

1, 2 - ジクロロプロパンのラットを用いた  
吸入による2週間毒性試験報告書

試験番号：0424

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1,2-DICHLOROPROPANE

APPENDIX A 1

BODY WEIGHT CHANGES : SUMMARY, RAT : MALE

( 2-WEEK STUDY )

APPENDIX A 1

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 2  
 SEX : MALE

BODY WEIGHT CHANGES (SUMMARY)  
 ALL ANIMALS

Group Name	Administration week-day					
	0-0	1-2	1-4	1-7	2-4	2-7
Control	121± 4	127± 4	128± 5	138± 6	147± 9	159± 9
125ppm	121± 3	122± 7	126± 7	138± 8	149± 9	162± 9
250ppm	121± 3	120± 4	123± 4	136± 5	145± 7	160± 6
500ppm	121± 4	119± 3*	119± 5*	131± 5	137± 6	151± 6
1000ppm	121± 4	118± 4*	118± 2**	133± 2	135± 7	150± 8
2000ppm	121± 4	116± 4**	110± 4**	123± 5**	118± 8**	131± 9**

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

APPENDIX A 2

BODY WEIGHT CHANGES : SUMMARY, RAT : FEMALE

( 2-WEEK STUDY )

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 2  
 SEX : FEMALE

BODY WEIGHT CHANGES (SUMMARY)  
 ALL ANIMALS

Group Name	Administration week-day					
	0-0	1-2	1-4	1-7	2-4	2-7
Control	95± 3	99± 1	100± 3	104± 4	108± 4	113± 6
125ppm	95± 3	96± 3	97± 3	105± 4	111± 4	117± 4
250ppm	95± 3	94± 2*	96± 4	105± 6	109± 8	117± 8
500ppm	95± 2	92± 2**	91± 2**	99± 4	100± 3	105± 5
1000ppm	95± 3	92± 3**	89± 3**	97± 4	101± 4	107± 4
2000ppm	95± 3	92± 3**	88± 3**	97± 5	96± 5**	105± 7

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

APPENDIX B 1

FOOD CONSUMPTION CHANGES : SUMMARY, RAT : MALE

( 2-WEEK STUDY )



STUDY NO. : 0424  
ANIMAL : RAT F344/DuCrj  
UNIT : g  
REPORT TYPE : A1 2  
SEX : MALE

FOOD CONSUMPTION CHANGES (SUMMARY)  
ALL ANIMALS

Group Name	Administration week-day(effective)	
	1-7(6)	2-7(7)
Control	13.5± 0.6	13.3± 0.9
125ppm	12.3± 1.2	13.5± 1.1
250ppm	12.0± 0.8*	13.5± 0.6
500ppm	11.3± 0.8**	13.0± 0.6
1000ppm	11.2± 0.4**	12.1± 1.1
2000ppm	9.1± 0.7**	10.0± 1.4**

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

Test of Dunnett

APPENDIX B 2

FOOD CONSUMPTION CHANGES : SUMMARY, RAT : FEMALE

( 2-WEEK STUDY )

STUDY NO. : 0424  
ANIMAL : RAT F344/DuCrj  
UNIT : g  
REPORT TYPE : A1 2  
SEX : FEMALE

FOOD CONSUMPTION CHANGES (SUMMARY)  
ALL ANIMALS

PAGE : 2

Group Name	Administration week-day(effective)	
	1-7(6)	2-7(7)
Control	10.3± 0.3	10.1± 0.4
125ppm	9.9± 0.5	10.2± 0.5
250ppm	9.7± 1.0	10.5± 1.2
500ppm	9.0± 0.5**	9.4± 0.4
1000ppm	8.4± 0.2**	9.8± 0.4
2000ppm	7.0± 0.3**	8.6± 0.7**

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

Test of Dunnett

(HAN260)

BAIS 3

APPENDIX C 1

HEMATOLOGY : SUMMARY, RAT : MALE

( 2-WEEK STUDY )

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 MEASURE. TIME : 1  
 SEX : MALE

HEMATOLOGY (SUMMARY)  
 ALL ANIMALS ( 3W)

REPORT TYPE : A1

PAGE : 1

Group Name	NO. of Animals	RED BLOOD CELL 10 <sup>6</sup> /μl		HEMOGLOBIN g/dl		HEMATOCRIT %		MCV fl		MCH pg		MCHC g/dl		PLATELET 10 <sup>3</sup> /μl	
Control	5	8.73±	0.35	16.5±	0.5	46.5±	1.4	53.2±	0.6	18.8±	0.2	35.4±	0.2	925±	63
125ppm	5	8.70±	0.14	16.3±	0.3	46.5±	0.7	53.5±	0.1	18.7±	0.1	35.0±	0.3	930±	43
250ppm	5	8.34±	0.27	15.7±	0.4	44.7±	1.4	53.5±	0.2	18.8±	0.3	35.1±	0.4	950±	62
500ppm	5	8.41±	0.28	15.6±	0.4*	44.9±	1.4	53.4±	0.4	18.6±	0.2	34.8±	0.3	970±	61
1000ppm	5	8.30±	0.27	15.4±	0.5**	44.3±	1.4	53.4±	0.4	18.6±	0.2	34.8±	0.4	953±	63
2000ppm	5	7.70±	0.24**	14.3±	0.5**	41.7±	1.1**	54.1±	0.7	18.5±	0.2	34.2±	0.6**	832±	50

Significant difference ; \* : P ≤ 0.05      \*\* : P ≤ 0.01

Test of Dunnett

STUDY NO. : 0424  
ANIMAL : RAT F344/DuCrj  
MEASURE. TIME : 1  
SEX : MALE

HEMATOLOGY (SUMMARY)  
ALL ANIMALS ( 3W)

REPORT TYPE : A1

PAGE : 2

Group Name	No. of Animals	RETICULOCYTE %		PROTHROMBIN TIME s e c		APTT s e c	
Control	5	2.4±	0.3	14.7±	2.2	18.5±	5.3
125ppm	5	2.8±	0.2	15.2±	0.8	21.0±	2.2
250ppm	5	2.7±	0.1	15.1±	0.5	20.8±	1.6
500ppm	5	3.2±	0.5	14.8±	0.9	19.3±	3.9
1000ppm	5	4.0±	0.5**	14.7±	0.5	18.4±	4.0
2000ppm	5	8.0±	2.2**	15.7±	1.0	17.7±	4.4

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

Test of Dunnett

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 MEASURE. TIME : 1  
 SEX : MALE

HEMATOLOGY (SUMMARY)  
 ALL ANIMALS ( 3W)

