

シクロヘキセンのラットを用いた  
吸入によるがん原性試験報告書

試験番号：0399

## APPENDICES

## APPENDICES

- APPENDIX A 1 CLINICAL OBSERVATION : SUMMARY, RAT : MALE  
( 2-YEAR STUDY )
- APPENDIX A 2 CLINICAL OBSERVATION : SUMMARY, RAT : FEMALE  
( 2-YEAR STUDY )
- APPENDIX B 1 BODY WEIGHT CHANGES : SUMMARY, RAT : MALE  
( 2-YEAR STUDY )
- APPENDIX B 2 BODY WEIGHT CHANGES : SUMMARY, RAT : FEMALE  
( 2-YEAR STUDY )
- APPENDIX C 1 FOOD CONSUMPTION CHANGES : SUMMARY, RAT : MALE  
( 2-YEAR STUDY )
- APPENDIX C 2 FOOD CONSUMPTION CHANGES : SUMMARY, RAT : FEMALE  
( 2-YEAR STUDY )
- APPENDIX D 1 HEMATOLOGY : SUMMARY, RAT : MALE  
( 2-YEAR STUDY )
- APPENDIX D 2 HEMATOLOGY : SUMMARY, RAT : FEMALE  
( 2-YEAR STUDY )
- APPENDIX E 1 BIOCHEMISTRY : SUMMARY, RAT : MALE  
( 2-YEAR STUDY )
- APPENDIX E 2 BIOCHEMISTRY : SUMMARY, RAT : FEMALE  
( 2-YEAR STUDY )
- APPENDIX F 1 URINALYSIS : SUMMARY, RAT : MALE  
( 2-YEAR STUDY )
- APPENDIX F 2 URINALYSIS : SUMMARY, RAT : FEMALE  
( 2-YEAR STUDY )
- APPENDIX G 1 GROSS FINDINGS : SUMMARY, RAT : MALE : ALL ANIMALS  
( 2-YEAR STUDY )
- APPENDIX G 2 GROSS FINDINGS : SUMMARY, RAT : MALE : DEAD AND  
MORIBUND ANIMALS ( 2-YEAR STUDY )

## APPENDICES (CONTINUED)

- APPENDIX G 3 GROSS FINDINGS : SUMMARY, RAT : MALE :  
SACRIFICED ANIMALS ( 2-YEAR STUDY )
- APPENDIX G 4 GROSS FINDINGS : SUMMARY, RAT : FEMALE :  
ALL ANIMALS ( 2-YEAR STUDY )
- APPENDIX G 5 GROSS FINDINGS : SUMMARY, RAT : FEMALE :  
DEAD AND MORIBUND ANIMALS ( 2-YEAR STUDY )
- APPENDIX G 6 GROSS FINDINGS : SUMMARY, RAT : FEMALE :  
SACRIFICED ANIMALS ( 2-YEAR STUDY )
- APPENDIX H 1 ORGAN WEIGHT, ABSOLUTE : SUMMARY, RAT : MALE  
( 2-YEAR STUDY )
- APPENDIX H 2 ORGAN WEIGHT, ABSOLUTE : SUMMARY, RAT : FEMALE  
( 2-YEAR STUDY )
- APPENDIX I 1 ORGAN WEIGHT, RELATIVE : SUMMARY, RAT : MALE  
( 2-YEAR STUDY )
- APPENDIX I 2 ORGAN WEIGHT, RELATIVE : SUMMARY, RAT : FEMALE  
( 2-YEAR STUDY )
- APPENDIX J 1 HISTOPATHOLOGICAL FINDINGS : NON-NEOPLASTIC  
LESIONS :SUMMARY, RAT : MALE : ALL ANIMALS  
( 2-YEAR STUDY )
- APPENDIX J 2 HISTOPATHOLOGICAL FINDINGS : NON-NEOPLASTIC  
LESIONS :SUMMARY, RAT : MALE : DEAD AND MORIBUND  
ANIMALS ( 2-YEAR STUDY )
- APPENDIX J 3 HISTOPATHOLOGICAL FINDINGS : NON-NEOPLASTIC  
LESIONS :SUMMARY, RAT : MALE : SACRIFICED ANIMALS  
( 2-YEAR STUDY )
- APPENDIX J 4 HISTOPATHOLOGICAL FINDINGS : NON-NEOPLASTIC  
LESIONS :SUMMARY, RAT : FEMALE : ALL ANIMALS  
( 2-YEAR STUDY )

## APPENDICES (CONTINUED)

- APPENDIX J 5 HISTOPATHOLOGICAL FINDINGS : NON-NEOPLASTIC  
LESIONS :SUMMARY, RAT : FEMALE : DEAD AND MORIBUND  
ANIMALS ( 2-YEAR STUDY )
- APPENDIX J 6 HISTOPATHOLOGICAL FINDINGS : NON-NEOPLASTIC  
LESIONS :SUMMARY, RAT : FEMALE : SACRIFICED  
ANIMALS ( 2-YEAR STUDY )
- APPENDIX K 1 NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF  
TUMORS-TIME RELATED, RAT : MALE ( 2-YEAR STUDY )
- APPENDIX K 2 NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF  
TUMORS-TIME RELATED, RAT : FEMALE ( 2-YEAR STUDY )
- APPENDIX L 1 HISTOPATHOLOGICAL FINDINGS : NEOPLASTIC LESIONS :  
SUMMARY, RAT : MALE ( 2-YEAR STUDY )
- APPENDIX L 2 HISTOPATHOLOGICAL FINDINGS : NEOPLASTIC LESIONS :  
SUMMARY, RAT : FEMALE ( 2-YEAR STUDY )
- APPENDIX M 1 NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL  
ANALYSIS, RAT : MALE ( 2-YEAR STUDY )
- APPENDIX M 2 NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL  
ANALYSIS, RAT : FEMALE ( 2-YEAR STUDY )
- APPENDIX N 1 HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR :  
SUMMARY, RAT : MALE : ALL ANIMALS ( 2-YEAR STUDY )
- APPENDIX N 2 HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR :  
SUMMARY, RAT : MALE : DEAD AND MORIBUND ANIMALS  
( 2-YEAR STUDY )
- APPENDIX N 3 HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR :  
SUMMARY, RAT : MALE : SACRIFICED ANIMALS  
( 2-YEAR STUDY )
- APPENDIX N 4 HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR :  
SUMMARY, RAT : FEMALE : ALL ANIMALS ( 2-YEAR STUDY )

