2,4-ペンタンジオンのマウスを用いた
吸入による 13 週間毒性試験報告書

試験番号：0601

APPENDICES

APPENDICES

APPENDICES (CONTINUED)

APPENDIX A 1

IDENTITY OF 2,4-PENTANEDIONE

IN THE 13-WEEK INHALATION STUDY

IDENTITY OF 2,4-PENTANEDIONE IN THE 13-WEEK INHALATION STUDY

Test Substance : 2,4-Pentanedione (Wako Pure Chemical Industries, Ltd.)

Lot No. : SDJ5794

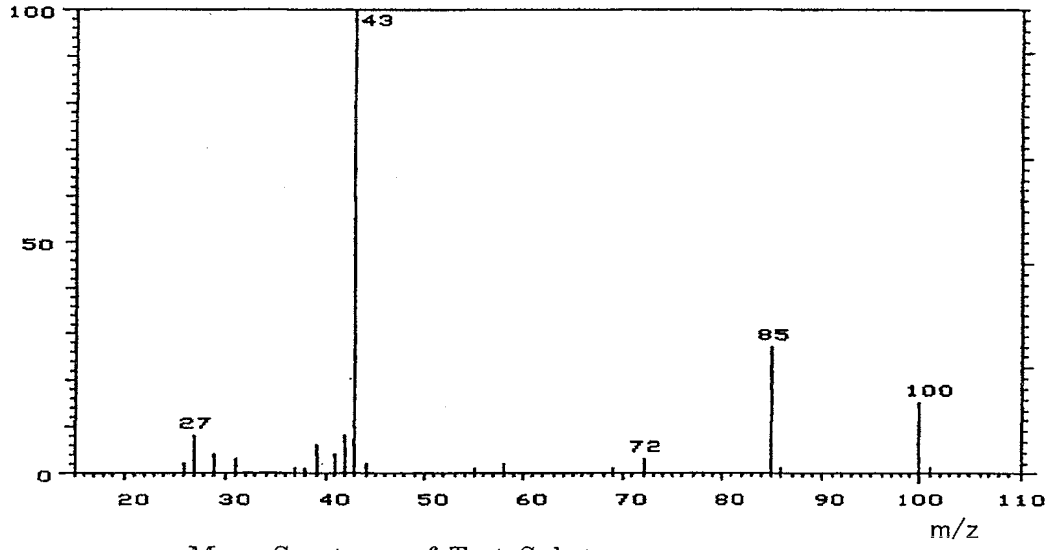
1. Spectral Data

Mass Spectrometry

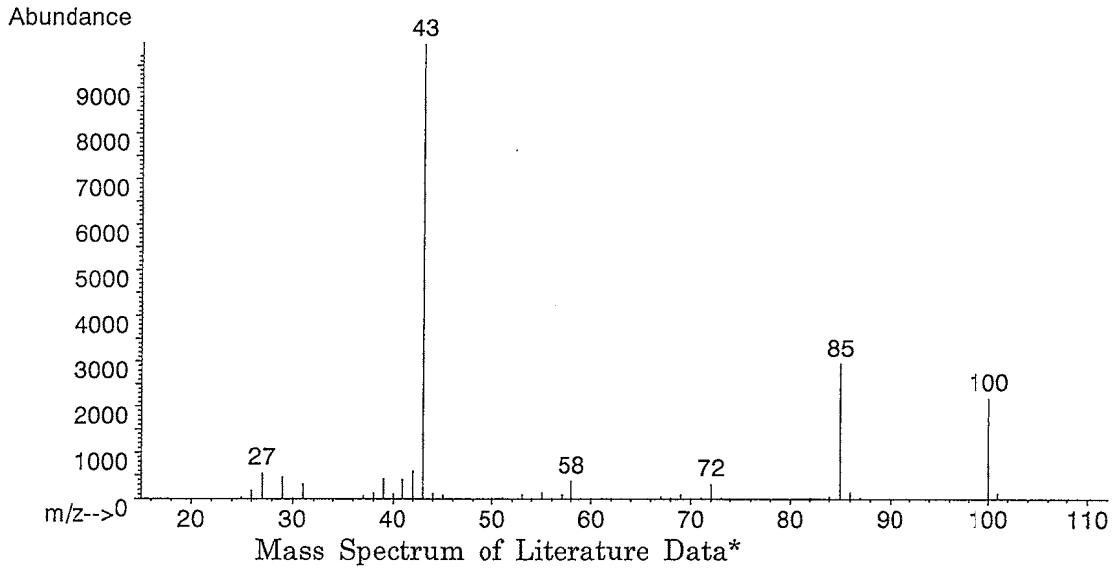
Instrument : Hitachi M-80B Mass Spectrometer

Ionization : EI (Electron Ionization)

Ionization Voltage : 70eV



Mass Spectrum of Test Substance



Mass Spectrum of Literature Data*

Result: The mass spectrum was consistent with literature spectrum.

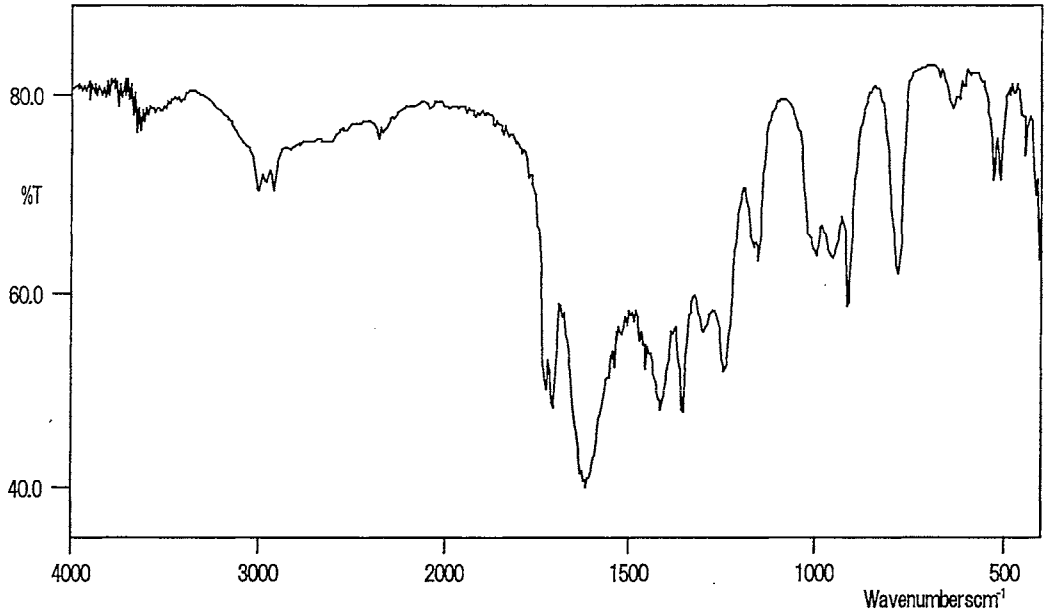
(*McLafferty FW, ed. 1994. Wiley Registry of Mass Spectral Data. 6th ed. New York, NY:John Wiley and Sons.)