REPORT TYPE : A1

Group Name	NO. of Animals	WBC		Differential		WBC (%)		EOSINO	BASO	MONO	LYMPHO	OTHER					
		$10^9/\mu\ell$		N-BAND		N-SEG											
Control	5	3.47±	0.74	1±	1	21±	3	1±	1	0±	0	2±	1	75±	3	0±	0
125ppm	5	3.85±	1.06	2±	1	19±	5	1±	0	0±	0	2±	1	76±	6	0±	0
250ppm	5	3.63±	1.09	2±	1	19±	3	1±	1	0±	0	2±	1	76±	2	0±	0
500ppm	5	3.51±	1.34	3±	1	22±	4	1±	0	0±	0	2±	1	72±	5	0±	0
1000ppm	5	4.43±	0.67	2±	1	23±	2	0±	1	0±	0	2±	1	72±	3	0±	0
2000ppm	5	4.43±	1.23	2±	0	22±	8	1±	1	0±	0	3±	2	71±	7	0±	0

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

\*\* :  $P \leq 0.01$

Test of Dunnett

APPENDIX C 2

HEMATOLOGY : SUMMARY, RAT : FEMALE

( 2-WEEK STUDY )



STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 MEASURE. TIME : 1  
 SEX : FEMALE

HEMATOLOGY (SUMMARY)  
 ALL ANIMALS ( 3W)

REPORT TYPE : A1

PAGE : 4

Group Name	NO. of Animals	RED BLOOD CELL 10 <sup>6</sup> /μℓ	HEMOGLOBIN g/dℓ	HEMATOCRIT %	MCV fℓ	MCH P g	MCHC g/dℓ	PLATELET 10 <sup>3</sup> /μℓ
Control	5	8.79± 0.20	16.9± 0.3	46.3± 0.9	52.6± 0.5	19.2± 0.1	36.4± 0.4	897± 67
125ppm	5	8.70± 0.20	16.8± 0.4	46.3± 1.0	53.2± 0.3	19.3± 0.5	36.4± 0.7	857± 33
250ppm	5	8.54± 0.19	16.3± 0.3	45.3± 0.6	53.0± 0.5	19.1± 0.3	36.0± 0.4	886± 65
500ppm	5	8.66± 0.22	16.4± 0.5	46.1± 1.3	53.3± 0.3	18.9± 0.2	35.5± 0.3*	797± 46
1000ppm	5	8.20± 0.28**	15.5± 0.6**	43.7± 1.2**	53.3± 0.5	18.9± 0.2	35.5± 0.4*	864± 80
2000ppm	5	7.82± 0.23**	14.8± 0.4**	41.8± 1.0**	53.4± 0.6	19.0± 0.1	35.5± 0.4*	847± 50

Significant difference ; \* : P ≤ 0.05      \*\* : P ≤ 0.01

Test of Dunnett

(HCL070)

BAIS 3

STUDY NO. : 0424  
ANIMAL : RAT F344/DuCrj  
MEASURE. TIME : 1  
SEX : FEMALE

HEMATOLOGY (SUMMARY)  
ALL ANIMALS ( 3W)

REPORT TYPE : A1

PAGE : 5

Group Name	NO. of Animals	RETICULOCYTE %		PROTHROMBIN TIME s e c		APTT s e c	
Control	5	1.4±	0.1	14.3±	1.1	16.3±	2.5
125ppm	5	1.5±	0.2	14.8±	1.0	16.8±	2.6
250ppm	5	1.8±	0.3	14.8±	1.1	16.7±	2.6
500ppm	5	1.9±	0.2	14.6±	1.1	16.2±	2.4
1000ppm	5	2.7±	0.9**	15.1±	0.2	17.0±	2.4
2000ppm	5	5.5±	1.8**	15.2±	1.1	17.4±	2.3

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

Test of Dunnett

(HCL070)

BAIS 3

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 MEASURE. TIME : 1  
 SEX : FEMALE

HEMATOLOGY (SUMMARY)  
 ALL ANIMALS ( 3W)

REPORT TYPE : A1

Group Name	NO. of Animals	WBC		Differential		WBC (%)		EOSINO	BASO	MONO	LYMPHO	OTHER					
		1 O <sup>3</sup> /μℓ		N-BAND		N-SBG											
Control	5	3.09±	1.33	1±	1	17±	3	2±	1	0±	0	3±	0	77±	4	0±	0
125ppm	5	3.08±	0.56	2±	1	17±	4	1±	1	0±	0	3±	1	77±	5	0±	0
250ppm	5	3.46±	1.21	1±	1	17±	4	2±	1	0±	0	3±	1	77±	5	0±	0
500ppm	5	2.91±	0.96	2±	0	23±	5	1±	1	0±	0	2±	1	72±	5	0±	0
1000ppm	5	3.85±	1.33	2±	1	28±	6*	1±	1	0±	0	1±	1	67±	6*	0±	0
2000ppm	5	4.31±	1.91	2±	1	25±	7	1±	1	0±	0	3±	2	69±	7	0±	1

Significant difference ; \* : P ≤ 0.05

\*\* : P ≤ 0.01

Test of Dunnett

APPENDIX D 1

BIOCHEMISTRY : SUMMARY, RAT : MALE

( 2-WEEK STUDY )

STUDY NO. : 0424

ANIMAL : RAT F344/DuCrj

MEASURE. TIME : 1

SEX : MALE

REPORT TYPE : A1

## BIOCHEMISTRY (SUMMARY)

ALL ANIMALS ( 3W)

PAGE : 1

Group Name	NO. of Animals	TOTAL PROTEIN g/dl		ALBUMIN g/dl		A/G RATIO		T-BILIRUBIN mg/dl		GLUCOSE mg/dl		T-CHOLESTEROL mg/dl		TRIGLYCERIDE mg/dl	
Control	5	5.8±	0.1	3.8±	0.0	1.9±	0.1	0.13±	0.02	146±	19	49±	4	31±	13
125ppm	5	5.8±	0.2	3.8±	0.2	1.9±	0.1	0.13±	0.01	148±	21	49±	3	23±	8
250ppm	5	6.0±	0.2	3.9±	0.1	2.0±	0.1	0.13±	0.01	142±	17	49±	5	22±	9
500ppm	5	6.1±	0.1*	4.0±	0.1*	2.0±	0.1	0.14±	0.01	132±	22	48±	4	18±	5
1000ppm	5	6.2±	0.1**	4.1±	0.1**	2.0±	0.1	0.14±	0.02	164±	19	52±	4	25±	4
2000ppm	5	6.3±	0.1**	4.2±	0.1**	2.0±	0.0	0.17±	0.01**	145±	9	55±	4	28±	9

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

Test of Dunnett

(HCL074)

BAIS 3

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 MEASURE. TIME : 1  
 SEX : MALE

BIOCHEMISTRY (SUMMARY)  
 ALL ANIMALS ( 3W)