## APPENDICES (CONTINUED)

- APPENDIX N 5 HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR :  
SUMMARY,RAT:FEMALE: DEAD AND MORIBUND ANIMALS  
( 2-YEAR STUDY )
- APPENDIX N 6 HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR :  
SUMMARY, RAT : FEMALE : SACRIFICED ANIMALS  
( 2-YEAR STUDY )
- APPENDIX O 1 IDENTITY AND IMPURITY OF CYCLOHEXENE IN THE 2-YEAR  
INHALATION STUDY
- APPENDIX O 2 STABILITY OF CYCLOHEXENE IN THE 2-YEAR  
INHALATION STUDY
- APPENDIX P 1 CONCENTRATION OF CYCLOHEXENE IN THE INHALATION  
CHAMBER OF THE 2-YEAR INHALATION STUDY
- APPENDIX P 2 ENVIRONMENTAL CONDITIONS OF INHALATION CHAMBER  
IN THE 2-YEAR INHALATION STUDY OF CYCLOHEXENE
- APPENDIX Q METHODS, UNITS AND DECIMAL PLACE FOR HEMATOLOGY  
AND BIOCHEMISTRY IN THE 2-YEAR INHALATION STUDY  
OF CYCLOHEXENE

## APPENDIX A 1

CLINICAL OBSERVATION : SUMMARY, RAT : MALE  
(2-YEAR STUDY)

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 1

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	14-7
DEATH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MORIBUND SACRIFICE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LOCOMOTOR MOVEMENT DECR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LATERAL	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ATAXIC GAIT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PARALYTIC GAIT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WASTING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 2

Clinical sign	Group Name	Administration Week-day													
		15-7	16-7	17-7	18-7	19-7	20-7	21-7	22-7	23-7	24-7	25-7	26-7	27-7	28-7
DEATH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MORIBUND SACRIFICE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LOCOMOTOR MOVEMENT DECR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LATERAL	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ATAXIC GAIT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PARALYTIC GAIT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WASTING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0



STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

PAGE : 3

SEX : MALE

Clinical sign	Group Name	Administration Week-day				32-7	33-7	34-7	35-7	36-7	37-7	38-7	39-7	40-7	41-7	42-7
		29-7	30-7	31-7												
DEATH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MORIBUND SACRIFICE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1
LOCOMOTOR MOVEMENT DECR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LATERAL	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ATAXIC GAIT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PARALYTIC GAIT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WASTING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 4

Clinical sign	Group Name	Administration Week-day													
		43-7	44-7	45-7	46-7	47-7	48-7	49-7	50-7	51-7	52-7	53-7	54-7	55-7	56-7
DEATH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MORIBUND SACRIFICE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	1	1	1	1	1	1	1	1	1
	2400ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
LOCOMOTOR MOVEMENT DECR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LATERAL	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ATAXIC GAIT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PARALYTIC GAIT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WASTING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 5

Clinical sign	Group Name	Administration Week-day													
		57-7	58-7	59-7	60-7	61-7	62-7	63-7	64-7	65-7	66-7	67-7	68-7	69-7	70-7
DEATH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	1	1	1	1
MORIBUND SACRIFICE	Control	0	0	0	0	0	1	1	1	1	1	1	1	1	1
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2400ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
LOCOMOTOR MOVEMENT DECR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LATERAL	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ATAXIC GAIT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PARALYTIC GAIT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WASTING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

PAGE : 6

SEX : MALE

Clinical sign	Group Name	Administration Week-day													
		71-7	72-7	73-7	74-7	75-7	76-7	77-7	78-7	79-7	80-7	81-7	82-7	83-7	84-7
DEATH	Control	0	0	1	1	1	1	1	1	1	1	1	1	1	1
	600ppm	0	0	0	0	0	0	0	0	1	1	1	1	1	1
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
MORIBUND SACRIFICE	Control	1	1	1	1	1	1	1	1	1	1	2	2	2	2
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	1	2	2	2	2	2	2	2	2	2	2	2	2	2
	2400ppm	1	1	1	1	1	1	1	1	1	2	2	2	2	2
LOCOMOTOR MOVEMENT DECR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LATERAL	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ATAXIC GAIT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PARALYTIC GAIT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WASTING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 7

Clinical sign	Group Name	Administration Week-day				88-7	89-7	90-7	91-7	92-7	93-7	94-7	95-7	96-7	97-7	98-7
		85-7	86-7	87-7												
DEATH	Control	1	1	2	2	3	3	3	3	3	4	4	4	4	4	4
	600ppm	1	1	1	1	1	1	1	1	1	3	3	3	3	3	3
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	1	2	2	2	3	4	4	4	4	4	4	4	5	5	5
MORIBUND SACRIFICE	Control	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3
	600ppm	0	0	0	0	0	0	0	0	0	1	1	1	2	2	2
	1200ppm	2	2	2	2	2	2	2	3	3	3	3	3	3	5	5
	2400ppm	2	3	3	3	3	3	3	3	3	4	4	4	4	4	4
LOCOMOTOR MOVEMENT DECR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LATERAL	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ATAXIC GAIT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
PARALYTIC GAIT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WASTING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
 ALL ANIMALS

SEX : MALE

PAGE : 8

Clinical sign	Group Name	Administration Week-day					
		99-7	100-7	101-7	102-7	103-7	104-7
DEATH	Control	4	4	5	5	5	5
	600ppm	3	5	5	5	6	6
	1200ppm	0	0	0	0	0	0
	2400ppm	5	6	6	6	6	8
MORIBUND SACRIFICE	Control	3	3	5	5	5	5
	600ppm	2	2	3	3	4	4
	1200ppm	5	6	6	6	6	6
	2400ppm	4	4	4	4	4	4
LOCOMOTOR MOVEMENT DECR	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	1	1
LATERAL	Control	0	0	0	0	0	1
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
ATAXIC GAIT	Control	1	1	1	1	1	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
PARALYTIC GAIT	Control	0	0	0	0	0	1
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
WASTING	Control	0	2	0	0	1	2
	600ppm	0	1	1	1	1	1
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
SOILED	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 9

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	14-7
TRAUMA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FROG BELLY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED PERI-GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EYE OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CATARACT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CORNEAL OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANTERIOR CHAMBER OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	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	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
 ALL ANIMALS

SEX : MALE

PAGE : 10

Clinical sign	Group Name	Administration Week-day													
		15-7	16-7	17-7	18-7	19-7	20-7	21-7	22-7	23-7	24-7	25-7	26-7	27-7	28-7
TRAUMA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FROG BELLY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED PERI-GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EYE OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	1	1	1	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CATARACT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CORNEAL OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANTERIOR CHAMBER OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	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	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0



STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
 ALL ANIMALS

PAGE : 11

SEX : MALE

Clinical sign	Group Name	Administration Week-day													
		29-7	30-7	31-7	32-7	33-7	34-7	35-7	36-7	37-7	38-7	39-7	40-7	41-7	42-7
TRAUMA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FROG BELLY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED PERI-GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EYE OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CATARACT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	1200ppm	0	0	0	0	0	0	0	1	1	1	1	1	1	1
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CORNEAL OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANTERIOR CHAMBER OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	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	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 12

