0.297	1.990± 0.157
50000 ppm	11.498± 1.878	10.235± 1.082

APPENDIX A 3-4

CHEMICAL INTAKE CHANGES (TWO-WEEK STUDY: SUMMARY)

MOSUE : FEMALE

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
UNIT : g／kg／d a y
REPORT TYPE : A1 2
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 1	2
Control	0.000± 0.000	0.000± 0.000
80 ppm	0.020± 0.002	0.018± 0.001
400 ppm	0.102± 0.012	0.094± 0.005
2000 ppm	0.483± 0.060	0.451± 0.024
10000 ppm	2.291± 0.281	2.179± 0.169
50000 ppm	12.532± 1.950	11.168± 1.112

APPENDIX A 4-1

HEMATOLOGY (TWO-WEEK STUDY: SUMMARY)

RAT: MALE

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

HEMATOLOGY(1) (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	RED BLOOD CELL $10^6/\mu\ell$	HEMOGLOBIN g/dℓ	HEMATOCRIT %	MCV fℓ	MCH pg	MCHC g/dℓ	PLATELET $10^3/\mu\ell$
Control	5	8.00± 0.16	14.9± 0.1	43.2± 0.8	54.0± 0.2	18.7± 0.4	34.6± 0.7	990± 34
80 ppm	5	7.83± 0.18	14.7± 0.4	42.2± 0.9	53.9± 0.3	18.7± 0.2	34.7± 0.4	970± 134
400 ppm	5	7.74± 0.06	14.5± 0.1	41.5± 0.3*	53.6± 0.3	18.7± 0.1	35.0± 0.2	990± 53
2000 ppm	5	7.62± 0.12**	14.1± 0.2*	41.0± 0.5**	53.8± 0.6	18.5± 0.3	34.4± 0.4	1068± 51
10000 ppm	5	7.48± 0.24**	13.9± 0.4**	40.4± 1.2**	54.0± 0.3	18.7± 0.3	34.5± 0.5	1057± 74
50000 ppm	5	7.61± 0.19**	14.0± 0.2**	41.1± 0.9**	54.0± 0.4	18.5± 0.2	34.2± 0.3	1086± 38

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

(HCL070)

Group Name	NO. of Animals	RETICULOCYTE ‰	PROTHROMBIN TIME sec	APTT sec
Control	5	52± 13	12.5± 0.2	20.0± 1.1
80 ppm	5	51± 8	12.3± 0.3	20.6± 1.1
400 ppm	5	52± 13	12.6± 0.2	20.8± 0.6
2000 ppm	5	65± 8	12.4± 0.4	21.3± 1.2
10000 ppm	5	59± 10	12.3± 0.4	22.0± 1.7
50000 ppm	5	67± 4	12.1± 0.4	22.3± 1.3*

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

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

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

Group Name	NO. of Animals	WBC $10^3/\mu\ell$	Differential WBC (%) N-BAND	N-SEG	EOSINO	BASO	MONO	LYMPHO	OTHER
Control	5	3.49± 0.30	0± 0	14± 3	1± 1	0± 0	4± 1	81± 3	0± 0
80 ppm	5	3.48± 0.68	0± 1	14± 3	1± 1	0± 0	4± 1	81± 5	0± 0
400 ppm	5	2.95± 0.25	0± 0	17± 3	1± 0	0± 0	3± 1	79± 4	0± 0
2000 ppm	5	3.45± 0.27	0± 0	19± 4	1± 1	0± 0	3± 2	78± 4	0± 0
10000 ppm	5	3.88± 0.96	1± 1	16± 4	1± 1	0± 0	4± 1	78± 5	0± 0
50000 ppm	5	4.08± 1.25	0± 0	18± 3	1± 0	0± 0	3± 1	78± 4	0± 0

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

APPENDIX A 4-2

HEMATOLOGY(TWO-WEEK STUDY: SUMMARY)

RAT: FEMALE

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

HEMATOLOGY(1) (SUMMARY)
SURVIVAL ANIMALS (2)

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	5	8.16± 0.17	15.5± 0.3	43.8± 0.8	53.6± 0.4	19.0± 0.1	35.4± 0.4	833± 58
80 ppm	5	8.14± 0.06	15.6± 0.2	43.8± 0.4	53.8± 0.3	19.1± 0.3	35.6± 0.5	840± 50
400 ppm	5	7.52± 0.09**	14.3± 0.2**	40.3± 0.6**	53.6± 0.3	19.0± 0.2	35.3± 0.3	900± 86
2000 ppm	5	7.35± 0.11**	13.9± 0.2**	39.5± 0.4**	53.8± 0.3	18.9± 0.3	35.1± 0.4	930± 58
10000 ppm	5	7.48± 0.29**	13.8± 0.4**	40.1± 1.4**	53.7± 0.3	18.4± 0.4*	34.4± 0.6**	985± 144*
50000 ppm	5	7.35± 0.13**	13.7± 0.3**	39.4± 0.6**	53.6± 0.3	18.7± 0.3	34.8± 0.4	952± 47

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

(HCL070)

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

HEMATOLOGY(1) (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	RETICULOCYTE ‰		PROTHROMBIN TIME sec		APTT sec	
Control	5	33±	3	12.6±	0.3	18.8±	0.7
80 ppm	5	33±	5	12.6±	0.2	19.6±	1.1
400 ppm	5	56±	6**	12.3±	0.4	18.5±	0.8
2000 ppm	5	82±	4**	12.4±	0.2	19.7±	2.8
10000 ppm	5	80±	10**	12.3±	0.1	20.6±	1.9
50000 ppm	5	89±	10**	12.0±	0.2**	20.9±	1.9

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

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

Group Name	NO. of Animals	WBC $10^3/\mu\ell$		Differential WBC (%) N-BAND		N-SEG		EOSINO		BASO		MONO		LYMPHO		OTHER	
Control	5	3.47±	0.93	0±	1	20±	7	2±	2	0±	0	5±	2	74±	7	0±	0
80 ppm	5	3.09±	0.61	0±	1	21±	2	2±	1	0±	0	5±	1	71±	3	0±	0
400 ppm	5	2.86±	0.22	1±	1	21±	6	2±	1	0±	0	4±	2	72±	5	0±	0
2000 ppm	5	3.47±	0.92	0±	0	18±	2	1±	1	0±	0	5±	2	76±	3	0±	0
10000 ppm	5	3.19±	1.54	0±	1	16±	4	1±	1	0±	0	4±	1	79±	5	0±	0
50000 ppm	5	3.12±	0.86	1±	1	19±	4	1±	1	0±	0	4±	1	75±	4	0±	0

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

APPENDIX A 4-3

HEMATOLOGY (TWO-WEEK STUDY: SUMMARY)