REPORT TYPE : A1

PAGE : 2

Group Name	NO. of Animals	PHOSPHOLIPID mg/dl		GOT IU/l		GPT IU/l		LDH IU/l		ALP IU/l		G-GTP IU/l		CPK IU/l	
Control	5	101±	6	60±	4	36±	2	332±	126	664±	53	1±	1	238±	72
125ppm	5	96±	6	63±	5	29±	2**	323±	173	664±	24	1±	1	276±	81
250ppm	5	94±	4	54±	6	24±	2**	309±	91	629±	41	1±	1	213±	37
500ppm	5	94±	6	53±	3	20±	3**	272±	67	581±	23**	1±	0	200±	60
1000ppm	5	98±	5	48±	4**	21±	2**	210±	45	546±	22**	2±	1	181±	30
2000ppm	5	108±	10	46±	6**	21±	2**	258±	72	465±	50**	2±	1	174±	32

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

\*\* :  $P \leq 0.01$

Test of Dunnett

(HCL074)

BAIS 3

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 MEASURE. TIME : 1  
 SEX : MALE

BIOCHEMISTRY (SUMMARY)  
 ALL ANIMALS ( 3W)

REPORT TYPE : A1

PAGE : 3

Group Name	NO. of Animals	UREA NITROGEN		CREATININE		SODIUM		POTASSIUM		CHLORIDE		CALCIUM		INORGANIC PHOSPHORUS	
		mg/dl		mg/dl		mEq/l		mEq/l		mEq/l		mg/dl		mg/dl	
Control	5	16.7±	2.1	0.5±	0.1	140±	1	3.9±	0.2	106±	1	10.1±	0.2	7.7±	0.6
125ppm	5	15.8±	1.4	0.5±	0.1	141±	1	4.0±	0.3	106±	2	10.2±	0.3	8.1±	0.6
250ppm	5	16.1±	2.6	0.5±	0.1	140±	2	4.2±	0.3	105±	1	10.4±	0.2	7.8±	0.9
500ppm	5	15.5±	1.9	0.5±	0.0	141±	1	4.6±	0.4	106±	0	10.4±	0.1	8.0±	0.5
1000ppm	5	17.7±	2.4	0.5±	0.1	140±	1	4.5±	0.8	104±	2	10.7±	0.2**	7.7±	0.7
2000ppm	5	17.2±	2.0	0.5±	0.0	141±	2	4.8±	0.3*	104±	2	10.6±	0.4*	7.9±	0.6

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

Test of Dunnett

APPENDIX D 2

BIOCHEMISTRY : SUMMARY, RAT : FEMALE

( 2-WEEK STUDY )



STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 MEASURE. TIME : 1  
 SEX : FEMALE

BIOCHEMISTRY (SUMMARY)  
 ALL ANIMALS ( 3W)

REPORT TYPE : A1

PAGE : 4

Group Name	NO. of Animals	TOTAL PROTEIN g/dl		ALBUMIN g/dl		A/G RATIO		T-BILIRUBIN mg/dl		GLUCOSE mg/dl		T-CHOLESTEROL mg/dl		TRIGLYCERIDE mg/dl	
Control	5	5.7±	0.2	3.7±	0.1	1.8±	0.1	0.15±	0.02	129±	11	70±	9	13±	2
125ppm	5	5.6±	0.1	3.6±	0.1	1.8±	0.1	0.15±	0.02	132±	17	66±	4	15±	4
250ppm	5	5.7±	0.1	3.7±	0.1	1.8±	0.1	0.15±	0.01	128±	16	73±	3	14±	2
500ppm	5	5.9±	0.1	3.8±	0.1	1.9±	0.1	0.18±	0.03	117±	16	84±	12*	16±	2
1000ppm	5	5.9±	0.1	3.8±	0.0	1.8±	0.1	0.18±	0.02	144±	23	81±	7	25±	4**
2000ppm	5	6.1±	0.2**	4.0±	0.1**	1.9±	0.1	0.19±	0.03	149±	10	87±	11*	26±	8**

Significant difference ; \* : P ≤ 0.05      \*\* : P ≤ 0.01

Test of Dunnett

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 MEASURE. TIME : 1  
 SEX : FEMALE

BIOCHEMISTRY (SUMMARY)  
 ALL ANIMALS ( 3W)

REPORT TYPE : A1

PAGE : 5

Group Name	NO. of Animals	PHOSPHOLIPID mg/dl		GOT IU/l		GPT IU/l		LDH IU/l		ALP IU/l		G-GTP IU/l		CPK IU/l	
Control	5	132±	13	63±	5	31±	2	384±	287	502±	38	2±	1	216±	65
125ppm	5	124±	7	63±	5	26±	3*	322±	231	534±	28	1±	1	198±	58
250ppm	5	134±	6	59±	4	20±	3**	343±	204	520±	19	1±	1	175±	58
500ppm	5	155±	17*	60±	13	21±	4**	409±	197	444±	63	1±	1	199±	64
1000ppm	5	159±	7**	53±	3	18±	2**	317±	145	427±	22*	1±	1	181±	50
2000ppm	5	168±	17**	52±	3*	22±	4**	458±	186	473±	51	1±	1	186±	51

Significant difference ; \* : P ≤ 0.05      \*\* : P ≤ 0.01

Test of Dunnett

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 MEASURE. TIME : 1  
 SEX : FEMALE

BIOCHEMISTRY (SUMMARY)  
 ALL ANIMALS ( 3W)

REPORT TYPE : A1

PAGE : 6

Group Name	NO. of Animals	UREA NITROGEN		CREATININE		SODIUM		POTASSIUM		CHLORIDE		CALCIUM		INORGANIC PHOSPHORUS	
		mg/dl		mg/dl		mEq/l		mEq/l		mEq/l		mg/dl		mg/dl	
Control	5	19.8±	1.3	0.5±	0.0	138±	1	3.9±	0.2	107±	2	9.9±	0.3	7.2±	0.8
125ppm	5	19.4±	2.2	0.5±	0.1	139±	1	4.0±	0.3	107±	1	10.1±	0.2	7.2±	1.1
250ppm	5	17.4±	3.4	0.5±	0.0	139±	1	4.0±	0.3	107±	2	10.0±	0.2	7.1±	0.9
500ppm	5	15.4±	2.2	0.5±	0.0	139±	1	4.2±	0.4	107±	1	10.2±	0.2	7.4±	0.5
1000ppm	5	18.2±	1.3	0.5±	0.1	138±	1	4.2±	0.1	106±	1	10.3±	0.1*	7.1±	1.0
2000ppm	5	18.3±	3.1	0.5±	0.1	137±	1	4.7±	0.4**	104±	1*	10.7±	0.2**	7.1±	1.0

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

Test of Dunnett

APPENDIX E 1

GROSS FINDINGS : SUMMARY, RAT : MALE : SACRIFICED ANIMALS

( 2-WEEK STUDY )

STUDY NO. : 0424  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

GROSS FINDINGS (SUMMARY)  
ALL ANIMALS (0- 3W)

---

Organ	Findings	Group Name NO. of Animals	Control 5 (%)	125ppm 5 (%)	250ppm 5 (%)	500ppm 5 (%)
liver	herniation		0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)

---

STUDY NO. : 0424  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

GROSS FINDINGS (SUMMARY)  
ALL ANIMALS (0- 3W)