Infrared Spectrometry

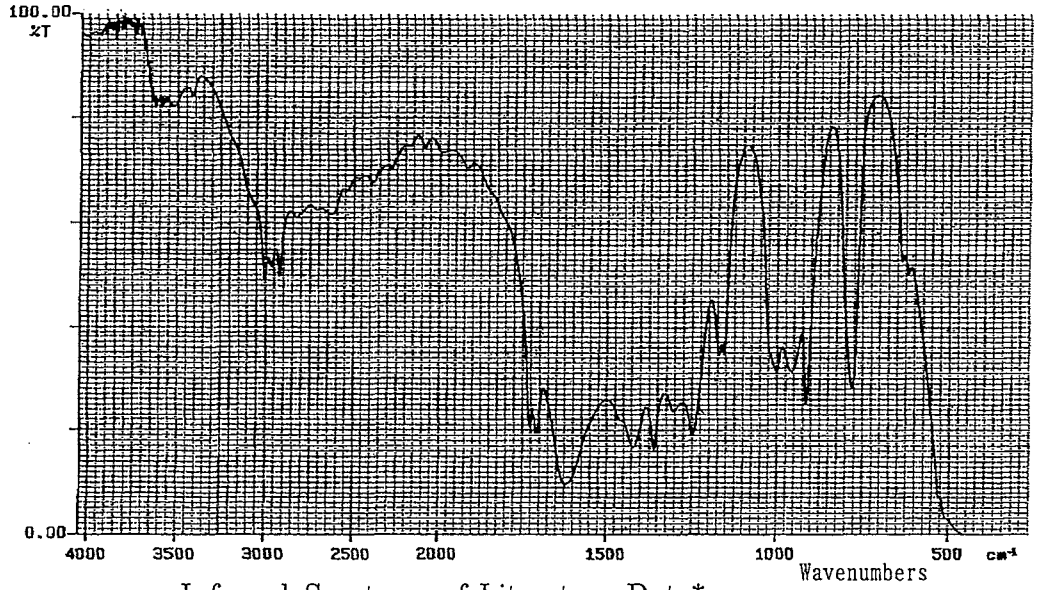
Instrument : Shimadzu FTIR-8200PC Infrared Spectrometer

Cell : KBr Liquid Cell

Resolution : 4 cm^{-1}



Infrared Spectrum of Test Substance



Infrared Spectrum of Literature Data*

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

2. Conclusion: The test substance was identified as 2,4-pentanedione by mass spectrum and infrared spectrum.

APPENDIX A 2

STABILITY OF 2,4-PENTANEDIONE

IN THE 13-WEEK INHALATION STUDY

STABILITY OF 2,4-PENTANEDIONE IN THE 13-WEEK INHALATION STUDY

Test Substance : 2,4-Pentanedione (Wako Pure Chemical Industries, Ltd.)

Lot No. : SDJ5794

1. Gas Chromatography

Instrument : Hewlett Packard 5890A Gas Chromatograph

Column : INNOWAX (0.53 mmϕ × 60 m)

Column Temperature: 150° C

Flow Rate : 3 mL/min

Detector : FID (Flame Ionization Detector)

Injection Volume : 1 μL

Date (date analyzed)	Peak No.	Retention Time (min)	Area (%)
2005.09.20	1	5.678	100
2006.01.11	1	5.674	100

Result: Gas chromatography indicated one major peak (peak No.1) analyzed on 2005.9.20 and one major peak (peak No.1) analyzed on 2006.1.11. No new trace impurity peak in the test substance analyzed on 2006.1.11 was detected.

2. Conclusion: The test substance was stable for the period that the test substance had been used for the study.

APPENDIX B

ENVIRONMENTAL CONDITIONS OF INHALATION CHAMBER IN THE 13-WEEK INHALATION STUDY OF 2,4-PENTANEDIONE

ENVIRONMENTAL CONDITIONS OF INHALATION CHAMBER IN THE 13-WEEK INHALATION STUDY OF 2,4-PENTANEDIONE

Group Name	Temperature (℃) Mean ± S.D.	Humidity (%) Mean ± S.D.	Ventilation Rate (L/min) Mean ± S.D.	Air Change (time/h) Mean
Control	22.2 ± 0.2	57.4 ± 1.6	104.0 ± 0.5	12.0
25 ppm	22.1 ± 0.2	55.2 ± 2.0	104.1 ± 0.5	12.0
50 ppm	22.1 ± 0.2	55.9 ± 1.7	104.1 ± 0.5	12.0
100 ppm	22.1 ± 0.2	55.0 ± 2.3	104.0 ± 0.5	12.0
200 ppm	22.1 ± 0.2	54.0 ± 3.1	104.3 ± 0.7	12.0
400 ppm	22.0 ± 0.2	54.2 ± 3.1	104.1 ± 0.5	12.0

APPENDIX C 1

CLINICAL OBSERVATION : MALE

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
REPORT TYPE : A1 13

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : MALE

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
PILOERECTION	Control	0	0	0	0	0	0	0	0	0	0	0	0	0
	25ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	50ppm	0	0	0	0	0	0	0	0	0	0	0	0	1
	100ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
INTERNAL MASS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0
	25ppm	0	0	0	0	0	0	1	1	1	1	1	1	1
	50ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	100ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
	400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0
NON REMARKABLE	Control	10	10	10	10	10	10	10	10	10	10	10	10	10
	25ppm	10	10	10	10	10	10	9	9	9	9	9	9	9
	50ppm	10	10	10	10	10	10	10	10	10	10	10	10	9
	100ppm	10	10	10	10	10	10	10	10	10	10	10	10	10
	200ppm	10	10	10	10	10	10	10	10	10	10	10	10	10
	400ppm	10	10	10	10	10	10	10	10	10	10	10	10	10