MOSUE : MALE

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

HEMATOLOGY(1) (SUMMARY)
SURVIVAL ANIMALS (2)

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	5	10.91± 0.38	16.3± 0.7	49.0± 2.5	45.0± 1.4	14.9± 0.7	33.2± 1.0	1323± 59
80 ppm	5	10.79± 0.26	16.4± 0.7	49.4± 1.7	45.8± 0.8	15.2± 0.5	33.3± 0.8	1334± 126
400 ppm	5	10.70± 0.32	16.3± 0.5	49.0± 1.2	45.8± 0.5	15.3± 0.3	33.3± 0.6	1334± 40
2000 ppm	5	10.80± 0.13	16.2± 0.3	49.4± 0.9	45.8± 1.1	15.0± 0.2	32.7± 0.9	1326± 95
10000 ppm	5	10.28± 0.27**	15.7± 0.4	47.1± 1.3	45.8± 0.5	15.3± 0.1	33.4± 0.2	1477± 83*
50000 ppm	5	10.07± 0.17**	15.2± 0.1*	45.9± 1.4*	45.6± 0.9	15.1± 0.2	33.1± 0.9	1681± 70**

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

(HCL070)

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

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

Group Name	NO. of Animals	WBC $10^3/\mu\ell$		Differential WBC (%) N-BAND		N-SEG		EOSINO		BASO		MONO		LYMPHO		OTHER	
Control	5	1.86±	0.65	2±	1	13±	5	1±	1	0±	0	2±	1	81±	5	0±	0
80 ppm	5	1.81±	0.47	2±	1	16±	3	2±	3	0±	0	3±	1	78±	4	0±	0
400 ppm	5	2.92±	1.78	1±	1	11±	2	1±	1	0±	0	3±	0	84±	4	0±	0
2000 ppm	5	2.29±	1.25	2±	1	16±	6	1±	1	0±	0	2±	1	79±	6	0±	0
10000 ppm	5	1.72±	0.77	4±	3	17±	4	1±	1	0±	0	3±	1	75±	3	0±	0
50000 ppm	5	1.13±	0.28	4±	2	26±	4**	2±	3	0±	0	3±	1	65±	6**	0±	0

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

(JCL71A)

APPENDIX A 4-4

HEMATOLOGY (TWO-WEEK STUDY: SUMMARY)

MOSUE : FEMALE

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

HEMATOLOGY(1) (SUMMARY)
SURVIVAL ANIMALS (2)

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	5	10.52± 0.26	15.8± 0.2	47.3± 1.5	45.0± 0.5	15.0± 0.4	33.5± 1.0	1099± 42
80 ppm	5	10.52± 0.19	15.9± 0.2	47.3± 1.0	44.9± 0.5	15.1± 0.3	33.6± 0.5	1146± 66
400 ppm	5	10.20± 0.36	15.5± 0.6	46.2± 1.6	45.3± 0.2	15.2± 0.3	33.6± 0.5	1155± 107
2000 ppm	5	9.99± 0.32*	15.2± 0.2*	45.1± 0.9	45.2± 0.9	15.2± 0.4	33.7± 0.5	1144± 84
10000 ppm	5	10.02± 0.26*	15.3± 0.3	45.5± 1.6	45.4± 0.6	15.3± 0.3	33.6± 0.9	1322± 80**
50000 ppm	5	9.61± 0.26**	14.7± 0.4**	43.7± 1.3**	45.5± 0.4	15.2± 0.1	33.6± 0.3	1419± 69**

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

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

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

Group Name	NO. of Animals	WBC $10^3/\mu\ell$		Differential WBC (%) N-BAND		N-SEG		EOSINO		BASO		MONO		LYMPHO		OTHER	
Control	5	1.49±	0.37	2±	1	10±	2	2±	1	0±	0	3±	2	84±	4	0±	0
80 ppm	5	1.05±	0.23	1±	1	13±	3	1±	1	0±	0	2±	1	82±	2	0±	0
400 ppm	5	1.37±	0.40	2±	2	11±	3	2±	1	0±	0	3±	1	82±	4	0±	0
2000 ppm	5	1.10±	0.56	2±	1	12±	4	1±	0	0±	0	3±	2	82±	5	0±	0
10000 ppm	5	0.72±	0.13*	3±	1	13±	6	2±	1	0±	0	3±	1	78±	5	0±	0
50000 ppm	5	0.56±	0.09**	5±	3	15±	5	1±	3	0±	0	3±	1	76±	10	0±	0

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

(JCL71A)

APPENDIX A 5-1

BIOCHEMISTRY (TWO-WEEK STUDY: SUMMARY)

RAT: MALE

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

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	PHOSPHOLIPID mg/dl
Control	5	5.8± 0.1	3.3± 0.1	1.4± 0.1	0.28± 0.17	184± 8	61± 3	114± 9
80 ppm	5	5.7± 0.1	3.3± 0.1	1.4± 0.1	0.28± 0.13	177± 5	59± 3	111± 8
400 ppm	5	5.5± 0.2**	3.1± 0.1**	1.4± 0.1	0.37± 0.14	174± 13	59± 2	108± 10
2000 ppm	5	5.5± 0.1**	3.1± 0.1**	1.3± 0.0	0.34± 0.13	179± 19	61± 5	109± 10
10000 ppm	5	5.6± 0.1*	3.2± 0.1	1.3± 0.1	0.33± 0.10	180± 22	62± 3	113± 9
50000 ppm	5	5.7± 0.1	3.3± 0.0	1.3± 0.1	0.26± 0.14	170± 12	66± 3	115± 5

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

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	GOT IU/ℓ		GPT IU/ℓ		LDH IU/ℓ		G-GTP IU/ℓ		CPK IU/ℓ		UREA NITROGEN mg/dℓ		CREATININE mg/dℓ	
Control	5	57±	4	17±	1	336±	180	1±	0	198±	77	16.0±	2.1	0.4±	0.0
80 ppm	5	57±	1	17±	1	253±	33	1±	1	171±	44	15.2±	1.5	0.4±	0.0
400 ppm	5	57±	3	15±	1	323±	112	1±	0	158±	32	15.5±	2.1	0.4±	0.0
2000 ppm	5	58±	5	15±	1	253±	108	1±	0	149±	36	15.9±	1.4	0.4±	0.0
10000 ppm	5	57±	4	15±	1	276±	84	1±	0	185±	104	16.0±	2.5	0.4±	0.0
50000 ppm	5	53±	4	13±	1**	260±	115	1±	0	140±	34	17.6±	2.7	0.4±	0.0