PAGE : 2

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Organ	Findings	Group Name NO. of Animals	1000ppm		2000ppm	
			5	(%)	5	(%)
liver	herniation		2	( 40)	0	( 0)

---

(HPT080)

BAIS 3

APPENDIX E 2

GROSS FINDINGS : SUMMARY, RAT : FEMALE : SACRIFICED ANIMALS

( 2-WEEK STUDY )

STUDY NO. : 0424  
ANIMAL : RAT F344/DuCrJ  
REPORT TYPE : A1  
SEX : FEMALE

GROSS FINDINGS (SUMMARY)  
ALL ANIMALS (0- 3W)

PAGE : 3

---

Organ	Findings	Group Name NO. of Animals	Control							
			5	(%)	5	(%)				
				125ppm		250ppm		500ppm		
			5	(%)	5	(%)	5	(%)	5	(%)
thymus	red zone		1	( 20)	0	( 0)	0	( 0)	0	( 0)
liver	herniation		0	( 0)	0	( 0)	1	( 20)	0	( 0)

---

(HPT080)

BAIS 3



STUDY NO. : 0424  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

GROSS FINDINGS (SUMMARY)  
ALL ANIMALS (0- 3W)

---

Organ	Findings	Group Name NO. of Animals	1000ppm		2000ppm	
			5	(%)	5	(%)
thymus	red zone		0	( 0)	0	( 0)
liver	herniation		0	( 0)	0	( 0)

---

APPENDIX F 1

ORGAN WEIGHT, ABSOLUTE : SUMMARY, RAT : MALE

( 2-WEEK STUDY )

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE  
 UNIT: g

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

Group Name	NO. of Animals	Body Weight	THYMUS	ADRENALS	TESTES	HEART	LUNGS
Control	5	145 ± 7	0.226 ± 0.014	0.035 ± 0.002	2.400 ± 0.163	0.602 ± 0.041	0.660 ± 0.029
125ppm	5	145 ± 7	0.225 ± 0.010	0.040 ± 0.004	2.461 ± 0.190	0.605 ± 0.054	0.693 ± 0.045
250ppm	5	142 ± 5	0.234 ± 0.020	0.038 ± 0.003	2.389 ± 0.134	0.610 ± 0.050	0.686 ± 0.021
500ppm	5	135 ± 5	0.210 ± 0.023	0.037 ± 0.004	2.463 ± 0.058	0.591 ± 0.047	0.676 ± 0.016
1000ppm	5	134 ± 7*	0.217 ± 0.024	0.038 ± 0.005	2.430 ± 0.099	0.593 ± 0.035	0.683 ± 0.031
2000ppm	5	119 ± 8**	0.150 ± 0.024**	0.036 ± 0.003	2.325 ± 0.062	0.552 ± 0.038	0.645 ± 0.023

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

Test of Dunnett

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE  
 UNIT: g

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

Group Name	NO. of Animals	KIDNEYS		SPLEEN		LIVER		BRAIN	
Control	5	1.193±	0.062	0.335±	0.015	4.410±	0.256	1.698±	0.046
125ppm	5	1.226±	0.070	0.334±	0.027	4.482±	0.259	1.694±	0.035
250ppm	5	1.242±	0.037	0.326±	0.018	4.633±	0.163	1.702±	0.016
500ppm	5	1.223±	0.027	0.341±	0.017	4.699±	0.093	1.645±	0.048
1000ppm	5	1.260±	0.050	0.352±	0.022	4.979±	0.351**	1.684±	0.043
2000ppm	5	1.168±	0.048	0.380±	0.015**	4.595±	0.346	1.592±	0.098*

Significant difference ; \* : P ≤ 0.05    \*\* : P ≤ 0.01

Test of Dunnett

APPENDIX F 2

ORGAN WEIGHT, ABSOLUTE: SUMMARY, RAT : FEMALE

( 2-WEEK STUDY )

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE  
 UNIT: g

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

Group Name	NO. of Animals	Body Weight	THYMUS	ADRENALS	OVARIES	HEART	LUNGS
Control	5	101± 4	0.199± 0.031	0.043± 0.003	0.075± 0.014	0.448± 0.020	0.559± 0.023
125ppm	5	103± 3	0.206± 0.013	0.043± 0.002	0.077± 0.010	0.465± 0.024	0.580± 0.035
250ppm	5	103± 5	0.219± 0.028	0.043± 0.005	0.078± 0.008	0.473± 0.046	0.580± 0.024
500ppm	5	95± 3	0.177± 0.029	0.046± 0.005	0.068± 0.004	0.439± 0.013	0.542± 0.010
1000ppm	5	96± 3	0.193± 0.018	0.046± 0.006	0.076± 0.012	0.453± 0.016	0.555± 0.021
2000ppm	5	96± 6	0.175± 0.015	0.042± 0.004	0.066± 0.005	0.440± 0.033	0.536± 0.040

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

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE  
 UNIT: g

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

Group Name	NO. of Animals	KIDNEYS		SPLEEN		LIVER		BRAIN	
Control	5	0.898±	0.029	0.252±	0.020	3.115±	0.106	1.586±	0.030
125ppm	5	0.940±	0.016	0.257±	0.014	3.247±	0.099	1.599±	0.059
250ppm	5	0.964±	0.036*	0.258±	0.020	3.420±	0.277*	1.569±	0.031
500ppm	5	0.917±	0.030	0.252±	0.010	3.457±	0.185*	1.550±	0.032
1000ppm	5	0.955±	0.043*	0.264±	0.025	3.618±	0.098**	1.547±	0.034
2000ppm	5	0.946±	0.037	0.299±	0.034**	3.684±	0.203**	1.550±	0.034

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

Test of Dunnett

APPENDIX G 1

ORGAN WEIGHT, RELATIVE : SUMMARY, RAT : MALE

( 2-WEEK STUDY )



STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE  
 UNIT: %

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

Group Name	NO. of Animals	Body Weight (g)	THYMUS	ADRENALS	TESTES	HEART	LUNGS
Control	5	145 ± 7	0.155 ± 0.006	0.024 ± 0.002	1.650 ± 0.051	0.414 ± 0.028	0.454 ± 0.014
125ppm	5	145 ± 7	0.155 ± 0.012	0.028 ± 0.003	1.692 ± 0.086	0.416 ± 0.024	0.477 ± 0.024
250ppm	5	142 ± 5	0.165 ± 0.009	0.026 ± 0.003	1.685 ± 0.090	0.430 ± 0.029	0.484 ± 0.009
500ppm	5	135 ± 5	0.155 ± 0.014	0.027 ± 0.002	1.826 ± 0.084*	0.438 ± 0.025	0.501 ± 0.021*
1000ppm	5	134 ± 7*	0.162 ± 0.011	0.028 ± 0.004	1.818 ± 0.140	0.443 ± 0.027	0.510 ± 0.015**
2000ppm	5	119 ± 8**	0.126 ± 0.012**	0.030 ± 0.002**	1.963 ± 0.124**	0.465 ± 0.022*	0.544 ± 0.037**