Clinical sign	Group Name	Administration Week-day													
		43-7	44-7	45-7	46-7	47-7	48-7	49-7	50-7	51-7	52-7	53-7	54-7	55-7	56-7
TRAUMA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FROG BELLY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED PERI-GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EYE OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CATARACT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	1	1	1	1	1	1	1	1	1	2	2	2	2	2
	1200ppm	1	1	1	1	1	1	1	2	2	2	3	3	3	3
	2400ppm	0	0	0	0	1	1	1	1	1	1	1	1	1	1
CORNEAL OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANTERIOR CHAMBER OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	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	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

PAGE : 13

SEX : MALE

Clinical sign	Group Name	Administration Week-day			60-7	61-7	62-7	63-7	64-7	65-7	66-7	67-7	68-7	69-7	70-7
		57-7	58-7	59-7											
TRAUMA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FROG BELLY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED PERI-GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EYE OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CATARACT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	2	3	3	3	3	3	3	3	3	3	3	3	3	3
	1200ppm	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	2400ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CORNEAL OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANTERIOR CHAMBER OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	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	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCri  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 14

Clinical sign	Group Name	Administration Week-day													
		71-7	72-7	73-7	74-7	75-7	76-7	77-7	78-7	79-7	80-7	81-7	82-7	83-7	84-7
TRAUMA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FROG BELLY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED PERI-GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EYE OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CATARACT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	3	4	4	4	4	4	4	4	4	4	4	4	4	4
	1200ppm	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	2400ppm	1	1	1	2	2	2	2	2	2	2	2	2	2	2
CORNEAL OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANTERIOR CHAMBER OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	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	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

PAGE : 15

SEX : MALE

Clinical sign	Group Name	Administration Week-day			88-7	89-7	90-7	91-7	92-7	93-7	94-7	95-7	96-7	97-7	98-7
		85-7	86-7	87-7											
TRAUMA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FROG BELLY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	1	1	1	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED PERI-GENITALIA	Control	0	0	0	0	0	0	0	0	0	1	1	1	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	1	0	0
EYE OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CATARACT	Control	0	0	0	0	0	0	0	0	0	0	1	1	1	1
	600ppm	4	4	4	5	5	5	5	5	5	5	5	5	5	5
	1200ppm	3	3	3	3	3	3	3	3	3	3	3	3	3	2
	2400ppm	2	2	2	2	2	2	2	2	2	2	2	2	2	2
CORNEAL OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANTERIOR CHAMBER OPACITY	Control	1	1	1	1	1	1	1	1	1	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	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	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	1	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

PAGE : 16

SEX : MALE

Clinical sign	Group Name	Administration Week-day					
		99-7	100-7	101-7	102-7	103-7	104-7
TRAUMA	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
FROG BELLY	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
SOILED PERI-GENITALIA	Control	0	1	1	1	1	1
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	2
	2400ppm	0	0	0	0	0	0
EYE OPACITY	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
CATARACT	Control	1	1	1	1	2	2
	600ppm	5	5	5	5	5	5
	1200ppm	2	2	2	2	2	2
	2400ppm	2	2	2	2	2	2
CORNEAL OPACITY	Control	0	0	0	1	1	1
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
ANTERIOR CHAMBER OPACITY	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
INTERNAL MASS	Control	0	0	0	0	0	1
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	1
	2400ppm	1	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 17

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	14-7
M. NOSE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EYE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI-MOUTH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. HEAD	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. NECK	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. FORELIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
 ALL ANIMALS

PAGE : 18

SEX : MALE

Clinical sign	Group Name	Administration Week-day			18-7	19-7	20-7	21-7	22-7	23-7	24-7	25-7	26-7	27-7	28-7
		15-7	16-7	17-7											
M. NOSE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EYE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI-MOUTH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. HEAD	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. NECK	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. FORELIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0



STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 19

Clinical sign	Group Name	Administration Week-day			32-7	33-7	34-7	35-7	36-7	37-7	38-7	39-7	40-7	41-7	42-7
		29-7	30-7	31-7											
M. NOSE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EYE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI-MOUTH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. HEAD	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. NECK	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. FORELIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 20

Clinical sign	Group Name	Administration Week-day													
		43-7	44-7	45-7	46-7	47-7	48-7	49-7	50-7	51-7	52-7	53-7	54-7	55-7	56-7
M. NOSE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EYE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI-MOUTH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. HEAD	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. NECK	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. FORELIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 21

Clinical sign	Group Name	Administration Week-day													
		57-7	58-7	59-7	60-7	61-7	62-7	63-7	64-7	65-7	66-7	67-7	68-7	69-7	70-7
M. NOSE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	1	1	1	1	1	1
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EYE	Control	0	1	1	1	1	1	1	1	1	1	1	1	1	1
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI-MOUTH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. HEAD	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. NECK	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. FORELIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
 ALL ANIMALS

SEX : MALE

PAGE : 22

Clinical sign	Group Name	Administration Week-day													
		71-7	72-7	73-7	74-7	75-7	76-7	77-7	78-7	79-7	80-7	81-7	82-7	83-7	84-7
M. NOSE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EYE	Control	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI-MOUTH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	1
M. EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI EAR	Control	0	0	0	0	0	0	0	0	1	1	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. HEAD	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. NECK	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. FORELIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
 ALL ANIMALS

SEX : MALE

PAGE : 23

Clinical sign	Group Name	Administration Week-day													
		85-7	86-7	87-7	88-7	89-7	90-7	91-7	92-7	93-7	94-7	95-7	96-7	97-7	98-7
M. NOSE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	1	1	1	1	1	1	1	1	1	1	1	1	2	2
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EYE	Control	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI-MOUTH	Control	0	0	0	0	0	0	0	0	0	0	0	2	1	0
	600ppm	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	1	1	1	1	1
	2400ppm	1	1	1	1	1	1	1	1	1	1	1	1	0	0
M. EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	1	1	1	1	1	1	1	0	0
M. PERI EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. HEAD	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. NECK	Control	0	0	0	0	0	0	0	0	0	0	1	2	2	2
	600ppm	0	0	0	0	0	0	0	1	1	1	1	1	1	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. FORELIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	1	1	1	1	1	1	1	1	1

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
 ALL ANIMALS

SEX : MALE

PAGE : 24

Clinical sign	Group Name	Administration Week-day					
		99-7	100-7	101-7	102-7	103-7	104-7
M. NOSE	Control	0	0	0	0	0	0
	600ppm	2	2	2	2	2	2
	1200ppm	0	0	1	1	1	1
	2400ppm	0	0	0	0	0	0
M. EYE	Control	1	1	1	1	1	1
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
M. PERI-MOUTH	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	1	1	1	1	1	1
	2400ppm	0	0	0	0	0	0
M. EAR	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
M. PERI EAR	Control	0	0	0	0	0	0
	600ppm	1	1	1	1	1	1
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	1	1	1
M. HEAD	Control	0	0	1	1	1	1
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
M. NECK	Control	2	2	2	2	2	2
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
M. FORELIMB	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	1	1	1	1	1	1