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

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	SODIUM mEq／ℓ		POTASSIUM mEq／ℓ		CHLORIDE mEq／ℓ		CALCIUM mg／dℓ		INORGANIC PHOSPHORUS mg／dℓ	
Control	5	140±	1	3.8±	0.2	105±	2	10.8±	0.2	8.1±	0.8
80 ppm	5	140±	1	3.8±	0.3	105±	2	10.8±	0.2	8.6±	0.9
400 ppm	5	140±	2	3.9±	0.3	106±	1	10.7±	0.3	8.1±	0.9
2000 ppm	5	140±	2	3.7±	0.4	105±	1	10.8±	0.2	8.4±	0.7
10000 ppm	5	141±	2	4.0±	0.4	105±	1	10.8±	0.2	8.5±	0.7
50000 ppm	5	141±	2	3.9±	0.3	104±	1	11.0±	0.2	8.4±	0.5

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

(HCL074)

APPENDIX A 5-2

BIOCHEMISTRY (TWO-WEEK STUDY: SUMMARY)

RAT: FEMALE

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

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		PHOSPHOLIPID mg/dl	
Control	5	5.7±	0.2	3.3±	0.1	1.5±	0.1	0.58±	0.03	185±	14	64±	2	114±	4
80 ppm	5	5.7±	0.1	3.3±	0.1	1.4±	0.1	0.57±	0.11	180±	17	70±	3	125±	6
400 ppm	5	5.5±	0.1	3.3±	0.1	1.4±	0.1	0.55±	0.13	172±	16	71±	5	127±	9
2000 ppm	5	5.6±	0.1	3.3±	0.1	1.4±	0.0	0.64±	0.11	170±	18	72±	2	124±	6
10000 ppm	5	5.7±	0.0	3.3±	0.0	1.4±	0.0	0.71±	0.16	180±	9	81±	6**	140±	10**
50000 ppm	5	6.0±	0.1**	3.4±	0.1	1.3±	0.1	0.85±	0.02*	176±	8	83±	5**	142±	11**

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

(HCL074)

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	GOT IU/ℓ		GPT IU/ℓ		LDH IU/ℓ		G-GTP IU/ℓ		CPK IU/ℓ		UREA NITROGEN mg/dℓ		CREATININE mg/dℓ	
Control	5	60±	4	16±	1	372±	89	1±	1	178±	12	18.8±	2.1	0.4±	0.0
80 ppm	5	57±	4	16±	2	288±	88	2±	0	175±	69	16.0±	3.3	0.4±	0.0
400 ppm	5	58±	2	15±	1	343±	71	1±	0	181±	71	16.9±	3.1	0.4±	0.0
2000 ppm	5	62±	6	14±	1	469±	239	2±	1	188±	63	19.0±	1.8	0.4±	0.0
10000 ppm	5	59±	2	14±	1	383±	58	2±	0	240±	109	16.8±	2.1	0.4±	0.0
50000 ppm	5	54±	3	13±	1**	387±	70	3±	0	193±	52	18.1±	1.7	0.4±	0.1

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

(HCL074)

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	SODIUM mEq／ℓ		POTASSIUM mEq／ℓ		CHLORIDE mEq／ℓ		CALCIUM mg／dℓ		INORGANIC PHOSPHORUS mg／dℓ	
Control	5	142±	4	3.7±	0.4	109±	1	10.4±	0.4	6.9±	1.3
80 ppm	5	141±	3	3.6±	0.1	107±	1	10.6±	0.1	7.3±	1.4
400 ppm	5	141±	2	3.9±	0.3	106±	2	10.8±	0.1	7.7±	0.8
2000 ppm	5	140±	2	3.9±	0.4	106±	2*	10.8±	0.4	7.6±	1.0
10000 ppm	5	142±	1	3.6±	0.3	106±	1*	10.8±	0.4	7.1±	0.7
50000 ppm	5	142±	2	3.8±	0.2	106±	2	11.2±	0.3**	7.7±	1.0

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

APPENDIX A 5-3

BIOCHEMISTRY (TWO-WEEK STUDY: SUMMARY)

MOSUE : MALE

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

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	GOT IU/l
Control	5	5.3± 0.3	2.7± 0.2	1.1± 0.0	0.35± 0.18	291± 18	90± 7	35± 5
80 ppm	5	5.3± 0.4	2.7± 0.2	1.1± 0.1	0.31± 0.12	300± 24	96± 9	39± 5
400 ppm	5	5.3± 0.2	2.7± 0.1	1.1± 0.1	0.28± 0.03	299± 11	94± 7	33± 2
2000 ppm	5	5.6± 0.2	2.9± 0.1	1.1± 0.1	0.30± 0.03	298± 60	95± 7	36± 2
10000 ppm	5	5.4± 0.2	2.9± 0.1	1.2± 0.0	0.33± 0.02	320± 17	90± 5	35± 5
50000 ppm	5	5.7± 0.3	3.0± 0.1*	1.1± 0.1	0.45± 0.10	265± 25	87± 8	34± 3

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

(HCL074)

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	GPT IU/ℓ		LDH IU/ℓ		CPK IU/ℓ		UREA NITROGEN mg/dℓ		SODIUM mEq/ℓ		POTASSIUM mEq/ℓ		CHLORIDE mEq/ℓ	
Control	5	15±	2	222±	28	47±	10	24.1±	4.0	150±	1	4.2±	0.2	117±	1
80 ppm	5	16±	3	266±	88	72±	33	25.1±	2.8	151±	2	4.5±	0.4	116±	4
400 ppm	5	13±	2	197±	12	43±	11	23.6±	4.0	150±	1	4.4±	0.4	115±	4
2000 ppm	5	17±	5	235±	48	61±	32	24.9±	3.6	151±	3	4.1±	0.6	118±	1
10000 ppm	5	16±	3	239±	31	48±	11	24.2±	2.3	149±	2	3.8±	0.5	117±	2
50000 ppm	5	12±	4	322±	110	63±	38	26.0±	6.2	152±	5	4.0±	0.5	117±	2

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

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	CALCIUM mg/dℓ	INORGANIC PHOSPHORUS mg/dℓ
Control	5	9.3± 0.2	8.4± 2.1
80 ppm	5	9.3± 0.3	8.6± 2.1
400 ppm	5	9.2± 0.3	8.6± 1.7
2000 ppm	5	9.4± 0.3	8.5± 0.4
10000 ppm	5	9.4± 0.2	8.1± 1.3
50000 ppm	5	9.5± 0.2	8.3± 1.8

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

APPENDIX A 5-4

BIOCHEMISTRY (TWO-WEEK STUDY: SUMMARY)