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

Test of Dunnett

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE  
 UNIT: %

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

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	5	0.821 ± 0.035	0.230 ± 0.009	3.032 ± 0.067	1.168 ± 0.032
125ppm	5	0.844 ± 0.028	0.230 ± 0.010	3.082 ± 0.053	1.166 ± 0.039
250ppm	5	0.876 ± 0.021	0.230 ± 0.013	3.268 ± 0.034	1.201 ± 0.038
500ppm	5	0.907 ± 0.028**	0.253 ± 0.021	3.482 ± 0.054*	1.219 ± 0.030
1000ppm	5	0.942 ± 0.042**	0.262 ± 0.015*	3.715 ± 0.184**	1.258 ± 0.051
2000ppm	5	0.985 ± 0.040**	0.321 ± 0.026**	3.868 ± 0.148**	1.343 ± 0.100**

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

Test of Dunnett

APPENDIX G 2

ORGAN WEIGHT, RELATIVE : SUMMARY, RAT : FEMALE

( 2-WEEK STUDY )

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE  
 UNIT: %

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

Group Name	NO. of Animals	Body Weight (g)	THYMUS	ADRENALS	OVARIES	HEART	LUNGS
Control	5	101± 4	0.196± 0.023	0.042± 0.003	0.074± 0.012	0.445± 0.014	0.555± 0.021
125ppm	5	103± 3	0.200± 0.011	0.042± 0.002	0.075± 0.010	0.452± 0.018	0.564± 0.031
250ppm	5	103± 5	0.212± 0.018	0.041± 0.003	0.075± 0.005	0.458± 0.023	0.563± 0.019
500ppm	5	95± 3	0.185± 0.024	0.048± 0.006	0.071± 0.005	0.462± 0.017	0.569± 0.010
1000ppm	5	96± 3	0.201± 0.018	0.048± 0.006	0.079± 0.011	0.473± 0.020	0.578± 0.013
2000ppm	5	96± 6	0.182± 0.008	0.044± 0.005	0.069± 0.005	0.458± 0.019	0.558± 0.011

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

Test of Dunnett

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE  
 UNIT: %

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

Group Name	NO. of Animals	KIDNEYS	SPLEEN	LIVER	BRAIN
Control	5	0.891 ± 0.040	0.250 ± 0.013	3.091 ± 0.076	1.575 ± 0.065
125ppm	5	0.914 ± 0.024	0.250 ± 0.012	3.158 ± 0.063	1.555 ± 0.025
250ppm	5	0.937 ± 0.036	0.250 ± 0.009	3.316 ± 0.114**	1.526 ± 0.067
500ppm	5	0.964 ± 0.037*	0.265 ± 0.011	3.630 ± 0.102**	1.629 ± 0.067
1000ppm	5	0.996 ± 0.044**	0.274 ± 0.020	3.769 ± 0.053**	1.612 ± 0.026
2000ppm	5	0.986 ± 0.029**	0.311 ± 0.020**	3.840 ± 0.119**	1.618 ± 0.064

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

Test of Dunnett

APPENDIX H 1

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY,  
RAT : MALE : SACRIFICED ANIMALS

( 2-WEEK STUDY )

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
 ALL ANIMALS (0- 3W)

Organ	Findings	Group Name No. of Animals on Study Grade	Control 5				125ppm 5				250ppm 5				500ppm 5				
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
				(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}																			
nasal cavit			< 5>				< 5>				< 5>				< 5>				
	disarrangement: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)	
	respiratory metaplasia:olfactory epithelium		0	0	0	0	5	0	0	0	4	0	0	0	5	0	0	0	
			( 0)	( 0)	( 0)	( 0)	(100)	( 0)	( 0)	( 0)	( 80)	( 0)	( 0)	( 0)	(100)	( 0)	( 0)	( 0)	
	atrophy:olfactory epithelium		0	0	0	0	5	0	0	0	1	4	0	0	0	0	5	0	
			( 0)	( 0)	( 0)	( 0)	(100)	( 0)	( 0)	( 0)	( 20)	( 80)	( 0)	( 0)	( 0)	( 0)	(100)	( 0)	
	thickening of bone:ethmoturbinat		0	0	0	0	5	0	0	0	5	0	0	0	5	0	0	0	
			( 0)	( 0)	( 0)	( 0)	(100)	( 0)	( 0)	( 0)	(100)	( 0)	( 0)	( 0)	(100)	( 0)	( 0)	( 0)	
{Hematopoietic system}																			
bone marrow			< 5>				< 5>				< 5>				< 5>				
	decreased 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)	
spleen			< 5>				< 5>				< 5>				< 5>				
	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)	
Grade	1 : Slight	2 : Moderate	3 : Marked	4 : Severe															
< a >	a : Number of animals examined at the site																		
b	b : Number of animals with lesion																		
( c )	c : b / a * 100																		

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
 ALL ANIMALS (0- 3W)

Organ	Findings	1000ppm				2000ppm			
		5				5			
Group Name No. of Animals on Study Grade		1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}									
nasal cavit		< 5>				< 5>			
	disarrangement:olfactory epithelium	5	0	0	0	5	0	0	0
		(100)	( 0)	( 0)	( 0)	(100)	( 0)	( 0)	( 0)
	respiratory metaplasia:olfactory epithelium	5	0	0	0	3	2	0	0
		(100)	( 0)	( 0)	( 0)	( 60)	( 40)	( 0)	( 0)
	atrophy:olfactory epithelium	0	0	5	0	0	0	5	0
		( 0)	( 0)	(100)	( 0)	( 0)	( 0)	(100)	( 0)
	thickening of bone:ethmoturbinat	5	0	0	0	5	0	0	0
		(100)	( 0)	( 0)	( 0)	(100)	( 0)	( 0)	( 0)
{Hematopoietic system}									
bone marrow		< 5>				< 5>			
	decreased hematopoiesis	0	0	0	0	3	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 60)	( 0)	( 0)	( 0)
spleen		< 5>				< 5>			
	extramedullary hematopoiesis	1	0	0	0	5	0	0	0
		( 20)	( 0)	( 0)	( 0)	(100)	( 0)	( 0)	( 0)

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



STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
 ALL ANIMALS (0- 3W)

Organ	Findings	Control				125ppm				250ppm				500ppm			
		No. of Animals on Study				5				5				5			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Grade		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	
{Digestive system}																	
liver	herniation	< 5>				< 5>				< 5>				< 5>			
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	

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

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
 ALL ANIMALS (0- 3W)

Organ	Findings	Group Name		1000ppm				2000ppm			
		No. of Animals on Study		5				5			
		Grade		1	2	3	4	1	2	3	4
				(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

{Digestive system}

liver	herniation	< 5>				< 5>			
		2	0	0	0	0	0	0	0
		( 40)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)