APPENDIX C 2

CLINICAL OBSERVATION : FEMALE

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
REPORT TYPE : A1 13

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : FEMALE

Clinical sign	Group Name	Administration Week-day 1-7 1	2-7 1	3-7 1	4-7 1	5-7 1	6-7 1	7-7 1	8-7 1	9-7 1	10-7 1	11-7 1	12-7 1	13-7 1
NON REMARKABLE	Control	10	10	10	10	10	10	10	10	10	10	10	10	10
	25ppm	10	10	10	10	10	10	10	10	10	10	10	10	10
	50ppm	10	10	10	10	10	10	10	10	10	10	10	10	10
	100ppm	10	10	10	10	10	10	10	10	10	10	10	10	10
	200ppm	10	10	10	10	10	10	10	10	10	10	10	10	10
	400ppm	10	10	10	10	10	10	10	10	10	10	10	10	10

APPENDIX D 1

BODY WEIGHT CHANGES : MALE

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj: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	24.0± 0.8	25.4± 0.9	26.3± 1.1	27.1± 1.4	27.9± 1.8	28.9± 1.7	29.6± 2.0
25ppm	24.0± 0.8	25.6± 0.9	26.2± 0.8	27.0± 1.2	27.9± 1.4	28.5± 1.3	28.8± 1.4
50ppm	24.0± 0.8	25.5± 0.9	26.4± 1.1	26.9± 0.9	27.3± 1.0	28.1± 1.3	28.6± 1.1
100ppm	24.0± 0.8	25.0± 1.2	25.9± 1.0	26.3± 1.1	27.0± 1.3	28.0± 1.4	28.3± 1.3
200ppm	24.0± 0.8	25.3± 0.9	26.0± 0.9	26.4± 1.1	27.0± 0.9	27.8± 1.0	28.1± 1.2
400ppm	24.0± 0.8	24.9± 1.0	25.5± 1.1	26.2± 1.3	26.8± 1.4	27.3± 1.2	28.0± 1.6

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

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj: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	30.2± 1.9	31.3± 2.3	32.0± 1.9	32.9± 2.3	33.3± 2.5	34.4± 2.7	34.5± 2.5
25ppm	29.4± 1.4	30.3± 1.7	31.1± 1.7	31.5± 1.7	32.3± 1.9	32.9± 2.1	33.3± 2.2
50ppm	28.9± 1.3	29.8± 1.0	30.6± 1.2	31.3± 1.4	31.9± 1.3	32.7± 1.5	32.3± 2.6
100ppm	28.7± 1.4	29.3± 1.4*	29.8± 1.5*	30.4± 1.4	31.3± 1.2	31.7± 1.4	32.1± 1.3
200ppm	28.3± 1.3*	29.2± 1.4*	30.1± 1.6	31.5± 1.9	32.0± 1.7	32.6± 2.2	33.1± 1.6
400ppm	28.3± 1.6*	29.2± 1.7*	30.2± 1.8	30.7± 2.2	31.1± 2.3	31.8± 2.3	31.9± 2.1

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

APPENDIX D 2

BODY WEIGHT CHANGES : FEMALE

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj: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	19.6± 0.7	20.3± 0.8	21.3± 1.1	22.3± 1.4	22.7± 0.8	23.1± 0.9	24.2± 1.9
25ppm	19.6± 0.8	20.3± 0.7	21.2± 1.0	21.7± 0.9	22.7± 1.2	23.2± 1.0	23.9± 1.1
50ppm	19.6± 0.8	20.5± 0.6	21.1± 0.7	22.6± 1.2	23.2± 0.9	24.1± 0.9	24.7± 1.4
100ppm	19.6± 0.8	20.2± 0.9	21.2± 1.0	22.3± 0.8	22.8± 0.9	23.5± 1.0	24.2± 1.0
200ppm	19.6± 0.8	20.2± 0.9	21.2± 0.7	22.2± 0.9	22.9± 0.8	23.8± 1.3	24.4± 1.3
400ppm	19.6± 0.8	19.8± 0.7	20.4± 0.8	21.6± 1.2	22.1± 0.9	22.8± 0.8	23.3± 0.5

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

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj: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	24.5± 1.0	24.8± 0.9	25.0± 1.3	25.2± 1.4	25.9± 1.3	26.4± 1.1	26.6± 1.8
25ppm	23.9± 1.1	25.1± 1.7	25.2± 1.6	25.5± 1.6	25.5± 1.4	26.0± 1.2	26.4± 1.2
50ppm	25.2± 1.1	25.6± 1.2	25.8± 1.1	25.8± 1.2	26.5± 1.7	27.1± 1.5	26.9± 1.5
100ppm	24.7± 0.9	24.7± 1.0	25.1± 1.1	25.9± 1.3	26.6± 1.6	26.2± 1.0	26.8± 1.6
200ppm	24.3± 1.1	25.1± 1.5	25.4± 1.4	26.0± 1.6	26.8± 1.6	26.5± 1.9	27.0± 2.0
400ppm	23.7± 1.3	24.1± 1.3	24.4± 0.9	24.6± 0.7	25.2± 1.2	25.8± 1.5	25.6± 1.2

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

APPENDIX E 1

FOOD CONSUMPTION CHANGES : MALE

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj: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	4.3± 0.2	4.1± 0.3	4.4± 0.2	4.4± 0.4	4.4± 0.2	4.4± 0.3	4.4± 0.3
25ppm	4.5± 0.2	4.2± 0.3	4.4± 0.4	4.5± 0.3	4.4± 0.4	4.7± 0.4	4.6± 0.3
50ppm	4.5± 0.3	4.4± 0.3	4.5± 0.4	4.6± 0.4	4.6± 0.4	4.8± 0.4	4.8± 0.4
100ppm	4.3± 0.3	4.3± 0.4	4.5± 0.4	4.7± 0.5	4.7± 0.5	4.9± 0.4	4.9± 0.5
200ppm	4.5± 0.2	4.3± 0.3	4.6± 0.2	4.6± 0.3	4.5± 0.3	4.7± 0.4	4.6± 0.3
400ppm	4.3± 0.2	4.1± 0.3	4.4± 0.2	4.5± 0.3	4.3± 0.3	4.6± 0.3	4.5± 0.3

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

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj: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	4.7± 0.3	4.6± 0.4	4.8± 0.3	4.8± 0.3	4.8± 0.3	4.7± 0.2
25ppm	4.8± 0.4	4.8± 0.2	4.8± 0.2	4.9± 0.3	4.9± 0.2	4.8± 0.3
50ppm	5.0± 0.4	5.0± 0.3	5.1± 0.5	5.1± 0.4	5.2± 0.3	4.7± 0.8
100ppm	5.0± 0.5	5.0± 0.4	5.2± 0.4	5.3± 0.3*	5.2± 0.4	4.9± 0.3
200ppm	5.0± 0.4	5.0± 0.4	5.1± 0.4	5.1± 0.3	5.2± 0.4	5.0± 0.3
400ppm	4.7± 0.3	4.9± 0.4	4.8± 0.3	4.8± 0.4	4.9± 0.4	4.7± 0.4