MOSUE : FEMALE

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

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		GOT I U／ℓ	
Control	5	5.2±	0.2	2.9±	0.1	1.3±	0.0	0.32±	0.10	191±	22	65±	4	45±	6
80 ppm	5	5.1±	0.3	2.9±	0.2	1.3±	0.0	0.27±	0.08	215±	46	65±	3	40±	6
400 ppm	5	5.1±	0.3	2.9±	0.1	1.3±	0.1	0.31±	0.13	200±	41	68±	3	42±	8
2000 ppm	5	5.2±	0.3	2.9±	0.2	1.3±	0.1	0.30±	0.08	202±	58	65±	9	43±	4
10000 ppm	5	5.4±	0.3	3.0±	0.2	1.3±	0.1	0.31±	0.08	185±	50	58±	7	44±	4
50000 ppm	5	5.1±	0.2	2.9±	0.1	1.3±	0.1	0.38±	0.13	185±	36	52±	5**	41±	4

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

(HCL074)

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	GPT IU/ℓ		LDH IU/ℓ		CPK IU/ℓ		UREA NITROGEN mg/dℓ		SODIUM mEq/ℓ		POTASSIUM mEq/ℓ		CHLORIDE mEq/ℓ	
Control	5	19±	4	276±	56	69±	38	23.8±	6.7	153±	3	4.6±	0.6	117±	4
80 ppm	5	14±	5	257±	66	60±	18	25.2±	4.6	152±	3	4.0±	0.4	119±	3
400 ppm	5	13±	4	277±	70	56±	17	23.7±	3.3	153±	4	4.3±	0.2	116±	1
2000 ppm	5	15±	2	260±	39	67±	36	22.8±	3.8	153±	3	4.2±	0.6	117±	3
10000 ppm	5	20±	3	311±	44	62±	25	21.4±	3.9	155±	2	4.6±	0.7	116±	2
50000 ppm	5	19±	3	331±	64	47±	16	24.2±	4.6	154±	3	3.9±	0.3	118±	2

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

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	CALCIUM mg/dℓ		INORGANIC PHOSPHORUS mg/dℓ	
Control	5	8.9±	0.1	8.5±	0.9
80 ppm	5	8.9±	0.2	7.3±	1.2
400 ppm	5	8.9±	0.3	7.4±	1.9
2000 ppm	5	8.9±	0.4	7.5±	0.8
10000 ppm	5	9.2±	0.3	8.4±	1.2
50000 ppm	5	9.0±	0.4	7.6±	1.1

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

APPENDIX A 6-1

GROSS FINDINGS (TWO-WEEK STUDY: SUMMARY)

RAT : MALE : SACRIFICED ANIMALS

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
ALL ANIMALS (0- 2W)

Organ	Findings	Group Name NO. of Animals	Control 10 (%)	80 ppm 10 (%)	400 ppm 10 (%)	2000 ppm 10 (%)
thymus	red zone		0 (0)	0 (0)	0 (0)	0 (0)
liver	herniation		0 (0)	0 (0)	1 (10)	0 (0)

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
ALL ANIMALS (0- 2W)

Organ	Findings	Group Name NO. of Animals	10000 ppm 10 (%)	50000 ppm 10 (%)
thymus	red zone		1 (10)	0 (0)
liver	herniation		0 (0)	0 (0)

APPENDIX A 6-2

GROSS FINDINGS (TWO-WEEK STUDY: SUMMARY)

RAT : FEMALE : SACRIFICED ANIMALS

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
ALL ANIMALS (0- 2W)

Organ	Findings	Group Name / NO. of Animals	Control 10 (%)	80 ppm 10 (%)	400 ppm 10 (%)	2000 ppm 10 (%)
liver	herniation		0 (0)	0 (0)	1 (10)	0 (0)

STUDY NO. : 0183
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
ALL ANIMALS (0- 2W)

Organ	Findings	Group Name NO. of Animals	10000 ppm 10 (%)	50000 ppm 10 (%)
liver	herniation		0 (0)	1 (10)

APPENDIX A 6-3

GROSS FINDINGS (TWO-WEEK STUDY: SUMMARY)

MOUSE: MALE : SACRIFICED ANIMALS

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
ALL ANIMALS (0- 2W)

Organ	Findings	Group Name NO. of Animals	Control 10 (%)	80 ppm 10 (%)	400 ppm 10 (%)	2000 ppm 10 (%)
spleen	black zone		0 (0)	0 (0)	0 (0)	0 (0)
kidney	hydronephrosis		0 (0)	1 (10)	0 (0)	0 (0)

Organ	Findings	Group Name NO. of Animals	10000 ppm 10 (%)	50000 ppm 10 (%)
spleen	black zone		0 (0)	1 (10)
kidney	hydronephrosis		0 (0)	1 (10)

APPENDIX A 6-4

GROSS FINDINGS (TWO-WEEK STUDY: SUMMARY)

MOUSE: FEMALE : SACRIFICED ANIMALS

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
ALL ANIMALS (0-- 2W)

Organ	Findings	Group Name NO. of Animals	Control 10 (%)	80 ppm 10 (%)	400 ppm 10 (%)	2000 ppm 10 (%)
spleen	black zone		0 (0)	0 (0)	0 (0)	2 (20)

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
ALL ANIMALS (0- 2W)

Organ	Findings	Group Name NO. of Animals	10000 ppm 10 (%)	50000 ppm 10 (%)
spleen	black zone		0 (0)	2 (20)

APPENDIX A 7-1

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

RAT: MALE

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	Body Weight	THYMUS	ADRENALS	TESTES	HEART	LUNGS
Control	5	171± 5	0.374± 0.020	0.030± 0.001	2.077± 0.090	0.625± 0.041	0.777± 0.040
80 ppm	5	171± 4	0.372± 0.017	0.031± 0.003	2.045± 0.063	0.620± 0.013	0.758± 0.031
400 ppm	5	165± 6	0.372± 0.025	0.033± 0.005	1.932± 0.184	0.597± 0.039	0.768± 0.044
2000 ppm	5	167± 9	0.364± 0.019	0.037± 0.004	2.081± 0.256	0.584± 0.034	0.802± 0.060
10000 ppm	5	166± 4	0.374± 0.029	0.032± 0.005	2.014± 0.187	0.611± 0.043	0.764± 0.034
50000 ppm	5	158± 8*	0.365± 0.036	0.035± 0.007	1.900± 0.195	0.580± 0.013	0.757± 0.040

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

(HCL040)

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	5	1.360± 0.029	0.392± 0.018	6.816± 0.398	1.710± 0.039
80 ppm	5	1.365± 0.098	0.409± 0.015	6.673± 0.468	1.683± 0.032
400 ppm	5	1.382± 0.066	0.427± 0.017*	6.583± 0.569	1.692± 0.027
2000 ppm	5	1.422± 0.104	0.451± 0.014**	7.440± 0.859	1.698± 0.043
10000 ppm	5	1.430± 0.117	0.457± 0.016**	8.246± 0.532**	1.682± 0.057
50000 ppm	5	1.421± 0.112	0.429± 0.024*	8.921± 0.718**	1.693± 0.053