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

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

b b : Number of animals with lesion

( c ) c : b / a \* 100

APPENDIX H 2

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY,  
RAT : FEMALE : SACRIFICED ANIMALS

( 2-WEEK STUDY )

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
 ALL ANIMALS (0- 3W)

Organ	Findings	Control				125ppm				250ppm				500ppm			
		No. of Animals on Study				No. of Animals on Study				No. of Animals on Study				No. of Animals on Study			
		Grade				Grade				Grade				Grade			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}																	
nasal cavit	adhesion	< 5>				< 5>				< 5>				< 5>			
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	disarrangement: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)
respiratory metaplasia:olfactory epithelium	0	0	0	0	4	0	0	0	5	0	0	0	5	0	0	0	
	( 0)	( 0)	( 0)	( 0)	( 80)	( 0)	( 0)	( 0)	(100)	( 0)	( 0)	( 0)	(100)	( 0)	( 0)	( 0)	
atrophy:olfactory epithelium	0	0	0	0	5	0	0	0	0	5	0	0	0	0	5	0	
	( 0)	( 0)	( 0)	( 0)	(100)	( 0)	( 0)	( 0)	( 0)	(100)	( 0)	( 0)	( 0)	( 0)	(100)	( 0)	
thickening of bone:ethmoturbinat	0	0	0	0	3	0	0	0	4	0	0	0	5	0	0	0	
	( 0)	( 0)	( 0)	( 0)	( 60)	( 0)	( 0)	( 0)	( 80)	( 0)	( 0)	( 0)	(100)	( 0)	( 0)	( 0)	
{Hematopoietic system}																	
thymus	congestion	< 5>				< 5>				< 5>				< 5>			
		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	( 20)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	
spleen	extramedullary hematopoiesis	< 5>				< 5>				< 5>				< 5>			
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	

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

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
 ALL ANIMALS (0- 3W)

Organ	Findings	Group Name				Group Name			
		No. of Animals on Study				No. of Animals on Study			
		Grade				Grade			
		1000ppm				2000ppm			
		5				5			
		1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}									
nasal cavit		< 5>				< 5>			
	adhesion	0	0	0	0	1	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 20)	( 0)	( 0)	( 0)
	disarrangement:olfactory epithelium	5	0	0	0	5	0	0	0
		(100)	( 0)	( 0)	( 0)	(100)	( 0)	( 0)	( 0)
	respiratory metaplasia:olfactory epithelium	5	0	0	0	5	0	0	0
		(100)	( 0)	( 0)	( 0)	(100)	( 0)	( 0)	( 0)
	atrophy:olfactory epithelium	0	0	5	0	0	0	5	0
		( 0)	( 0)	(100)	( 0)	( 0)	( 0)	(100)	( 0)
	thickening of bone:ethmoturbinat	5	0	0	0	5	0	0	0
		(100)	( 0)	( 0)	( 0)	(100)	( 0)	( 0)	( 0)
{Hematopoietic system}									
thymus		< 5>				< 5>			
	congestion	0	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
spleen		< 5>				< 5>			
	extramedullary hematopoiesis	1	0	0	0	4	0	0	0
		( 20)	( 0)	( 0)	( 0)	( 80)	( 0)	( 0)	( 0)

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

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
 ALL ANIMALS (0- 3W)

Organ	Findings	Control				125ppm				250ppm				500ppm			
		No. of Animals on Study				No. of Animals on Study				No. of Animals on Study				No. of Animals on Study			
		5				5				5				5			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Digestive system}																	
liver	herniation	< 5>				< 5>				< 5>				< 5>			
		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 20)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
{Endocrine system}																	
thyroid	ultimibranchial body remanet	< 5>				< 5>				< 5>				< 5>			
		1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 20)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 20)	( 0)	( 0)	( 0)

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

STUDY NO. : 0424  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
 ALL ANIMALS (0- 3W)

Organ	Findings	Group Name		1000ppm				2000ppm			
		No. of Animals on Study		5				5			
		Grade		1	2	3	4	1	2	3	4
				(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Digestive system}											
liver	herniation	< 5>				< 5>					
		0	0	0	0	1	0	0	0		
		( 0)	( 0)	( 0)	( 0)	( 20)	( 0)	( 0)	( 0)		
{Endocrine system}											
thyroid	ultimibranchial body remanet	< 5>				< 5>					
		0	0	0	0	1	0	0	0		
		( 0)	( 0)	( 0)	( 0)	( 20)	( 0)	( 0)	( 0)		

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

APPENDIX I 1

IDENTITY AND IMPURITY OF 1,2 - DICHLOROPROPANE IN THE 2-WEEK INHALATION STUDY



# IDENTITY OF 1,2-DICHLOROPROPANE IN THE 2-WEEK INHALATION STUDY

Test Substance : 1,2-Dichloropropane (Wako Pure Chemical Industries, Ltd.)