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

APPENDIX E 2

FOOD CONSUMPTION CHANGES : FEMALE

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj: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	3.5± 0.2	3.8± 0.3	4.1± 0.3	4.2± 0.2	4.4± 0.2	4.8± 0.5	4.6± 0.3
25ppm	3.6± 0.2	3.8± 0.3	4.1± 0.3	4.2± 0.3	4.2± 0.3	4.5± 0.3	4.4± 0.3
50ppm	3.7± 0.2	3.8± 0.3	4.3± 0.4	4.5± 0.2	4.6± 0.2	4.9± 0.4	4.9± 0.3
100ppm	3.6± 0.2	3.9± 0.2	4.1± 0.2	4.2± 0.3	4.4± 0.3	4.7± 0.2	4.9± 0.2
200ppm	3.6± 0.3	3.9± 0.3	4.2± 0.3	4.3± 0.3	4.4± 0.2	4.5± 0.3	4.4± 0.3
400ppm	3.4± 0.2	3.7± 0.2	3.9± 0.3	4.1± 0.2	4.2± 0.2	4.3± 0.2*	4.5± 0.2

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

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
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	4.8± 0.3	4.8± 0.3	4.8± 0.3	5.1± 0.3	5.0± 0.3	4.9± 0.3
25ppm	4.8± 0.4	4.6± 0.4	4.7± 0.3	4.6± 0.4**	4.7± 0.3	4.7± 0.3
50ppm	5.0± 0.2	5.0± 0.2	5.0± 0.3	5.2± 0.3	5.2± 0.3	4.9± 0.3
100ppm	4.9± 0.2	4.9± 0.3	5.0± 0.3	5.1± 0.2	5.0± 0.4	5.0± 0.4
200ppm	4.8± 0.3	4.7± 0.3	4.8± 0.2	4.8± 0.3	4.9± 0.4	4.8± 0.1
400ppm	4.6± 0.2	4.5± 0.2	4.7± 0.2	4.6± 0.2**	4.8± 0.2	4.6± 0.2

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

APPENDIX F 1

HEMATOLOGY : MALE

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
MEASURE. TIME : 1
SEX : MALE REPORT TYPE : A1

HEMATOLOGY (SUMMARY)
ALL ANIMALS (14W)

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	10	11.16± 0.31	16.7± 0.4	50.6± 1.3	45.3± 0.3	14.9± 0.1	32.9± 0.3	1296± 63
25ppm	10	11.21± 0.29	16.5± 0.4	50.5± 1.3	45.0± 1.4	14.7± 0.3	32.7± 0.6	1263± 104
50ppm	10	11.34± 0.30	16.8± 0.5	51.1± 1.6	45.1± 0.8	14.8± 0.2	32.8± 0.6	1166± 345
100ppm	10	11.08± 0.31	16.6± 0.4	50.4± 1.3	45.5± 0.5	15.0± 0.1	32.9± 0.3	1258± 84
200ppm	9	11.03± 0.22	16.6± 0.4	50.4± 1.5	45.7± 0.7	15.0± 0.2	32.9± 0.3	1246± 68
400ppm	10	11.00± 0.30	16.4± 0.4	49.9± 1.1	45.4± 0.6	14.9± 0.3	32.9± 0.3	1301± 90

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

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
MEASURE. TIME : 1
SEX : MALE REPORT TYPE : A1

HEMATOLOGY (SUMMARY)
ALL ANIMALS (14W)

Group Name	NO. of Animals	RETICULOCYTE %
Control	10	2.0± 0.1
25ppm	10	2.1± 0.2
50ppm	10	1.9± 0.5
100ppm	10	2.2± 0.2
200ppm	9	2.1± 0.2
400ppm	10	2.3± 0.2**

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

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
MEASURE. TIME : 1
SEX : MALE REPORT TYPE : A1

HEMATOLOGY (SUMMARY)
ALL ANIMALS (14W)

Group Name	NO. of Animals	WBC $10^3/\mu\ell$	Differential WBC (%) N-BAND	N-SEG	EOSINO	BASO	MONO	LYMPHO	OTHER
Control	10	2.51± 1.05	1± 1	16± 5	2± 1	0± 0	3± 2	77± 5	1± 1
25ppm	10	2.52± 0.82	0± 0	14± 3	3± 2	0± 0	3± 1	81± 3	0± 0
50ppm	10	7.68± 16.00	1± 1	13± 4	2± 2	0± 0	3± 1	73± 25	8± 24
100ppm	10	2.75± 1.58	0± 1	15± 4	2± 1	0± 0	2± 1	79± 4	1± 1
200ppm	9	2.36± 1.31	0± 1	14± 4	3± 1	0± 0	3± 2	79± 6	0± 1
400ppm	10	2.19± 1.09	0± 1	17± 9	2± 1	0± 0	3± 2	77± 8	1± 2

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

APPENDIX F 2

HEMATOLOGY : FEMALE

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
MEASURE. TIME : 1
SEX : FEMALE REPORT TYPE : A1

HEMATOLOGY (SUMMARY)
ALL ANIMALS (14W)

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	10	11.00± 0.36	16.6± 0.6	50.1± 1.6	45.5± 0.3	15.1± 0.1	33.2± 0.3	1180± 87
25ppm	10	11.11± 0.49	16.9± 0.7	50.4± 1.9	45.4± 0.7	15.2± 0.2	33.5± 0.3	1247± 32
50ppm	10	11.06± 0.29	16.9± 0.5	50.4± 1.2	45.6± 0.3	15.3± 0.2	33.6± 0.4	1232± 54
100ppm	10	11.16± 0.18	16.9± 0.2	51.0± 0.7	45.7± 0.5	15.2± 0.2	33.3± 0.5	1199± 44
200ppm	10	11.11± 0.21	16.9± 0.3	50.9± 0.9	45.8± 0.5	15.2± 0.2	33.2± 0.2	1189± 95
400ppm	10	10.93± 0.33	16.6± 0.4	50.1± 1.2	45.8± 0.8	15.3± 0.2	33.3± 0.5	1237± 105

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

Group Name	NO. of Animals	RETICULOCYTE %
Control	10	2.3± 0.7
25ppm	10	2.2± 0.3
50ppm	10	2.1± 0.4
100ppm	10	2.5± 0.4
200ppm	10	2.1± 0.4
400ppm	10	2.1± 0.5