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 25

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	14-7
M. BREAST	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ABDOMEN	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ANTERIOR. DORSUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. INTERSCAPULUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. POSTERIOR DORSUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. HINDLIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. SCROTUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANEMIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 26

Clinical sign	Group Name	Administration Week-day													
		15-7	16-7	17-7	18-7	19-7	20-7	21-7	22-7	23-7	24-7	25-7	26-7	27-7	28-7
M. BREAST	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ABDOMEN	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ANTERIOR. DORSUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	1	0	1
M. INTERSCAPULUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. POSTERIOR DORSUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. HINDLIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. SCROTUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANEMIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(HAN190)

BAIS 4



STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 27

Clinical sign	Group Name	Administration Week-day													
		29-7	30-7	31-7	32-7	33-7	34-7	35-7	36-7	37-7	38-7	39-7	40-7	41-7	42-7
M. BREAST	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ABDOMEN	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ANTERIOR. DORSUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	1	1	0	0	0	0	0	0	0	0	0	0	0	0
M. INTERSCAPULUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. POSTERIOR DORSUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. HINDLIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. SCROTUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANEMIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 28

Clinical sign	Group Name	Administration Week-day													
		43-7	44-7	45-7	46-7	47-7	48-7	49-7	50-7	51-7	52-7	53-7	54-7	55-7	56-7
M. BREAST	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ABDOMEN	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ANTERIOR. DORSUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. INTERSCAPULUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. POSTERIOR DORSUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. HINDLIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. SCROTUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANEMIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(HAN190)

BAIS 4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 29

Clinical sign	Group Name	Administration Week-day			60-7	61-7	62-7	63-7	64-7	65-7	66-7	67-7	68-7	69-7	70-7
		57-7	58-7	59-7											
M. BREAST	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ABDOMEN	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ANTERIOR. DORSUM	Control	0	0	0	0	0	1	1	1	1	1	1	1	1	1
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	1	1
M. INTERSCAPULUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. POSTERIOR DORSUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. HINDLIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	1	1
M. SCROTUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANEMIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(HAN190)

BAIS 4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 30

Clinical sign	Group Name	Administration Week-day													
		71-7	72-7	73-7	74-7	75-7	76-7	77-7	78-7	79-7	80-7	81-7	82-7	83-7	84-7
M. BREAST	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	1	1	1
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	1	1	1	1	1
M. ABDOMEN	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	1	2	2	2	2	2	2
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ANTERIOR. DORSUM	Control	1	1	1	1	1	0	0	0	0	0	0	0	0	0
	600ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	1200ppm	0	0	0	0	0	0	0	0	1	1	1	1	1	1
	2400ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
M. INTERSCAPULUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. POSTERIOR DORSUM	Control	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	1	1	1	1	1	1	1	1	1	1	1	1
M. HINDLIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	1	1	1	1	1	1	1	1	1	0	0	0	0	0
M. SCROTUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	1	1	1	1	1	1	1	1	1	1	1	1	1
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANEMIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(HAN190)

BAIS 4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 31

Clinical sign	Group Name	Administration Week-day													
		85-7	86-7	87-7	88-7	89-7	90-7	91-7	92-7	93-7	94-7	95-7	96-7	97-7	98-7
M. BREAST	Control	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	600ppm	1	1	1	1	1	1	1	1	1	1	1	2	2	2
	1200ppm	0	0	0	0	0	0	0	0	0	0	1	1	1	1
	2400ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
M. ABDOMEN	Control	1	1	1	1	1	1	1	1	1	1	2	2	2	2
	600ppm	2	2	2	2	2	2	2	2	2	3	3	4	4	4
	1200ppm	0	0	0	0	0	0	0	0	0	0	1	1	1	1
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ANTERIOR. DORSUM	Control	0	0	0	0	0	0	0	0	1	1	2	2	2	2
	600ppm	1	1	1	1	1	1	1	1	1	1	1	1	2	2
	1200ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2400ppm	1	1	1	1	1	1	1	1	1	2	2	2	2	2
M. INTERSCAPULUM	Control	0	0	0	0	0	0	0	1	1	1	1	1	1	1
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. POSTERIOR DORSUM	Control	1	1	1	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	1	1	1	1	1	1	1	1	1	2
	2400ppm	1	1	1	1	1	1	1	0	0	0	0	0	0	0
M. HINDLIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. SCROTUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANEMIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	1	0	0	0	1	1	1	0	0	0	0	0	0	0

(HAN190)

BAIS 4

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
 ALL ANIMALS

SEX : MALE

PAGE : 32

Clinical sign	Group Name	Administration Week-day					
		99-7	100-7	101-7	102-7	103-7	104-7
M. BREAST	Control	1	1	1	2	2	2
	600ppm	2	2	2	2	2	2
	1200ppm	1	2	2	2	4	5
	2400ppm	1	1	1	1	1	2
M. ABDOMEN	Control	3	3	3	4	4	4
	600ppm	4	4	4	4	3	3
	1200ppm	1	1	1	1	1	1
	2400ppm	0	0	0	0	0	1
M. ANTERIOR. DORSUM	Control	2	2	1	1	2	2
	600ppm	2	2	2	3	2	3
	1200ppm	1	1	1	1	2	2
	2400ppm	2	2	2	3	3	3
M. INTERSCAPULUM	Control	1	1	1	1	1	1
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
M. POSTERIOR DORSUM	Control	0	0	0	0	0	1
	600ppm	0	0	0	0	0	0
	1200ppm	2	1	1	1	1	2
	2400ppm	0	0	0	0	0	0
M. HINDLIMB	Control	1	1	1	1	1	1
	600ppm	0	0	0	0	0	1
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
M. SCROTUM	Control	0	0	0	0	0	0
	600ppm	1	1	1	1	1	1
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
ANEMIA	Control	1	2	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	1	1	0

(HAN190)

BAIS 4

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
 ALL ANIMALS

SEX : MALE

PAGE : 33

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	14-7
JAUNDICE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ULCER	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CRUSTA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEMORRHAGE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PROLAPSE OF PENIS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IRREGULAR BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ABNORMAL RESPIRA. SOUND	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NON REMARKABLE	Control	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	600ppm	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	1200ppm	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	2400ppm	50	50	50	50	50	50	50	50	50	50	50	50	50	50

(HAN190)