Lot No. : LDR4974

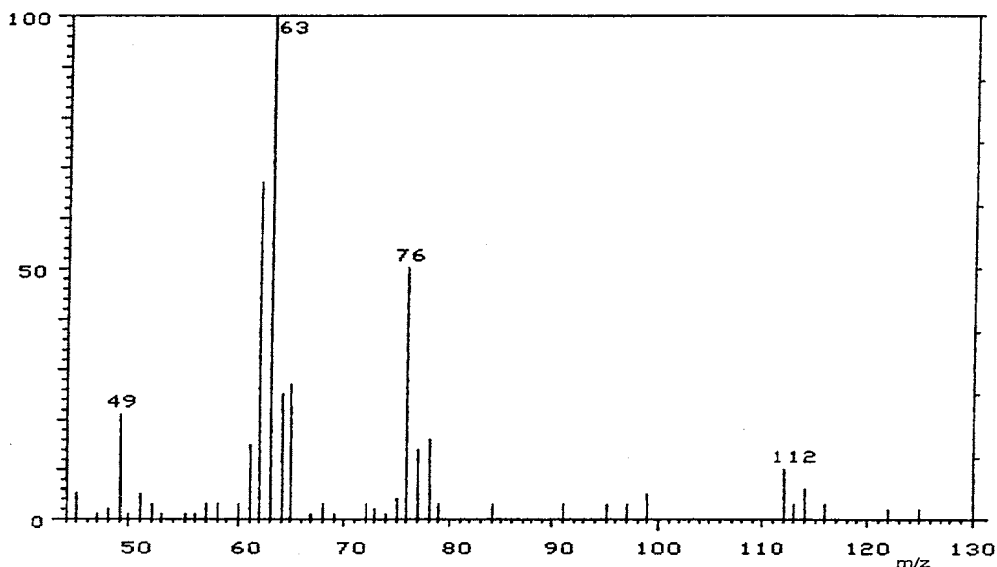
## 1. Spectral Data

### Mass Spectrometry

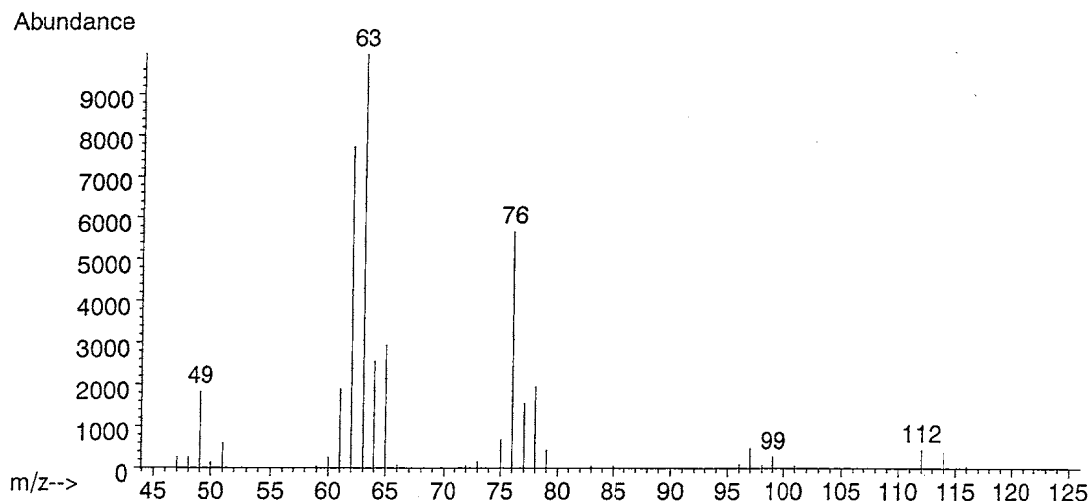
Instrument : Hitachi M-80B Mass Spectrometer

Ionization : EI (Electron Ionization)

Ionization Voltage : 70eV



Mass Spectrum of Test Substance



Mass Spectrum of Literature Data\*

Results: The mass spectrum was consistent with literature spectrum.

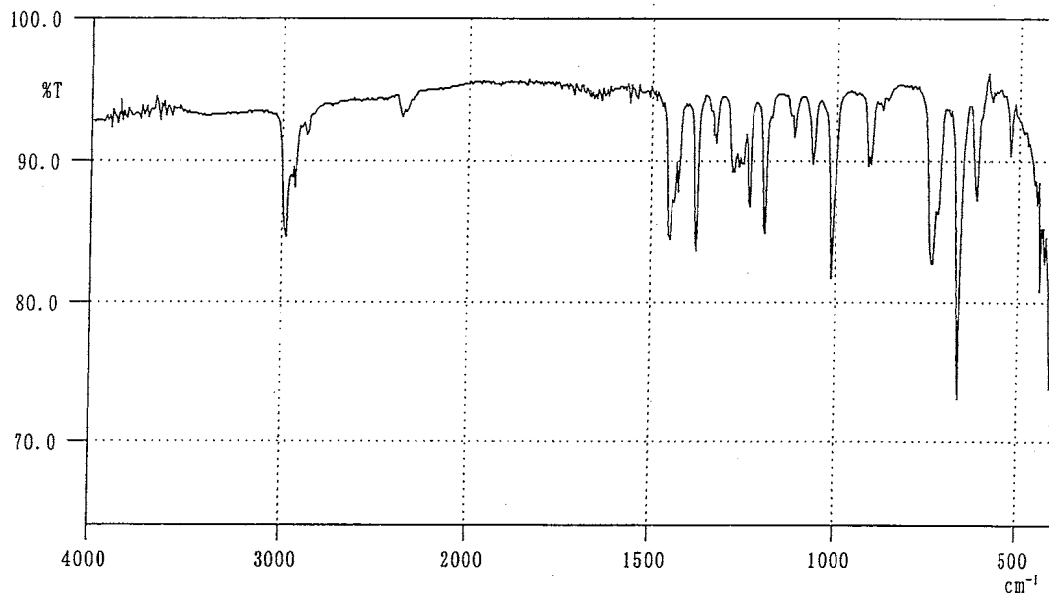
(\*Fred W. McLafferty (1994) Wiley Registry of Mass Spectral Data, 6th edition. John Wiley and Sons, Inc. (U.S.), Entry Number 10229)

### Infrared Spectrometry

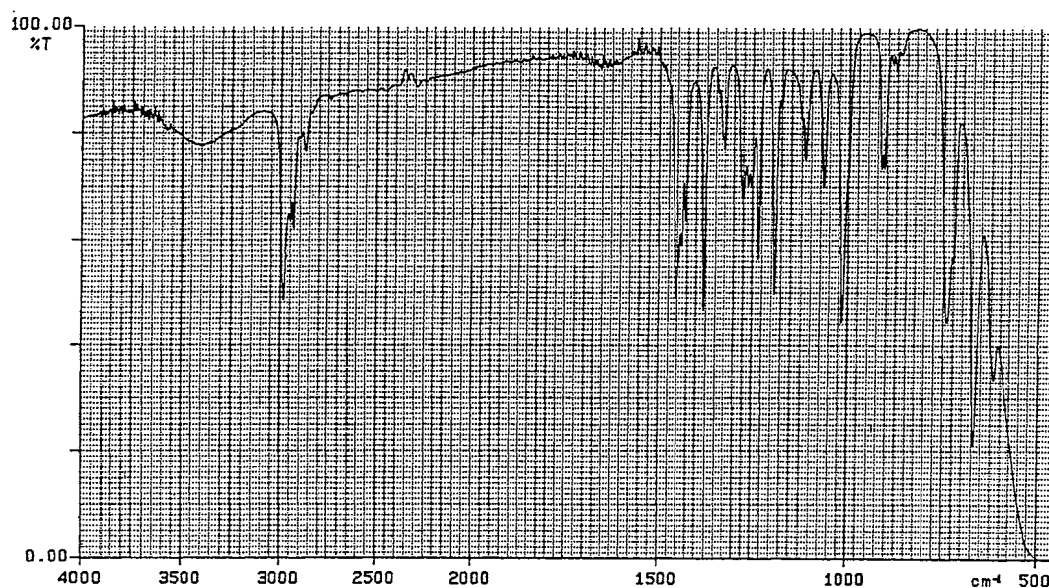
Instrument : Shimadzu FTIR-8200PC Infrared Spectrometer

Cell : KBr Liquid Cell

Resolution : 4  $\text{cm}^{-1}$



Infrared Spectrum of Test Substance



Infrared Spectrum of Literature Data\*

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

2. Conclusions: The test substance was identified as 1,2-dichloropropane by the mass spectrum and the infrared spectrum.

## APPENDIX I 2

### STABILITY OF 1,2 - DICHLOROPROPANE IN THE 2-WEEK INHALATION STUDY

## STABILITY OF 1,2-DICHLOROPROPANE IN THE 2-WEEK INHALATION STUDY

Test Substance : 1,2-Dichloropropane (Wako Pure Chemical Industries, Ltd.)