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

APPENDIX A 7-2

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

RAT: FEMALE

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	Body Weight	THYMUS	ADRENALS	OVARIES	HEART	LUNGS
Control	5	124± 4	0.302± 0.021	0.035± 0.007	0.079± 0.009	0.483± 0.018	0.635± 0.026
80 ppm	5	125± 8	0.308± 0.016	0.038± 0.006	0.082± 0.011	0.484± 0.028	0.670± 0.053
400 ppm	5	128± 3	0.322± 0.024	0.040± 0.005	0.081± 0.015	0.486± 0.018	0.673± 0.053
2000 ppm	5	121± 6	0.294± 0.036	0.038± 0.007	0.077± 0.014	0.483± 0.045	0.660± 0.043
10000 ppm	5	120± 4	0.292± 0.040	0.038± 0.006	0.066± 0.011	0.455± 0.014	0.626± 0.014
50000 ppm	5	119± 3	0.266± 0.018	0.041± 0.007	0.076± 0.005	0.458± 0.014	0.595± 0.019

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

(HCL040)

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	5	1.039± 0.061	0.304± 0.015	4.425± 0.307	1.622± 0.015
80 ppm	5	1.112± 0.065	0.316± 0.012	4.777± 0.460	1.622± 0.041
400 ppm	5	1.127± 0.036	0.361± 0.016**	5.058± 0.331*	1.601± 0.034
2000 ppm	5	1.077± 0.058	0.397± 0.022**	5.036± 0.406	1.607± 0.027
10000 ppm	5	1.078± 0.064	0.382± 0.035**	5.737± 0.396**	1.586± 0.028
50000 ppm	5	1.016± 0.048	0.372± 0.027**	6.225± 0.179**	1.605± 0.012

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

APPENDIX A 7-3

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

MOUSE: MALE

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	Body Weight	THYMUS	ADRENALS	TESTES	HEART	LUNGS
Control	5	24.8± 1.3	0.054± 0.004	0.008± 0.002	0.178± 0.011	0.129± 0.011	0.148± 0.016
80 ppm	5	24.5± 1.4	0.051± 0.006	0.008± 0.002	0.165± 0.026	0.116± 0.015	0.137± 0.011
400 ppm	5	24.1± 1.3	0.048± 0.008	0.009± 0.001	0.163± 0.015	0.129± 0.010	0.143± 0.010
2000 ppm	5	24.6± 1.4	0.053± 0.011	0.009± 0.001	0.164± 0.051	0.125± 0.013	0.135± 0.008
10000 ppm	5	24.2± 0.4	0.049± 0.006	0.008± 0.001	0.164± 0.024	0.132± 0.013	0.145± 0.009
50000 ppm	5	22.4± 1.7	0.037± 0.006**	0.010± 0.003	0.171± 0.015	0.115± 0.012	0.138± 0.024

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

(HCL040)

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	5	0.355± 0.024	0.048± 0.004	1.166± 0.117	0.429± 0.019
80 ppm	5	0.353± 0.024	0.046± 0.005	1.220± 0.113	0.432± 0.021
400 ppm	5	0.351± 0.018	0.047± 0.006	1.237± 0.112	0.424± 0.011
2000 ppm	5	0.345± 0.023	0.045± 0.005	1.270± 0.189	0.425± 0.017
10000 ppm	5	0.356± 0.018	0.047± 0.005	1.397± 0.075	0.431± 0.016
50000 ppm	5	0.347± 0.043	0.048± 0.007	1.311± 0.158	0.427± 0.008

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

APPENDIX A 7-4

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

MOUSE: FEMALE

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	Body Weight	THYMUS	ADRENALS	OVARIES	HEART	LUNGS
Control	5	19.5± 0.7	0.065± 0.009	0.012± 0.002	0.022± 0.003	0.105± 0.008	0.148± 0.012
80 ppm	5	19.8± 0.5	0.064± 0.005	0.011± 0.001	0.024± 0.005	0.105± 0.011	0.134± 0.007
400 ppm	5	18.8± 0.4	0.059± 0.007	0.010± 0.001	0.019± 0.003	0.103± 0.008	0.129± 0.012
2000 ppm	5	19.1± 0.7	0.065± 0.006	0.010± 0.001	0.017± 0.003	0.104± 0.012	0.129± 0.014
10000 ppm	5	18.4± 1.0	0.059± 0.009	0.011± 0.003	0.020± 0.004	0.095± 0.009	0.136± 0.013
50000 ppm	5	18.1± 0.5*	0.054± 0.007	0.011± 0.002	0.017± 0.002	0.101± 0.022	0.129± 0.006

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

(HCL040)

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	5	0.260± 0.016	0.052± 0.005	0.811± 0.070	0.428± 0.017
80 ppm	5	0.244± 0.020	0.050± 0.004	0.850± 0.116	0.441± 0.010
400 ppm	5	0.262± 0.018	0.048± 0.005	0.849± 0.098	0.441± 0.015
2000 ppm	5	0.255± 0.019	0.047± 0.005	0.924± 0.141	0.433± 0.016
10000 ppm	5	0.255± 0.030	0.050± 0.009	0.880± 0.150	0.451± 0.013
50000 ppm	5	0.248± 0.023	0.055± 0.005	0.945± 0.117	0.427± 0.013

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

APPENDIX A 8-1

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

RAT: MALE

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	Body Weight (g)	THYMUS	ADRENALS	TESTES	HEART	LUNGS
Control	5	171± 5	0.219± 0.017	0.018± 0.001	1.212± 0.058	0.364± 0.018	0.453± 0.021
80 ppm	5	171± 4	0.217± 0.012	0.018± 0.002	1.196± 0.031	0.363± 0.016	0.444± 0.016
400 ppm	5	165± 6	0.225± 0.014	0.020± 0.003	1.169± 0.090	0.362± 0.016	0.465± 0.026
2000 ppm	5	167± 9	0.219± 0.017	0.022± 0.002*	1.243± 0.103	0.350± 0.008	0.480± 0.016
10000 ppm	5	166± 4	0.226± 0.018	0.019± 0.003	1.212± 0.097	0.368± 0.024	0.460± 0.021
50000 ppm	5	158± 8*	0.231± 0.024	0.022± 0.004*	1.202± 0.104	0.367± 0.013	0.480± 0.032

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

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	5	0.794± 0.021	0.229± 0.004	3.975± 0.147	0.998± 0.030
80 ppm	5	0.798± 0.039	0.239± 0.010	3.900± 0.184	0.985± 0.022
400 ppm	5	0.836± 0.032	0.259± 0.005**	3.982± 0.275	1.025± 0.039
2000 ppm	5	0.851± 0.024	0.271± 0.013**	4.444± 0.283*	1.019± 0.046
10000 ppm	5	0.861± 0.054*	0.276± 0.009**	4.967± 0.278**	1.013± 0.025
50000 ppm	5	0.899± 0.039**	0.272± 0.014**	5.640± 0.206**	1.072± 0.029**