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

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
MEASURE. TIME : 1
SEX : FEMALE REPORT TYPE : A1

HEMATOLOGY (SUMMARY)
ALL ANIMALS (14W)

Group Name	NO. of Animals	WBC $10^3/\mu\ell$	Differential WBC (%) N-BAND	N-SEG	EOSINO	BASO	MONO	LYMPHO	OTHER
Control	10	2.28± 1.59	1± 1	17± 7	1± 1	0± 0	1± 1	79± 6	0± 0
25ppm	10	2.37± 2.00	1± 1	17± 6	1± 1	0± 0	1± 1	80± 6	0± 1
50ppm	10	2.60± 1.29	1± 1	17± 5	1± 1	0± 0	1± 1	80± 4	0± 0
100ppm	10	2.77± 1.57	1± 1	19± 6	2± 2	0± 0	2± 2	77± 5	0± 1
200ppm	10	2.72± 1.51	0± 0	15± 5	2± 2	0± 0	2± 1	81± 6	0± 0
400ppm	10	2.65± 1.78	1± 1	20± 9	2± 2	0± 0	1± 1	76± 9	0± 0

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

APPENDIX G 1

BIOCHEMISTRY : MALE

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
MEASURE. TIME : 1
SEX : MALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
ALL ANIMALS (14W)

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	5.1± 0.1	2.9± 0.1	1.3± 0.0	0.13± 0.01	238± 39	91± 12	48± 17
25ppm	10	5.0± 0.2	2.8± 0.1	1.2± 0.1	0.14± 0.03	205± 42	75± 13**	28± 15**
50ppm	10	5.0± 0.2	2.8± 0.2	1.3± 0.1	0.14± 0.02	212± 31	74± 6**	27± 11**
100ppm	10	4.9± 0.1	2.7± 0.1	1.2± 0.1	0.14± 0.01	205± 43	68± 7**	23± 9**
200ppm	10	5.0± 0.2	2.8± 0.1	1.2± 0.1	0.14± 0.01	203± 32	76± 7**	31± 12*
400ppm	10	5.0± 0.2	2.8± 0.1	1.2± 0.1	0.14± 0.01	220± 28	74± 9**	24± 7**

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

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
MEASURE. TIME : 1
SEX : MALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
ALL ANIMALS (14W)

Group Name	NO. of Animals	PHOSPHOLIPID mg/dℓ	AST IU/ℓ	ALT IU/ℓ	LDH IU/ℓ	ALP IU/ℓ	G-GTP IU/ℓ	CK IU/ℓ
Control	10	177± 19	40± 4	16± 2	174± 40	143± 6	1± 1	36± 6
25ppm	10	151± 21**	45± 7	18± 3	198± 68	157± 11	1± 0	46± 18
50ppm	10	143± 21**	91± 154	27± 36	369± 627	150± 22	1± 1	59± 68
100ppm	10	141± 11**	43± 5	18± 3	166± 20	144± 9	1± 1	43± 13
200ppm	10	151± 16**	44± 6	17± 3	183± 35	147± 6	1± 2	47± 14
400ppm	10	149± 14**	43± 8	18± 6	181± 30	143± 11	1± 1	44± 10

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

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
MEASURE. TIME : 1
SEX : MALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
ALL ANIMALS (14W)

Group Name	NO. of Animals	UREA NITROGEN mg/dℓ	SODIUM mEq/ℓ	POTASSIUM mEq/ℓ	CHLORIDE mEq/ℓ	CALCIUM mg/dℓ	INORGANIC PHOSPHORUS mg/dℓ
Control	10	25.8± 3.5	151± 2	4.4± 0.2	122± 3	8.8± 0.2	5.8± 0.8
25ppm	10	27.4± 4.5	151± 2	4.5± 0.3	122± 2	8.7± 0.2	6.2± 0.9
50ppm	10	25.5± 4.5	151± 2	4.3± 0.3	122± 2	8.8± 0.3	5.8± 0.7
100ppm	10	26.2± 4.8	151± 2	4.2± 0.3	122± 2	8.6± 0.1	5.8± 0.4
200ppm	10	25.5± 3.1	152± 1	4.3± 0.1	122± 2	8.6± 0.2	6.1± 0.9
400ppm	10	25.0± 3.6	151± 2	4.4± 0.5	122± 2	8.5± 0.2*	5.9± 0.7

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

APPENDIX G 2

BIOCHEMISTRY : FEMALE

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
MEASURE. TIME : 1
SEX : FEMALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
ALL ANIMALS (14W)

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	5.2±	0.1	3.2±	0.1	1.5±	0.1	0.14±	0.02	173±	25	73±	8	19±	10
25ppm	10	5.3±	0.2	3.2±	0.1	1.5±	0.1	0.13±	0.02	171±	34	72±	12	15±	5
50ppm	10	5.2±	0.2	3.1±	0.1	1.5±	0.1	0.13±	0.02	168±	32	74±	6	17±	9
100ppm	10	5.2±	0.2	3.1±	0.1	1.5±	0.1	0.13±	0.01	175±	27	69±	8	14±	6
200ppm	10	5.2±	0.2	3.1±	0.1	1.5±	0.1	0.13±	0.02	178±	27	75±	11	22±	10
400ppm	10	5.3±	0.1	3.2±	0.1	1.5±	0.1	0.14±	0.02	178±	25	74±	11	17±	8

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

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
MEASURE. TIME : 1
SEX : FEMALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
ALL ANIMALS (14W)

Group Name	NO. of Animals	PHOSPHOLIPID mg/dℓ	AST IU/ℓ	ALT IU/ℓ	LDH IU/ℓ	ALP IU/ℓ	G-GTP IU/ℓ	CK IU/ℓ
Control	10	142± 22	65± 34	22± 7	280± 171	234± 47	1± 0	113± 125
25ppm	10	141± 24	63± 15	22± 5	239± 111	236± 29	1± 1	110± 86
50ppm	10	137± 25	106± 166	27± 22	354± 511	247± 45	1± 0	278± 656
100ppm	10	134± 17	61± 15	23± 4	232± 76	257± 63	1± 1	84± 40
200ppm	10	147± 20	58± 14	23± 3	229± 86	234± 31	1± 1	95± 74
400ppm	10	143± 24	60± 23	21± 5	261± 103	217± 19	1± 1	112± 116

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

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
MEASURE. TIME : 1
SEX : FEMALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
ALL ANIMALS (14W)