Lot No. : LDR4974

1. Sample : This lot was used from 2001.3.27 to 2001.4.9. Test substance was stored in a dark place at room temperature.

## 2. Gas Chromatography

Instrument : Hewlett Packard 5890A Gas Chromatograph

Column : Methyl Silicone ( 0.53 mm $\phi$   $\times$  60 m)

Column Temperature: 100° C

Flow Rate : 15 mL/min

Detector : FID (Flame Ionization Detector)

Injection Volume : 1  $\mu$ L

Date (date analyzed)	Peak No.	Retention Time (min)	Area (%)
2001.03.26	1	3.692	100
2001.04.25	1	3.688	100

Results: Gas chromatography indicated one major peak (peak No.1) analyzed on 2001.3.26 and one major peak (peak No.1) analyzed on 2001.4.25. No new trace impurity peak in the test substance analyzed on 2001.4.25 was detected.

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

APPENDIX J 1

CONCENTRATION OF 1,2 - DICHLOROPROPANE IN THE INHALATION CHAMBER OF  
THE 2-WEEK INHALATION STUDY

CONCENTRATION OF 1,2-DICHLOROPROPANE IN THE INHALATION CHAMBER  
OF THE 2-WEEK INHALATION STUDY

Group Name	Concentration(ppm) Mean $\pm$ S.D.
Control	0.0 $\pm$ 0.0
125ppm	125.6 $\pm$ 0.5
250ppm	252.6 $\pm$ 0.8
500ppm	502.0 $\pm$ 2.5
1000ppm	1003.8 $\pm$ 3.8
2000ppm	2005.9 $\pm$ 4.8

APPENDIX J 2

ENVIRONMENTAL CONDITIONS OF INHALATION CHAMBER IN THE 2-WEEK  
INHALATION STUDY OF 1,2 - DICHLOROPROPANE

ENVIRONMENTAL CONDITIONS OF INHALATION CHAMBER IN THE 2-WEEK INHALATION STUDY OF  
1,2-DICHLOROPROPANE

Group Name	Temperature(°C) Mean ± S.D.	Humidity(%) Mean ± S.D.	Ventilation Rate(L/min) Mean ± S.D.	Air Change(time/h) Mean
Control	21.4 ± 0.2	57.9 ± 1.0	212.3 ± 0.6	12.0
125ppm	22.0 ± 0.2	57.1 ± 0.9	212.3 ± 0.8	12.0
250ppm	22.1 ± 0.1	57.0 ± 1.3	212.5 ± 0.6	12.0
500ppm	21.5 ± 0.1	58.6 ± 1.3	212.4 ± 0.7	12.0
1000ppm	21.8 ± 0.1	55.8 ± 1.4	212.5 ± 0.5	12.0
2000ppm	22.1 ± 0.1	54.7 ± 1.7	212.7 ± 0.7	12.0



APPENDIX K 1

METHODS FOR HEMATOLOGY AND BIOCHEMISTRY IN THE 2-WEEK INHALATION STUDY  
OF 1,2 - DICHLOROPROPANE

METHODS FOR HEMATOLOGY AND BIOCHEMISTRY IN THE  
2-WEEK INHALATION STUDY OF 1,2-DICHLOROPROPANE

Item	Method
<b>Hematology</b>	
Red blood cell (RBC)	Light scattering method <sup>1)</sup>
Hemoglobin (Hgb)	Cyanmethemoglobin method <sup>1)</sup>
Hematocrit (Hct)	Calculated as $RBC \times MCV/10$ <sup>1)</sup>
Mean corpuscular volume (MCV)	Light scattering method <sup>1)</sup>
Mean corpuscular hemoglobin (MCH)	Calculated as $Hgb/RBC \times 10$ <sup>1)</sup>
Mean corpuscular hemoglobin concentration (MCHC)	Calculated as $Hgb/Hct \times 100$ <sup>1)</sup>
Platelet	Light scattering method <sup>1)</sup>
Reticulocyte	Pattern recognition method <sup>3)</sup> (New methyleneblue staining)
Prothrombin time	Quick one stage method <sup>2)</sup>
Activated partial thromboplastin time (APTT)	Ellagic acid activaterd method <sup>2)</sup>
White blood cell (WBC)	Light scattering method <sup>1)</sup>
Differential WBC	Pattern recognition method <sup>3)</sup> (Wright staining)
<b>Biochemistry</b>	
Total protein (TP)	Biuret method <sup>4)</sup>
Albumin (Alb)	BCG method <sup>4)</sup>
A/G ratio	Calculated as $Alb/(TP - Alb)$ <sup>4)</sup>
T-bilirubin	Alkaline azobilirubin method <sup>4)</sup>
Glucose	GlcK · G-6-PDH method <sup>4)</sup>
T-cholesterol	CE · COD · POD method <sup>4)</sup>
Triglyceride	LPL · GK · GPO · POD method <sup>4)</sup>
Phospholipid	PLD · ChOD · POD method <sup>4)</sup>
Glutamic oxaloacetic transaminase (GOT)	JSCC method <sup>4)</sup>
Glutamic pyruvic transaminase (GPT)	JSCC method <sup>4)</sup>
Lactate dehydrogenase (LDH)	SFBC method <sup>4)</sup>
Alkaline phosphatase (ALP)	GSCC method <sup>4)</sup>
$\gamma$ -Glutamyl transpeptidase ( $\gamma$ -GTP)	L- $\gamma$ -Glutamyl-p-nitroanilide method <sup>4)</sup>
Creatine phosphokinase (CPK)	JSCC method <sup>4)</sup>
Urea nitrogen	Urease · GLDH method <sup>4)</sup>
Creatinine	Jaffe method <sup>4)</sup>
Sodium	Ion selective electrode method <sup>4)</sup>
Potassium	Ion selective electrode method <sup>4)</sup>
Chloride	Ion selective electrode method <sup>4)</sup>
Calcium	OCPC method <sup>4)</sup>
Inorganic phosphorus	PNP · XOD · POD method <sup>4)</sup>

1) Automatic blood cell analyzer (ADVIA 120 : Bayer Corporation,USA)

2) Automatic coagulometer (Sysmex CA-5000 : Sysmex Corporation,Japan)

3) Automatic blood cell differential analyzer (MICROX HEG-120NA : OMRON Corporation,Japan)

4) Automatic analyzer (Hitachi 7070 : Hitachi,Ltd.,Japan)

APPENDIX K 2

UNITS AND DECIMAL PLACE FOR HEMATOLOGY AND BIOCHEMISTRY IN THE 2-WEEK  
INHALATION STUDY OF 1,2 - DICHLOROPROPANE

UNITS AND DECIMAL PLACE FOR HEMATOLOGY AND BIOCHEMISTRY  
IN THE 2-WEEK INHALATION STUDY OF 1,2-DICHLOROPROPANE

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