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

APPENDIX A 8-2

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

RAT: FEMALE

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	Body Weight (g)	THYMUS	ADRENALS	OVARIES	HEART	LUNGS
Control	5	124± 4	0.244± 0.018	0.028± 0.006	0.064± 0.007	0.389± 0.017	0.512± 0.022
80 ppm	5	125± 8	0.247± 0.013	0.031± 0.007	0.066± 0.009	0.388± 0.015	0.537± 0.035
400 ppm	5	128± 3	0.251± 0.015	0.031± 0.004	0.063± 0.013	0.380± 0.013	0.527± 0.051
2000 ppm	5	121± 6	0.242± 0.022	0.031± 0.006	0.063± 0.010	0.389± 0.031	0.545± 0.024
10000 ppm	5	120± 4	0.242± 0.031	0.032± 0.005	0.055± 0.009	0.378± 0.017	0.520± 0.010
50000 ppm	5	119± 3	0.223± 0.014	0.035± 0.005	0.063± 0.003	0.385± 0.017	0.500± 0.016

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

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	5	0.836± 0.042	0.245± 0.014	3.561± 0.187	1.307± 0.048
80 ppm	5	0.892± 0.047	0.254± 0.015	3.824± 0.203	1.304± 0.090
400 ppm	5	0.880± 0.011	0.282± 0.016**	3.949± 0.200**	1.251± 0.034
2000 ppm	5	0.890± 0.033	0.328± 0.013**	4.158± 0.200**	1.330± 0.059
10000 ppm	5	0.895± 0.034	0.317± 0.024**	4.761± 0.172**	1.318± 0.032
50000 ppm	5	0.854± 0.034	0.313± 0.017**	5.231± 0.037**	1.350± 0.049

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

APPENDIX A 8-3

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

MOUSE: MALE

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	Body Weight (g)	THYMUS	ADRENALS	TESTES	HEART	LUNGS
Control	5	24.8± 1.3	0.217± 0.017	0.033± 0.009	0.721± 0.068	0.522± 0.039	0.599± 0.078
80 ppm	5	24.5± 1.4	0.210± 0.027	0.034± 0.007	0.676± 0.121	0.472± 0.040	0.561± 0.049
400 ppm	5	24.1± 1.3	0.201± 0.037	0.036± 0.006	0.676± 0.042	0.536± 0.066	0.591± 0.030
2000 ppm	5	24.6± 1.4	0.216± 0.041	0.036± 0.006	0.658± 0.187	0.507± 0.055	0.547± 0.033
10000 ppm	5	24.2± 0.4	0.204± 0.024	0.034± 0.004	0.677± 0.097	0.546± 0.054	0.602± 0.037
50000 ppm	5	22.4± 1.7	0.165± 0.016	0.043± 0.011	0.767± 0.069	0.515± 0.061	0.616± 0.095

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

(HCL042)

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	5	1.434± 0.097	0.194± 0.022	4.713± 0.467	1.736± 0.099
80 ppm	5	1.441± 0.056	0.188± 0.014	4.982± 0.388	1.764± 0.064
400 ppm	5	1.456± 0.069	0.194± 0.020	5.127± 0.415	1.760± 0.073
2000 ppm	5	1.400± 0.060	0.183± 0.017	5.148± 0.698	1.727± 0.076
10000 ppm	5	1.472± 0.070	0.194± 0.020	5.784± 0.283**	1.784± 0.064
50000 ppm	5	1.564± 0.283	0.213± 0.026	5.851± 0.274**	1.918± 0.148*

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

APPENDIX A 8-4

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

MOUSE: FEMALE

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	Body Weight (g)	THYMUS	ADRENALS	OVARIES	HEART	LUNGS
Control	5	19.5± 0.7	0.334± 0.035	0.060± 0.008	0.114± 0.015	0.538± 0.022	0.763± 0.071
80 ppm	5	19.8± 0.5	0.321± 0.023	0.056± 0.004	0.119± 0.026	0.529± 0.046	0.676± 0.035
400 ppm	5	18.8± 0.4	0.312± 0.034	0.055± 0.007	0.103± 0.016	0.549± 0.034	0.685± 0.064
2000 ppm	5	19.1± 0.7	0.342± 0.030	0.052± 0.009	0.088± 0.019	0.546± 0.061	0.677± 0.058
10000 ppm	5	18.4± 1.0	0.318± 0.032	0.060± 0.016	0.106± 0.020	0.517± 0.025	0.738± 0.052
50000 ppm	5	18.1± 0.5*	0.301± 0.034	0.062± 0.008	0.092± 0.010	0.559± 0.110	0.713± 0.046

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

STUDY NO. : 0104
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	5	1.335± 0.075	0.268± 0.017	4.165± 0.326	2.203± 0.083
80 ppm	5	1.228± 0.098	0.253± 0.016	4.277± 0.510	2.222± 0.085
400 ppm	5	1.391± 0.082	0.257± 0.022	4.514± 0.501	2.346± 0.112
2000 ppm	5	1.336± 0.099	0.245± 0.027	4.832± 0.627	2.272± 0.079
10000 ppm	5	1.381± 0.092	0.268± 0.038	4.755± 0.534	2.453± 0.124**
50000 ppm	5	1.375± 0.112	0.304± 0.032	5.225± 0.562*	2.363± 0.094

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

APPENDIX A 9-1

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS

(TWO-WEEK STUDY: SUMMARY)

RAT : MALE : SACRIFICED ANIMALS

STUDY NO. : 0193
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS (SUMMARY)
ALL ANIMALS (0- 2W)

Organ	Findings	Group Name	Control				80 ppm				400 ppm				2000 ppm			
		No. of Animals	2				2				2				2			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]																		
spleen	engorgement of erythrocyte		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 (50)	0 (0)	0 (0)	0 (0)
[Digestive system]																		
liver	herniation		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (50)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	swelling:central		0 (0)	0 (0)	0 (0)	0 (0)	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	eosinophilic body		0 (0)	0 (0)	0 (0)	0 (0)	1 (50)	0 (0)	0 (0)	0 (0)	1 (50)	1 (50)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)
[Endocrine system]																		
pituitary	Rathke pouch		1 (50)	0 (0)	0 (0)	0 (0)	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>:Slight <2>:Moderate <3>:Marked <4>:Severe