Group Name	NO. of Animals	UREA NITOROGEN mg/dℓ	SODIUM mEq/ℓ	POTASSIUM mEq/ℓ	CHLORIDE mEq/ℓ	CALCIUM mg/dℓ	INORGANIC PHOSPHORUS mg/dℓ
Control	10	21.7± 4.0	151± 2	4.3± 0.2	121± 1	8.7± 0.2	5.7± 0.7
25ppm	10	22.4± 2.1	151± 1	4.3± 0.4	122± 2	8.7± 0.2	5.7± 0.9
50ppm	10	24.0± 7.0	151± 2	4.4± 0.4	121± 1	8.8± 0.3	5.9± 1.0
100ppm	10	21.8± 2.5	151± 1	4.4± 0.4	122± 2	8.8± 0.3	5.6± 0.7
200ppm	10	21.9± 3.4	151± 1	4.4± 0.4	121± 2	8.9± 0.2	5.4± 1.2
400ppm	10	22.4± 3.0	151± 1	4.5± 0.5	122± 2	8.7± 0.2	5.7± 0.7

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

APPENDIX H 1

URINALYSIS : MALE

STUDY NO. : 0601 URINALYSIS
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
MEASURE. TIME : 1
SEX : MALE 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	2	0	0	2	2	4		0	1	9	0	0	0		10	0	0	0	0	0		3	6	1	0	0	0		10	0	0	0	0	
25ppm	10	0	0	0	0	2	8	0	*	0	0	7	3	0	0		10	0	0	0	0	0		4	6	0	0	0	0		10	0	0	0	0	
50ppm	10	0	0	2	0	1	4	3		0	1	7	2	0	0		10	0	0	0	0	0		3	6	1	0	0	0		10	0	0	0	0	
100ppm	10	0	0	0	0	2	3	5		0	0	10	0	0	0		10	0	0	0	0	0		2	7	1	0	0	0		9	0	1	0	0	
200ppm	10	0	1	0	0	2	5	2		0	2	8	0	0	0		10	0	0	0	0	0		3	7	0	0	0	0		10	0	0	0	0	
400ppm	10	0	0	1	0	2	6	1		0	1	5	4	0	0		10	0	0	0	0	0		1	8	1	0	0	0		10	0	0	0	0	

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

STUDY NO. : 0601 URINALYSIS
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
MEASURE. TIME : 1
SEX : MALE REPORT TYPE : A1

Group Name	NO. of Animals	Urobilinogen ±	+	2+	3+	4+	CHI
Control	10	10	0	0	0	0	
25ppm	10	10	0	0	0	0	
50ppm	10	10	0	0	0	0	
100ppm	10	10	0	0	0	0	
200ppm	10	10	0	0	0	0	
400ppm	10	10	0	0	0	0	

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

APPENDIX H 2

URINALYSIS : FEMALE

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
MEASURE. TIME : 1
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	Occult blood −	±	+	2+	3+	CHI
Control	10	0	0	2	0	2	4	2		0	2	8	0	0	0		10	0	0	0	0	0		2	1	7	0	0	0		10	0	0	0	0	
25ppm	10	0	0	0	1	4	2	3		0	6	4	0	0	0		10	0	0	0	0	0		6	4	0	0	0	0	**	10	0	0	0	0	
50ppm	10	0	0	0	2	2	3	3		0	6	4	0	0	0		10	0	0	0	0	0		7	3	0	0	0	0	**	10	0	0	0	0	
100ppm	10	0	0	1	1	2	3	3		0	8	2	0	0	0	**	10	0	0	0	0	0		7	1	2	0	0	0		10	0	0	0	0	
200ppm	10	0	0	1	0	0	3	6		0	6	4	0	0	0		10	0	0	0	0	0		8	2	0	0	0	0	**	10	0	0	0	0	
400ppm	10	0	0	0	1	2	6	1		0	9	1	0	0	0	**	10	0	0	0	0	0		10	0	0	0	0	0	**	10	0	0	0	0	

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

STUDY NO. : 0601 URINALYSIS
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
MEASURE. TIME : 1
SEX : FEMALE REPORT TYPE : A1

Group Name	NO. of Animals	Urobilinogen ±	+	2+	3+	4+	CHI
Control	10	10	0	0	0	0	
25ppm	10	10	0	0	0	0	
50ppm	10	10	0	0	0	0	
100ppm	10	10	0	0	0	0	
200ppm	10	10	0	0	0	0	
400ppm	10	10	0	0	0	0	

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

APPENDIX I

GROSS FINDINGS : MALE

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
ALL ANIMALS (0- 14W)

Organ	Findings	Group Name	Control	25ppm	50ppm	100ppm
		NO. of Animals	10 (%)	10 (%)	10 (%)	10 (%)
thymus	enlarged		0 (0)	0 (0)	1 (10)	0 (0)
spleen	enlarged		0 (0)	0 (0)	1 (10)	0 (0)
	black zone		0 (0)	0 (0)	0 (0)	0 (0)
kidney	hydronephrosis		1 (10)	1 (10)	0 (0)	0 (0)

Organ	Findings	Group Name	200ppm		400ppm	
		NO. of Animals	10	(%)	10	(%)
thymus	enlarged		0	(0)	0	(0)
spleen	enlarged		0	(0)	0	(0)
	black zone		0	(0)	1	(10)
kidney	hydronephrosis		0	(0)	0	(0)

APPENDIX J 1

ORGAN WEIGHT, ABSOLUTE : MALE

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
REPORT TYPE : A1
SEX : MALE
UNIT: g

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

Group Name	NO. of Animals	Body Weight	THYMUS	ADRENALS	TESTES	HEART	LUNGS
Control	10	31.1± 2.7	0.041± 0.008	0.015± 0.002	0.234± 0.036	0.159± 0.010	0.160± 0.012
25ppm	10	29.3± 2.1	0.037± 0.009	0.015± 0.003	0.227± 0.030	0.157± 0.006	0.158± 0.006
50ppm	10	28.8± 2.2	0.113± 0.243	0.014± 0.001	0.226± 0.038	0.162± 0.013	0.162± 0.015
100ppm	10	28.3± 1.2*	0.031± 0.004	0.016± 0.003	0.250± 0.009	0.160± 0.020	0.160± 0.017
200ppm	10	29.2± 1.9	0.037± 0.006	0.015± 0.002	0.226± 0.034	0.163± 0.012	0.157± 0.010
400ppm	10	28.4± 1.9*	0.033± 0.006	0.016± 0.002	0.217± 0.052	0.156± 0.013	0.160± 0.011