BAIS 4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 34

Clinical sign	Group Name	Administration Week-day													
		15-7	16-7	17-7	18-7	19-7	20-7	21-7	22-7	23-7	24-7	25-7	26-7	27-7	28-7
JAUNDICE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ULCER	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CRUSTA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEMORRHAGE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PROLAPSE OF PENIS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IRREGULAR BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ABNORMAL RESPIRA. SOUND	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NON REMARKABLE	Control	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	600ppm	50	50	50	50	50	50	50	50	50	50	50	50	50	49
	1200ppm	50	50	50	50	50	49	49	49	50	50	50	50	50	50
	2400ppm	50	50	50	50	50	50	50	50	50	50	50	49	50	49



STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 35

Clinical sign	Group Name	Administration Week-day													
		29-7	30-7	31-7	32-7	33-7	34-7	35-7	36-7	37-7	38-7	39-7	40-7	41-7	42-7
JAUNDICE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ULCER	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CRUSTA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEMORRHAGE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PROLAPSE OF PENIS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IRREGULAR BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ABNORMAL RESPIRA. SOUND	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NON REMARKABLE	Control	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	600ppm	49	49	49	49	49	49	49	48	49	49	49	49	49	49
	1200ppm	50	50	50	50	50	50	50	49	49	49	49	49	49	49
	2400ppm	49	49	49	49	49	49	49	49	49	49	49	49	49	49

(HAN190)

BAIS 4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 36

Clinical sign	Group Name	Administration Week-day													
		43-7	44-7	45-7	46-7	47-7	48-7	49-7	50-7	51-7	52-7	53-7	54-7	55-7	56-7
JAUNDICE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ULCER	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CRUSTA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEMORRHAGE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PROLAPSE OF PENIS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IRREGULAR BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ABNORMAL RESPIRA. SOUND	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NON REMARKABLE	Control	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	600ppm	49	49	49	49	49	49	49	49	49	48	48	48	48	48
	1200ppm	49	49	49	49	49	48	48	47	47	47	46	46	46	46
	2400ppm	49	49	49	49	48	48	48	48	48	48	48	48	48	48

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 37

Clinical sign	Group Name	Administration Week-day													
		57-7	58-7	59-7	60-7	61-7	62-7	63-7	64-7	65-7	66-7	67-7	68-7	69-7	70-7
JAUNDICE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ULCER	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CRUSTA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEMORRHAGE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PROLAPSE OF PENIS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IRREGULAR BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ABNORMAL RESPIRA. SOUND	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NON REMARKABLE	Control	50	49	49	49	49	48	48	48	48	48	48	48	48	48
	600ppm	48	47	47	47	47	47	47	47	46	46	46	46	46	45
	1200ppm	46	46	46	46	46	46	46	46	46	46	46	46	46	46
	2400ppm	48	48	48	48	48	48	48	48	48	48	47	47	45	45

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 38

Clinical sign	Group Name	Administration Week-day													
		71-7	72-7	73-7	74-7	75-7	76-7	77-7	78-7	79-7	80-7	81-7	82-7	83-7	84-7
JAUNDICE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ULCER	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CRUSTA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEMORRHAGE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PROLAPSE OF PENIS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IRREGULAR BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	1	1	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ABNORMAL RESPIRA. SOUND	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NON REMARKABLE	Control	47	47	46	46	46	46	46	46	45	45	45	45	44	44
	600ppm	45	43	43	43	43	43	42	41	40	40	40	39	39	39
	1200ppm	46	45	45	45	45	45	45	45	44	44	44	44	44	44
	2400ppm	45	45	44	43	43	43	43	43	43	42	42	42	42	41

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 39

Clinical sign	Group Name	Administration Week-day				88-7	89-7	90-7	91-7	92-7	93-7	94-7	95-7	96-7	97-7	98-7
		85-7	86-7	87-7												
JAUNDICE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ULCER	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CRUSTA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEMORRHAGE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0
PROLAPSE OF PENIS	Control	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1
IRREGULAR BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0
ABNORMAL RESPIRA. SOUND	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NON REMARKABLE	Control	43	43	42	43	41	41	41	41	40	39	39	35	34	33	34
	600ppm	39	39	39	38	38	38	38	38	37	37	33	32	31	29	29
	1200ppm	44	44	44	44	43	42	42	42	42	41	42	40	40	39	39
	2400ppm	40	39	39	39	38	36	36	36	37	37	35	35	35	35	34

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : MALE

PAGE : 40

Clinical sign	Group Name	Administration Week-day					
		99-7	100-7	101-7	102-7	103-7	104-7
JAUNDICE	Control	0	0	0	0	0	0
	600ppm	0	0	0	2	0	0
	1200ppm	0	0	0	0	0	1
	2400ppm	0	0	0	0	0	0
ULCER	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	1	1
CRUSTA	Control	0	0	0	0	1	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
HEMORRHAGE	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
PROLAPSE OF PENIS	Control	1	1	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	1	0	0	1	0	0
IRREGULAR BREATHING	Control	0	0	0	0	0	1
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
ABNORMAL RESPIRA. SOUND	Control	1	2	2	2	1	1
	600ppm	0	0	0	0	0	0
	1200ppm	1	1	1	1	1	1
	2400ppm	0	0	0	0	0	0
NON REMARKABLE	Control	31	31	30	28	27	26
	600ppm	29	26	25	25	25	24
	1200ppm	38	37	36	36	33	29
	2400ppm	33	34	34	31	31	27

## APPENDIX A 2

CLINICAL OBSERVATION : SUMMARY, RAT : FEMALE

(2-YEAR STUDY)

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 41

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	14-7
DEATH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MORIBUND SACRIFICE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WASTING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LOSS OF HAIR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED PERI-GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXOPHTHALMOS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CATARACT	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	1	1	1
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0



STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 42

Clinical sign	Group Name	Administration Week-day													
		15-7	16-7	17-7	18-7	19-7	20-7	21-7	22-7	23-7	24-7	25-7	26-7	27-7	28-7
DEATH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MORIBUND SACRIFICE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WASTING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LOSS OF HAIR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED PERI-GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXOPHTHALMOS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	1	1	1	1	1	1	1	1	1
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CATARACT	Control	0	0	0	0	0	1	1	1	1	1	1	1	1	1
	600ppm	0	0	0	0	0	0	0	1	1	1	1	2	2	2
	1200ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 43

Clinical sign	Group Name	Administration Week-day													
		29-7	30-7	31-7	32-7	33-7	34-7	35-7	36-7	37-7	38-7	39-7	40-7	41-7	42-7
DEATH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MORIBUND SACRIFICE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WASTING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LOSS OF HAIR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED PERI-GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXOPHTHALMOS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CATARACT	Control	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	600ppm	3	3	3	3	3	3	3	4	4	4	4	4	4	4
	1200ppm	1	1	1	1	1	1	1	1	1	1	1	2	2	2
	2400ppm	0	0	0	1	1	1	1	1	1	1	1	1	1	1