Organ	Findings	Group Name	10000 ppm				50000 ppm			
		No. of Animals	2				2			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]										
spleen	engorgement of erythrocyte		1 (50)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)	0 (0)
[Digestive system]										
liver	herniation		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	swelling:central		2 (100)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)	0 (0)
[Urinary system]										
kidney	eosinophilic body		0 (0)	2 (100)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)
[Endocrine system]										
pituitary	Rathke pouch		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

<1>:Slight <2>:Moderate <3>:Marked <4>:Severe

APPENDIX A 9-2

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS

(TWO-WEEK STUDY: SUMMARY)

RAT : FEMALE : SACRIFICED ANIMALS

Organ	Findings	Group Name	Control				80 ppm				400 ppm				2000 ppm			
		No. of Animals	2				2				2				2			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Respiratory system]																		
nasal cavit	respiratory metaplasia:gland		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 (50)	0 (0)	0 (0)	0 (0)
[Hematopoietic system]																		
bone marrow	erythropoiesis:increased		0 (0)	0 (0)	0 (0)	0 (0)	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	engorgement of erythrocyte		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 (50)	0 (0)	0 (0)	0 (0)
[Digestive system]																		
liver	herniation		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (50)	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)	1 (50)	0 (0)	0 (0)	0 (0)
	swelling:central		0 (0)	0 (0)	0 (0)	0 (0)	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)	1 (50)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	mineralization:cortico-medullary junction		0 (0)	2 (100)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)	0 (0)	1 (50)	0 (0)	0 (0)

<1>:Slight <2>:Moderate <3>:Marked <4>:Severe

Organ	Findings	Group Name	10000 ppm				50000 ppm			
		No. of Animals	2				2			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Respiratory system]										
nasal cavit	respiratory metaplasia:gland		0 (0)	0 (0)	0 (0)	0 (0)	1 (50)	0 (0)	0 (0)	0 (0)
[Hematopoietic system]										
bone marrow	erythropoiesis:increased		1 (50)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)	0 (0)
spleen	engorgement of erythrocyte		1 (50)	0 (0)	0 (0)	0 (0)	1 (50)	1 (50)	0 (0)	0 (0)
[Digestive system]										
liver	herniation		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)
	swelling:central		2 (100)	0 (0)	0 (0)	0 (0)	2 (100)	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)
	mineralization:cortico-medullary junction		1 (50)	1 (50)	0 (0)	0 (0)	1 (50)	1 (50)	0 (0)	0 (0)

<1>:Slight <2>:Moderate <3>:Marked <4>:Severe

APPENDIX A 9-3

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS

(TWO-WEEK STUDY: SUMMARY)

MOUSE: MALE : SACRIFICED ANIMALS

STUDY NO. : 0194
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS (SUMMARY)
ALL ANIMALS (0- 2W)

Organ	Findings	Group Name	Control				80 ppm				400 ppm				2000 ppm			
		No. of Animals	2				2				2				2			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]																		
spleen	extramedullary hematopoiesis		0 (0)	0 (0)	0 (0)	0 (0)	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	hydronephrosis		0 (0)	0 (0)	0 (0)	0 (0)	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>:Slight <2>:Moderate <3>:Marked <4>:Severe

Organ	Findings	Group Name	10000 ppm				50000 ppm			
		No. of Animals	2				2			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]										
spleen	extramedullary hematopoiesis		0 (0)	0 (0)	0 (0)	0 (0)	1 (50)	0 (0)	0 (0)	0 (0)
[Urinary system]										
kidney	hydronephrosis		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (50)	0 (0)	0 (0)

<1>:Slight <2>:Moderate <3>:Marked <4>:Severe

APENDIX A 9-4

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS

(TWO-WEEK STUDY: SUMMARY)

MOUSE: FEMALE :SACRIFICED ANIMALS

Organ	Findings	Group Name / No. of Animals	Control 2 <1> (%)	Control 2 <2> (%)	Control 2 <3> (%)	Control 2 <4> (%)	80 ppm 2 <1> (%)	80 ppm 2 <2> (%)	80 ppm 2 <3> (%)	80 ppm 2 <4> (%)	400 ppm 2 <1> (%)	400 ppm 2 <2> (%)	400 ppm 2 <3> (%)	400 ppm 2 <4> (%)	2000 ppm 2 <1> (%)	2000 ppm 2 <2> (%)	2000 ppm 2 <3> (%)	2000 ppm 2 <4> (%)
[Hematopoietic system]																		
spleen	deposit of melanin		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	extramedullary hematopoiesis		0 (0)	0 (0)	0 (0)	0 (0)	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>:Slight <2>:Moderate <3>:Marked <4>:Severe

Organ	Findings	Group Name	10000 ppm				50000 ppm			
		No. of Animals	2				2			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]										
spleen	deposit of melanin		0 (0)	0 (0)	0 (0)	0 (0)	1 (50)	0 (0)	0 (0)	0 (0)
	extramedullary hematopoiesis		0 (0)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)	0 (0)

<1>:Slight <2>:Moderate <3>:Marked <4>:Severe

APPENDIX A 10-1

IDENTITY AND PURITY OF ANTHRACENE PERFORMED AT THE JAPAN BIOASSAY LABORATORY (TWO-WEEK STUDY)

IDENTITY AND PURITY OF ANTHRACENE PERFORMED AT THE JAPAN BIOASSAY LABORATORY
(TWO-WEEK STUDIES)

Lot no.304P4138

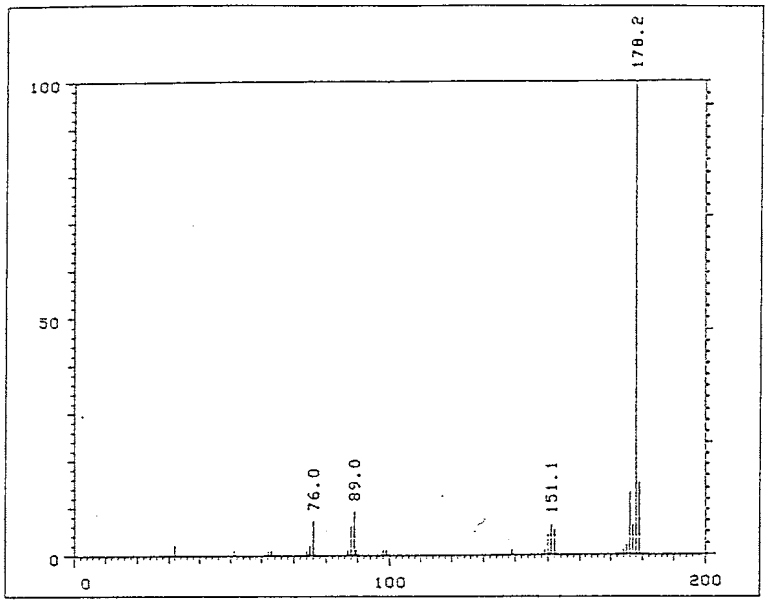
1. Spectral data

(1) Mass Spectrometry

Instrument: Hitachi M-80B

Ionization: EI(Electron Ionization)