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

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
REPORT TYPE : A1
SEX : MALE
UNIT: g

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

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	10	0.522± 0.152	0.051± 0.007	1.178± 0.079	0.451± 0.009
25ppm	10	0.543± 0.258	0.053± 0.005	1.148± 0.051	0.454± 0.017
50ppm	10	0.480± 0.035	0.087± 0.112	1.171± 0.094	0.450± 0.014
100ppm	10	0.476± 0.025	0.051± 0.005	1.128± 0.049	0.451± 0.009
200ppm	10	0.476± 0.031	0.051± 0.006	1.152± 0.067	0.454± 0.007
400ppm	10	0.475± 0.036	0.051± 0.005	1.129± 0.043	0.447± 0.021

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

APPENDIX J 2

ORGAN WEIGHT, ABSOLUTE : FEMALE

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

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

Group Name	NO. of Animals	Body Weight	THYMUS	ADRENALS	OVARIES	HEART	LUNGS
Control	10	22.1± 1.5	0.042± 0.006	0.018± 0.002	0.033± 0.003	0.133± 0.006	0.150± 0.012
25ppm	10	21.6± 0.8	0.041± 0.007	0.017± 0.002	0.032± 0.003	0.129± 0.005	0.149± 0.005
50ppm	10	22.4± 1.4	0.041± 0.008	0.017± 0.003	0.031± 0.005	0.134± 0.009	0.156± 0.015
100ppm	10	22.0± 1.3	0.041± 0.009	0.018± 0.002	0.033± 0.004	0.136± 0.010	0.151± 0.011
200ppm	10	22.8± 1.9	0.046± 0.006	0.019± 0.001	0.035± 0.004	0.137± 0.008	0.156± 0.015
400ppm	10	21.5± 1.0	0.041± 0.005	0.018± 0.002	0.031± 0.004	0.130± 0.008	0.154± 0.006

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

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

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

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	10	0.322± 0.021	0.063± 0.011	0.982± 0.121	0.468± 0.013
25ppm	10	0.318± 0.013	0.061± 0.004	0.951± 0.052	0.471± 0.018
50ppm	10	0.325± 0.020	0.059± 0.009	0.950± 0.116	0.468± 0.010
100ppm	10	0.323± 0.019	0.062± 0.009	0.967± 0.074	0.471± 0.019
200ppm	10	0.325± 0.015	0.066± 0.008	0.995± 0.079	0.468± 0.017
400ppm	10	0.318± 0.014	0.062± 0.007	0.984± 0.055	0.463± 0.016

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

APPENDIX K 1

ORGAN WEIGHT, RELATIVE : MALE

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
REPORT TYPE : A1
SEX : MALE
UNIT: %

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

Group Name	NO. of Animals	Body Weight (g)	THYMUS	ADRENALS	TESTES	HEART	LUNGS
Control	10	31.1± 2.7	0.130± 0.021	0.047± 0.008	0.757± 0.137	0.514± 0.048	0.518± 0.049
25ppm	10	29.3± 2.1	0.127± 0.025	0.049± 0.008	0.777± 0.114	0.538± 0.047	0.539± 0.039
50ppm	10	28.8± 2.2	0.437± 0.992	0.049± 0.006	0.782± 0.116	0.562± 0.027	0.567± 0.089
100ppm	10	28.3± 1.2*	0.111± 0.013	0.055± 0.009	0.884± 0.062	0.566± 0.059	0.565± 0.058
200ppm	10	29.2± 1.9	0.127± 0.015	0.050± 0.006	0.777± 0.132	0.560± 0.047	0.538± 0.045
400ppm	10	28.4± 1.9*	0.118± 0.021	0.056± 0.010	0.772± 0.211	0.550± 0.042	0.566± 0.050

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

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
REPORT TYPE : A1
SEX : MALE
UNIT: %

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

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	10	1.694± 0.534	0.165± 0.027	3.807± 0.309	1.462± 0.132
25ppm	10	1.848± 0.854	0.180± 0.021	3.930± 0.265	1.553± 0.101
50ppm	10	1.671± 0.133	0.323± 0.464	4.086± 0.495	1.571± 0.111
100ppm	10	1.683± 0.114	0.181± 0.012	3.985± 0.134	1.594± 0.062
200ppm	10	1.635± 0.091	0.174± 0.017	3.955± 0.202	1.561± 0.096
400ppm	10	1.677± 0.141	0.180± 0.017	3.983± 0.167	1.580± 0.116

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

APPENDIX K 2

ORGAN WEIGHT, RELATIVE : FEMALE

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

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

Group Name	NO. of Animals	Body Weight (g)	THYMUS	ADRENALS	OVARIES	HEART	LUNGS
Control	10	22.1± 1.5	0.191± 0.021	0.080± 0.007	0.151± 0.017	0.605± 0.035	0.679± 0.038
25ppm	10	21.6± 0.8	0.189± 0.036	0.078± 0.010	0.150± 0.018	0.596± 0.016	0.688± 0.033
50ppm	10	22.4± 1.4	0.184± 0.027	0.076± 0.010	0.139± 0.016	0.599± 0.032	0.694± 0.058
100ppm	10	22.0± 1.3	0.185± 0.034	0.083± 0.008	0.151± 0.012	0.621± 0.030	0.687± 0.042
200ppm	10	22.8± 1.9	0.201± 0.019	0.081± 0.008	0.152± 0.015	0.604± 0.039	0.685± 0.036
400ppm	10	21.5± 1.0	0.190± 0.019	0.083± 0.007	0.145± 0.018	0.607± 0.038	0.715± 0.022

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

STUDY NO. : 0601
ANIMAL : MOUSE B6D2F1/Crlj[Crj:BDF1]
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

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

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	10	1.460± 0.067	0.284± 0.032	4.430± 0.356	2.123± 0.133
25ppm	10	1.469± 0.058	0.282± 0.014	4.397± 0.188	2.180± 0.096
50ppm	10	1.452± 0.084	0.264± 0.032	4.232± 0.399	2.092± 0.105
100ppm	10	1.469± 0.055	0.280± 0.030	4.404± 0.222	2.146± 0.101
200ppm	10	1.427± 0.073	0.289± 0.023	4.371± 0.218	2.060± 0.145
400ppm	10	1.480± 0.083	0.290± 0.026	4.581± 0.185	2.157± 0.130

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

APPENDIX L 1

HISTOPATHOLOGICAL FINDINGS :