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 44

Clinical sign	Group Name	Administration Week-day													
		43-7	44-7	45-7	46-7	47-7	48-7	49-7	50-7	51-7	52-7	53-7	54-7	55-7	56-7
DEATH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MORIBUND SACRIFICE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WASTING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LOSS OF HAIR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED PERI-GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXOPHTHALMOS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CATARACT	Control	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	600ppm	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	1200ppm	2	3	3	3	3	3	3	3	3	3	3	3	3	3
	2400ppm	1	1	1	1	2	2	2	2	2	2	2	2	2	2

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 45

Clinical sign	Group Name	Administration Week-day													
		57-7	58-7	59-7	60-7	61-7	62-7	63-7	64-7	65-7	66-7	67-7	68-7	69-7	70-7
DEATH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	1	1	1	1	1	1	1	1	1	1	1
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	1	1	1	2	2	2
MORIBUND SACRIFICE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WASTING	Control	0	1	1	1	1	1	1	1	1	1	1	1	1	1
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LOSS OF HAIR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	1	1	1	1	1	1	1	1	1	1	1
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED PERI-GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXOPHTHALMOS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CATARACT	Control	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	600ppm	4	4	4	3	3	5	5	5	5	5	5	5	5	5
	1200ppm	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	2400ppm	2	2	2	2	2	3	3	3	3	3	3	3	3	3

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 46

Clinical sign	Group Name	Administration Week-day													
		71-7	72-7	73-7	74-7	75-7	76-7	77-7	78-7	79-7	80-7	81-7	82-7	83-7	84-7
DEATH	Control	0	1	1	1	1	1	1	1	1	1	1	1	1	1
	600ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	2	2	2	2	2	2	2	2	2	2	3	3	3	4
MORIBUND SACRIFICE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WASTING	Control	1	1	1	1	1	1	1	1	1	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LOSS OF HAIR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED PERI-GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXOPHTHALMOS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	1	1	1	1	1	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CATARACT	Control	1	2	2	2	2	2	2	2	2	2	2	2	2	2
	600ppm	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	1200ppm	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	2400ppm	3	3	3	3	3	3	3	3	3	3	3	3	3	3

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 47

Clinical sign	Group Name	Administration Week-day													
		85-7	86-7	87-7	88-7	89-7	90-7	91-7	92-7	93-7	94-7	95-7	96-7	97-7	98-7
DEATH	Control	1	1	1	1	1	1	1	1	3	4	4	4	4	4
	600ppm	1	2	2	2	2	2	3	3	3	3	3	3	3	3
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	4	4	4	4	4	4	4	4	5	6	6	6	6	7
MORIBUND SACRIFICE	Control	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	2	2	2	2	2	2	2	2	2	2	2
	2400ppm	0	0	0	0	0	0	0	0	1	1	2	2	2	2
WASTING	Control	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	1	0	0	0	0	0	0	0	0	1	1	1
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	1
SOILED	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LOSS OF HAIR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOILED PERI-GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXOPHTHALMOS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	1	1	1
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CATARACT	Control	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	600ppm	5	5	5	5	5	5	4	4	4	4	4	4	4	4
	1200ppm	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	2400ppm	3	3	3	3	3	3	3	4	4	4	4	4	4	4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 48

Clinical sign	Group Name	Administration Week-day					
		99-7	100-7	101-7	102-7	103-7	104-7
DEATH	Control	4	4	5	5	5	5
	600ppm	4	4	4	5	5	5
	1200ppm	0	0	0	0	0	0
	2400ppm	7	8	8	8	8	8
MORIBUND SACRIFICE	Control	1	1	2	2	3	3
	600ppm	0	0	0	1	1	1
	1200ppm	3	3	3	3	3	3
	2400ppm	2	3	3	4	4	6
WASTING	Control	0	1	0	0	0	2
	600ppm	0	0	1	0	1	1
	1200ppm	0	0	0	0	0	0
	2400ppm	1	0	0	0	0	0
SOILED	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
LOSS OF HAIR	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	1	1	1	1	1	1
	2400ppm	0	0	0	0	0	0
SOILED PERI-GENITALIA	Control	0	1	0	0	0	0
	600ppm	0	0	0	0	1	1
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
EXOPHTHALMOS	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	1	1	1	1	1	1
	2400ppm	0	0	0	0	0	0
CATARACT	Control	2	2	2	2	2	2
	600ppm	4	4	4	4	4	4
	1200ppm	3	3	3	3	3	3
	2400ppm	4	4	4	4	4	3

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : AI 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 49

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	14-7
CORNEAL OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	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	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. NOSE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EYE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI-MOUTH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. MANDIBULAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0



STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 50

Clinical sign	Group Name	Administration Week-day													
		15-7	16-7	17-7	18-7	19-7	20-7	21-7	22-7	23-7	24-7	25-7	26-7	27-7	28-7
CORNEAL OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	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	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. NOSE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EYE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI-MOUTH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. MANDIBULAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
 ALL ANIMALS

SEX : FEMALE

PAGE : 51

Clinical sign	Group Name	Administration Week-day													
		29-7	30-7	31-7	32-7	33-7	34-7	35-7	36-7	37-7	38-7	39-7	40-7	41-7	42-7
CORNEAL OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	2400ppm	0	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	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. NOSE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EYE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI-MOUTH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. MANDIBULAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
 ALL ANIMALS

SEX : FEMALE

PAGE : 52

Clinical sign	Group Name	Administration Week-day													
		43-7	44-7	45-7	46-7	47-7	48-7	49-7	50-7	51-7	52-7	53-7	54-7	55-7	56-7
CORNEAL OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	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	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. NOSE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EYE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI-MOUTH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. MANDIBULAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 53

Clinical sign	Group Name	Administration Week-day													
		57-7	58-7	59-7	60-7	61-7	62-7	63-7	64-7	65-7	66-7	67-7	68-7	69-7	70-7
CORNEAL OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	1	1	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	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. NOSE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EYE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	1	1	1	1
M. PERI-MOUTH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. MANDIBULAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 54

Clinical sign	Group Name	Administration Week-day													
		71-7	72-7	73-7	74-7	75-7	76-7	77-7	78-7	79-7	80-7	81-7	82-7	83-7	84-7
CORNEAL OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INTERNAL MASS	Control	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	1	1	1	1	1	1	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. NOSE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EYE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
M. PERI-MOUTH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	1	1	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. MANDIBULAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EAR	Control	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	1	1	1	1	1	1
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 55

Clinical sign	Group Name	Administration Week-day													
		85-7	86-7	87-7	88-7	89-7	90-7	91-7	92-7	93-7	94-7	95-7	96-7	97-7	98-7
CORNEAL OPACITY	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INTERNAL MASS	Control	0	0	0	0	0	0	1	1	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	1	1	0	0	0	0
M. NOSE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EYE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
M. PERI-MOUTH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. MANDIBULAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. EAR	Control	1	1	1	1	1	1	1	1	1	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. PERI EAR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	1	1	1	1	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 56