Ionization Voltage: 70eV



Mass Spectrum of ANTHRACENE

Result:

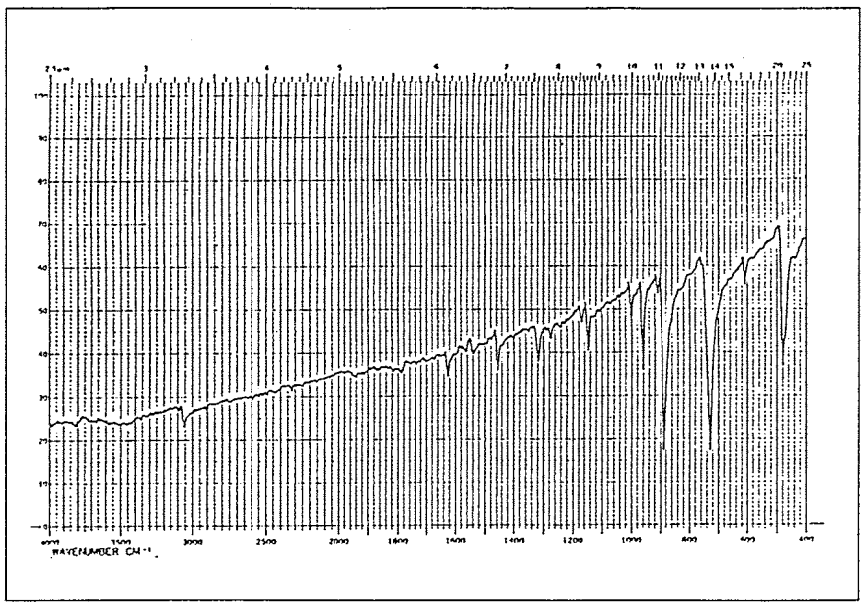
	Molecular Weight
Theoretical Value	178.1(Calculated)
Literature Values	178(Sadtler Handbook by Sadtler Research Laboratories, Inc.)
Determined	178.2

(2) Infrared Spectrometry

Instrument : Hitachi 270-30

Cell : KBr(Wafer)

Slit : Medium



Infrared Spectrum of ANTHRACENE

Results:

Wave Number(CM^{-1})

Determines	Literature Values
460～ 490	460～ 490
700～ 750	700～ 750
860～ 900	860～ 900
940～ 970	940～ 970
990～1010	990～1010
1130～1160	1130～1160
1300～1330	1300～1330
1440～1470	1440～1470
	1530～1550
1610～1640	1610～1640
3030～3080	3010～3050
	(Sadtler Handbook by Sadtler Research Laboratories, Inc.)

2. Conclusions: The result of the mass spectrum agreed with the theoretical value and the Infrared spectrum agreed with the literature values.

APPENDIX A 10-2

STABILITY OF ANTHRACENE AT THE JAPAN BIOASSAY LABORATORY

(TWO-WEEK STUDY)

STABILITY OF ANTHRACENE AT THE JAPAN BIOASSAY LABORATORY(TWO-WEEK STUDIES)

Lot no.304P4138

1.Sample storage: Anthracene were stored for about 6 weeks at 5°C.

2. Gas Chromatography

Instrument: Hewlett Packard 5890A

Column: Methyl Silicone(0.2mmϕ × 30m)

Column Temperature: 170°C

Flow Rate: 1 ml/min

Detector: FID(Hydrogen Flame Ionization)

Injection Volume: 1 μl

Results: Major peak and six impurities

Date	Peak No.	Retention Time(min)	AREA (measurement)	AREA (percent of total peak)
07/29/92	1	4.175	83	0.0148
	2	10.792	753	0.134
	3	14.135	7278	1.30
	4	19.67	2881	0.514
	5	20.532	540751	96.4
	6	21.133	1655	0.295
	7	22.297	7640	1.36
09/14/92	1	5.125	78	0.0158
	2	10.738	646	0.131
	3	14.067	6254	1.27
	4	19.563	2508	0.508
	5	20.405	476164	96.4
	6	21.015	1446	0.293
	7	22.18	6768	1.37

3. Conclusions: Gas chromtography indicated six impurities with concentration totaling <3.6% of the major peak.
Consequently,Anthracene was stable as the chemical when stored for about 6 weeks at 5°C.

APPENDIX A 10-3

ANALYSYS OF BIPHENYL CONCENTRATION IN FORMULATED DIETS

OF THE TOW-WEEK STUDIES

ANALYSIS OF ANTHRACENE CONCENTRATION AND HOMOGENEITY IN FORMULATED DIETS OF THE TWO-WEEK STUDIES

(Rat)(MOUSE)

	Concentration of Anthracene in feed for Target Concentration(ppm)				
Date	80 (a) (b)	400 (a) (b)	2000 (a) (b)	10000 (a) (b)	50000 (a) (b)
08/18/92	70.8(88.5) (7.0)	389 (97.3) (2.0)	1980 (99.0) (1.4)	9920 (99.2) (4.1)	50300 (101) (1.1)

(a) Percent of target concentration
(b) Homogeneity(C.V.(%) n=7)

Analytical method: The sample were analyzed by the Gas Chromatography.

Instrument :Hewlett Packard 5890A
Column :Methylsilicon (0.2mmϕ × 30m)
Column Temperature :260℃
Flow Rate :1ml/min
Detector :FID
Injection Volume :1μl

APPENDIX A 10-4

STABILITY OF ANTHRACENE IN FORMULATED DIETS

OF THE TOW-WEEK STUDIES

STABILITY OF ANTHRACENE IN FORMULATED DIETS OF THE TWO-WEEK STUDIES

(Rat)(Mouse)

Date	Concentration of Anthracene in feed for Target Concentration(ppm)				
	80 (a)	400 (a)	2000 (a)	10000 (a)	50000 (a)
07/15/92(b)	69.1(100)	372 (100)	1930 (100)	10200 (100)	50100 (100)
07/23/92(c)	90.5(131)	461 (124)	2010 (104)	10700 (105)	53100 (106)
08/06/92(d)	78.8(114)	374 (101)	1990 (103)	9600 (94.1)	48600 (97.0)

(a) Percent of concentration on preparation day
(b) Date of preparation
(c) Formulated diets were stored for 8 days at room temperature(24±2°C).
(d) Formulated diets were stored for about 3 weeks at 8°C.

Analytical method: The sample were analyzed by the Gas Chromatography.

Instrument :Hewlett Packard 5890A
Column :Methylsilicon (0.2mmϕ × 30m)
Column Temperature :260℃
Flow Rate :1ml/min
Detector :FID
Injection Volume :1μl