NON-NEOPLASTIC LESIONS : MALE

Organ	Findings	Group Name	Control				25ppm				50ppm				100ppm			
		No. of Animals on Study	10				10				10				10			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Hematopoietic system}																		
spleen			<10>				<10>				<10>				<10>			
	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)
{Urinary system}																		
kidney			<10>				<10>				<10>				<10>			
	inflammatory polyp		0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(10)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	hydronephrosis		0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
			(0)	(0)	(10)	(0)	(0)	(0)	(10)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
{Reproductive system}																		
testis			<10>				<10>				<10>				<10>			
	germ cell necrosis		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
epididymis			<10>				<10>				<10>				<10>			
	debris of spermatic elements		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100
Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Chi Square

Organ	Findings	Group Name	200ppm				400ppm			
		No. of Animals on Study	10				10			
		Grade	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Hematopoietic system}										
spleen			<10>				<10>			
	deposit of melanin		0	0	0	0	1	0	0	0
			(0)	(0)	(0)	(0)	(10)	(0)	(0)	(0)
{Urinary system}										
kidney			<10>				<10>			
	inflammatory polyp		0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	hydronephrosis		0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
{Reproductive system}										
testis			<10>				<10>			
	germ cell necrosis		0	0	0	0	1	0	0	0
			(0)	(0)	(0)	(0)	(10)	(0)	(0)	(0)
epididymis			<10>				<10>			
	debris of spermatic elements		0	0	0	0	1	0	0	0
			(0)	(0)	(0)	(0)	(10)	(0)	(0)	(0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100
Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Chi Square

APPENDIX L 2

HISTOPATHOLOGICAL FINDINGS :

NON-NEOPLASTIC LESIONS : FEMALE

Organ	Findings	Group Name	Control				25ppm				50ppm				100ppm			
		No. of Animals on Study	10				10				10				10			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}																		
nasal cavit			<10>				<10>				<10>				<10>			
	eosinophilic change:olfactory epithelium		0	0	0	0	1	0	0	0	3	0	0	0	3	0	0	0
			(0)	(0)	(0)	(0)	(10)	(0)	(0)	(0)	(30)	(0)	(0)	(0)	(30)	(0)	(0)	(0)
	eosinophilic change:respiratory epithelium		2	0	0	0	2	0	0	0	2	0	0	0	4	0	0	0
			(20)	(0)	(0)	(0)	(20)	(0)	(0)	(0)	(20)	(0)	(0)	(0)	(40)	(0)	(0)	(0)
	vacuolic 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)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
{Digestive system}																		
liver			<10>				<10>				<10>				<10>			
	necrosis:focal		0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(10)	(0)	(0)	(0)	(10)	(0)	(0)	(0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100
Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Chi Square

Organ	Findings	Group Name	200ppm				400ppm			
		No. of Animals on Study	10				10			
		Grade	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}										
nasal cavit			<10>				<10>			
	eosinophilic change:olfactory epithelium		0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	eosinophilic change:respiratory epithelium		0	0	0	0	1	0	0	0
			(0)	(0)	(0)	(0)	(10)	(0)	(0)	(0)
	vacuolic change:olfactory epithelium		0	0	0	0	2	0	0	0
			(0)	(0)	(0)	(0)	(20)	(0)	(0)	(0)
{Digestive system}										
liver			<10>				<10>			
	necrosis:focal		0	0	0	0	0	0	0	0
			(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe
< a > a : Number of animals examined at the site
b b : Number of animals with lesion
(c) c : b / a * 100
Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Chi Square

APPENDIX M

METHODS, UNITS AND DECIMAL PLACE FOR HEMATOLOGY AND BIOCHEMISTRY IN THE 13-WEEK INHALATION STUDY OF 2,4-PENTANEDIONE

METHODS, UNITS AND DECIMAL PLACE FOR HEMATOLOGY AND BIOCHEMISTRY IN THE 13-WEEK INHALATION STUDY OF 2,4-PENTANEDIONE

Item	Method	Unit	Decimal place
Hematology			
Red blood cell (RBC)	Light scattering method [1]	$\times 10^6/\mu L$	2
Hemoglobin(Hgb)	Cyanmethemoglobin method [1]	g/dL	1
Hematocrit(Hct)	Calculated as RBC×MCV/10 [1]	%	1
Mean corpuscular volume(MCV)	Light scattering method [1]	fL	1
Mean corpuscular hemoglobin(MCH)	Calculated as Hgb/RBC×10 [1]	pg	1
Mean corpuscular hemoglobin concentration (MCHC)	Calculated as Hgb/Hct×100 [1]	g/dL	1
Platelet	Light scattering method [1]	$\times 10^3/\mu L$	0
Reticulocyte	Light scattering method [1]	%	1
White blood cell(WBC)	Light scattering method [1]	$\times 10^3/\mu L$	2
Differential WBC	Pattern recognition method [2] (Wright staining)	%	0
Biochemistry			
Total protein(TP)	Biuret method [3]	g/dL	1
Albumin (Alb)	BCG method [3]	g/dL	1
A/G ratio	Calculated as Alb/(TP−Alb) [3]	−	1
T-bilirubin	Alkaline azobilirubin method [3]	mg/dL	2
Glucose	GlcK·G-6-PDH method [3]	mg/dL	0
T-cholesterol	CE·COD·POD method [3]	mg/dL	0
Triglyceride	LPL·GK·GPO·POD method [3]	mg/dL	0
Phospholipid	PLD·ChOD·POD method [3]	mg/dL	0
Aspartate aminotransferase (AST)	JSCC method [3]	IU/L	0
Alanine aminotransferase (ALT)	JSCC method [3]	IU/L	0
Lactate dehydrogenase (LDH)	SFBC method [3]	IU/L	0
Alkaline phosphatase (ALP)	GSCC method [3]	IU/L	0
γ-Glutamyl transpeptidase (γ-GTP)	JSCC method [3]	IU/L	0
Creatine kinase (CK)	JSCC method [3]	IU/L	0
Urea nitrogen	Urease·GLDH method [3]	mg/dL	1
Sodium	Ion selective electrode method [3]	mEq/L	0
Potassium	Ion selective electrode method [3]	mEq/L	1
Chloride	Ion selective electrode method [3]	mEq/L	0
Calcium	OCPC method [3]	mg/dL	1
Inorganic phosphorus	PNP·XOD·POD method [3]	mg/dL	1

1) Automatic blood cell analyzer (ADVIA120 : Bayer Corporation)
2) Automatic blood cell differential analyzer (MICROX HEG-120NA : OMRON Corporation)
3) Automatic analyzer (Hitachi 7080 : Hitachi,Ltd.)