Clinical sign	Group Name	Administration Week-day					
		99-7	100-7	101-7	102-7	103-7	104-7
CORNEAL OPACITY	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
INTERNAL MASS	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	2
	1200ppm	0	0	0	0	0	1
	2400ppm	0	1	1	0	0	0
M. NOSE	Control	0	0	0	0	0	0
	600ppm	0	0	1	1	1	1
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
M. EYE	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	1	1	1	1	1	1
M. PERI-MOUTH	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
M. MANDIBULAR	Control	0	0	0	0	0	0
	600ppm	1	1	1	1	1	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
M. EAR	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
M. PERI EAR	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
 ALL ANIMALS

SEX : FEMALE

PAGE : 57

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	14-7
M. NECK	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. FORELIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. BREAST	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ABDOMEN	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ANTERIOR. DORSUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ANUS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANEMIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0



STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 58

Clinical sign	Group Name	Administration Week-day													
		15-7	16-7	17-7	18-7	19-7	20-7	21-7	22-7	23-7	24-7	25-7	26-7	27-7	28-7
M. NECK	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. FORELIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. BREAST	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ABDOMEN	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ANTERIOR. DORSUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ANUS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANEMIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 59

Clinical sign	Group Name	Administration Week-day													
		29-7	30-7	31-7	32-7	33-7	34-7	35-7	36-7	37-7	38-7	39-7	40-7	41-7	42-7
M. NECK	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. FORELIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. BREAST	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ABDOMEN	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ANTERIOR. DORSUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ANUS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANEMIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 60

Clinical sign	Group Name	Administration Week-day													
		43-7	44-7	45-7	46-7	47-7	48-7	49-7	50-7	51-7	52-7	53-7	54-7	55-7	56-7
M. NECK	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. FORELIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. BREAST	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ABDOMEN	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ANTERIOR. DORSUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	1	1	1
M. ANUS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANEMIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 61

Clinical sign	Group Name	Administration Week-day													
		57-7	58-7	59-7	60-7	61-7	62-7	63-7	64-7	65-7	66-7	67-7	68-7	69-7	70-7
M. NECK	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. FORELIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. BREAST	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	1	2	2	2	2	2	2	2	2
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ABDOMEN	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ANTERIOR. DORSUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
M. ANUS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANEMIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 62

Clinical sign	Group Name	Administration Week-day													
		71-7	72-7	73-7	74-7	75-7	76-7	77-7	78-7	79-7	80-7	81-7	82-7	83-7	84-7
M. NECK	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. FORELIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. BREAST	Control	0	1	1	1	1	1	3	3	3	3	3	3	3	3
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	2	2	2	2	2	2	2	2	2	2	3	3	3	3
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. ABDOMEN	Control	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	600ppm	0	0	0	0	0	1	1	1	1	1	1	2	2	2
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	1	1	1	1	1	1
M. ANTERIOR. DORSUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
M. ANUS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANEMIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	1	1	1	1	1	1	1	1	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
 ALL ANIMALS

SEX : FEMALE

PAGE : 63

Clinical sign	Group Name	Administration Week-day													
		85-7	86-7	87-7	88-7	89-7	90-7	91-7	92-7	93-7	94-7	95-7	96-7	97-7	98-7
M. NECK	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. FORELIMB	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	1	1	1	1	1	1
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. BREAST	Control	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	600ppm	0	0	0	0	0	1	1	1	1	1	1	1	1	1
	1200ppm	3	3	3	3	3	3	3	5	5	5	7	7	7	7
	2400ppm	0	0	0	0	0	1	1	1	1	1	2	2	1	1
M. ABDOMEN	Control	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	600ppm	2	0	0	1	1	1	2	2	2	2	2	3	3	3
	1200ppm	1	1	1	1	3	3	3	3	3	3	3	3	3	3
	2400ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
M. ANTERIOR. DORSUM	Control	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M. GENITALIA	Control	0	2	2	2	2	2	2	2	1	1	1	1	1	1
	600ppm	0	0	1	1	1	1	1	2	2	3	3	3	3	3
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
M. ANUS	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANEMIA	Control	0	0	0	0	0	0	0	2	0	0	0	0	2	1
	600ppm	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	1

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
 ALL ANIMALS

SEX : FEMALE

PAGE : 64

Clinical sign	Group Name	Administration Week-day					
		99-7	100-7	101-7	102-7	103-7	104-7
M. NECK	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	1	1	1	1	1	1
	2400ppm	0	0	0	0	0	0
M. FORELIMB	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	1	1	1	1	1	1
	2400ppm	0	0	0	0	0	0
M. BREAST	Control	6	7	6	6	6	6
	600ppm	1	1	1	0	0	1
	1200ppm	7	7	7	7	7	7
	2400ppm	1	2	2	2	2	2
M. ABDOMEN	Control	1	1	1	1	1	1
	600ppm	3	3	3	4	4	4
	1200ppm	4	4	4	4	4	5
	2400ppm	1	1	1	1	1	0
M. ANTERIOR. DORSUM	Control	0	0	0	0	0	0
	600ppm	1	1	1	1	1	1
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
M. GENITALIA	Control	1	1	1	1	1	1
	600ppm	3	3	3	3	3	3
	1200ppm	0	0	0	0	0	1
	2400ppm	1	0	0	0	0	2
M. ANUS	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	1
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
ANEMIA	Control	1	1	0	0	0	0
	600ppm	0	1	0	0	0	2
	1200ppm	0	0	0	0	0	0
	2400ppm	1	0	0	0	0	0

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 65

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	14-7
CRUSTA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEMORRHAGE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IRREGULAR BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBNORMAL TEMP	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NON REMARKABLE	Control	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	600ppm	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	1200ppm	50	50	50	50	50	50	50	50	50	50	50	49	49	49
	2400ppm	50	50	50	50	50	50	50	50	50	50	50	50	50	50

(HAN190)

BAIS 4



STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 66

Clinical sign	Group Name	Administration Week-day													
		15-7	16-7	17-7	18-7	19-7	20-7	21-7	22-7	23-7	24-7	25-7	26-7	27-7	28-7
CRUSTA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEMORRHAGE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IRREGULAR BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBNORMAL TEMP	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NON REMARKABLE	Control	50	50	50	50	50	49	49	49	49	49	49	49	49	49
	600ppm	50	50	50	50	50	50	50	49	49	49	49	48	48	48
	1200ppm	49	49	49	49	49	48	48	48	48	48	48	48	48	48
	2400ppm	50	50	50	50	50	50	50	50	50	50	50	50	50	50

(HAN190)

BAIS 4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 67

Clinical sign	Group Name	Administration Week-day													
		29-7	30-7	31-7	32-7	33-7	34-7	35-7	36-7	37-7	38-7	39-7	40-7	41-7	42-7
CRUSTA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEMORRHAGE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IRREGULAR BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBNORMAL TEMP	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NON REMARKABLE	Control	49	49	49	49	49	49	49	49	49	49	49	49	49	49
	600ppm	47	47	47	47	47	47	47	46	46	46	46	46	46	46
	1200ppm	48	48	48	48	48	48	48	48	48	48	48	47	47	47
	2400ppm	50	50	50	49	49	49	49	49	49	49	49	49	49	49

(HAN190)

BAIS 4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 68

Clinical sign	Group Name	Administration Week-day													
		43-7	44-7	45-7	46-7	47-7	48-7	49-7	50-7	51-7	52-7	53-7	54-7	55-7	56-7
CRUSTA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEMORRHAGE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IRREGULAR BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBNORMAL TEMP	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NON REMARKABLE	Control	49	49	49	49	49	49	49	49	49	49	49	49	49	49
	600ppm	46	46	46	46	46	46	46	46	46	46	46	46	46	46
	1200ppm	47	47	47	47	47	47	47	47	47	47	47	47	47	47
	2400ppm	49	49	49	49	48	48	48	48	48	48	48	47	47	47

(HAN190)

BAIS 4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 69

Clinical sign	Group Name	Administration Week-day													
		57-7	58-7	59-7	60-7	61-7	62-7	63-7	64-7	65-7	66-7	67-7	68-7	69-7	70-7
CRUSTA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEMORRHAGE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IRREGULAR BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBNORMAL TEMP	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NON REMARKABLE	Control	49	48	48	48	48	48	48	48	48	48	48	48	48	47
	600ppm	46	46	46	46	46	44	44	44	44	44	44	44	44	43
	1200ppm	47	47	47	46	46	45	44	44	44	44	44	44	44	44
	2400ppm	47	47	47	46	46	46	46	46	45	45	44	43	43	43

(HAN190)

BAIS 4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 70

Clinical sign	Group Name	Administration Week-day													
		71-7	72-7	73-7	74-7	75-7	76-7	77-7	78-7	79-7	80-7	81-7	82-7	83-7	84-7
CRUSTA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	1	1	1	1	1
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEMORRHAGE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IRREGULAR BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBNORMAL TEMP	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NON REMARKABLE	Control	45	43	43	43	43	43	41	41	41	42	42	42	42	42
	600ppm	43	43	43	43	43	43	43	43	42	43	43	42	42	42
	1200ppm	44	44	44	44	44	44	44	44	43	42	42	42	42	42
	2400ppm	43	43	43	43	43	43	43	43	43	43	42	42	42	41

(HAN190)

BAIS 4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
ALL ANIMALS

SEX : FEMALE

PAGE : 71

Clinical sign	Group Name	Administration Week-day													
		85-7	86-7	87-7	88-7	89-7	90-7	91-7	92-7	93-7	94-7	95-7	96-7	97-7	98-7
CRUSTA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2400ppm	0	0	0	0	0	1	1	1	0	0	0	0	0	0
HEMORRHAGE	Control	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	600ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IRREGULAR BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBNORMAL TEMP	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	600ppm	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NON REMARKABLE	Control	41	39	39	39	39	39	38	38	38	38	37	38	36	36
	600ppm	42	42	42	41	42	41	40	39	39	38	38	37	36	36
	1200ppm	41	41	40	39	38	38	38	37	37	37	35	34	33	33
	2400ppm	41	41	41	41	41	39	39	38	36	35	34	34	35	34

(HAN190)

BAIS 4

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1 104

CLINICAL OBSERVATION (SUMMARY)  
 ALL ANIMALS

SEX : FEMALE

PAGE : 72

Clinical sign	Group Name	Administration Week-day					
		99-7	100-7	101-7	102-7	103-7	104-7
CRUSTA	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	1	1	1	1	1	1
	2400ppm	0	0	0	0	0	0
HEMORRHAGE	Control	0	0	0	0	0	0
	600ppm	0	1	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
IRREGULAR BREATHING	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	1
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
SUBNORMAL TEMP	Control	0	0	0	0	0	0
	600ppm	0	0	0	0	0	0
	1200ppm	0	0	0	0	0	0
	2400ppm	0	0	0	0	0	0
NON REMARKABLE	Control	35	33	34	34	33	31
	600ppm	35	34	34	32	31	27
	1200ppm	32	32	32	32	32	29
	2400ppm	34	31	31	31	31	29

(HAN190)

BAIS 4

## APPENDIX B 1

### BODY WEIGHT CHANGES :SUMMARY, RAT : MALE (2-YEAR STUDY)



STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 104  
 SEX : MALE

BODY WEIGHT CHANGES (SUMMARY)  
 ALL ANIMALS

PAGE : 1

Group Name	Administration week		1		2		3		4		5		6	
	0													
Control	126±	6	159±	8	192±	9	217±	10	237±	10	250±	11	260±	12
600ppm	126±	6	156±	8	186±	10**	211±	10*	230±	10*	244±	10*	254±	11
1200ppm	126±	6	156±	9	185±	10**	209±	10**	228±	11**	242±	11*	254±	11
2400ppm	126±	6	153±	9**	177±	12**	199±	13**	218±	14**	231±	15**	241±	16**

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

Test of Dunnett

(HAN260)

BAIS 4

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 104  
 SEX : MALE

BODY WEIGHT CHANGES (SUMMARY)  
 ALL ANIMALS

PAGE : 2

Group Name	Administration week		7		8		9		10		11		12		13	
Control	273±	12	285±	13	297±	14	302±	14	310±	16	315±	16	322±	17		
600ppm	268±	12	281±	12	292±	12	299±	13	308±	13	314±	13	320±	13		
1200ppm	267±	12	280±	13	291±	14	299±	14	306±	14	314±	14	321±	14		
2400ppm	255±	17**	266±	18**	274±	19**	283±	19**	290±	19**	296±	19**	303±	19**		

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

Test of Dunnett

(HAN260)

BAIS 4

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 104  
 SEX : MALE

BODY WEIGHT CHANGES (SUMMARY)  
 ALL ANIMALS

PAGE : 3

Group Name	Administration week		14		18		22		26		30		34		38	
Control	327±	17	345±	19	357±	19	370±	21	378±	22	388±	24	396±	25		
600ppm	326±	14	344±	14	357±	14	371±	16	380±	16	392±	18	399±	19		
1200ppm	326±	15	342±	14	358±	14	371±	15	380±	16	391±	17	399±	19		
2400ppm	310±	20**	323±	19**	336±	20**	345±	21**	353±	22**	363±	22**	371±	23**		

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

Test of Dunnett

(HAN260)

BAIS 4

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 104  
 SEX : MALE

BODY WEIGHT CHANGES (SUMMARY)  
 ALL ANIMALS

PAGE : 4

Group Name	Administration		week		42		46		50		54		58		62		66									
Control	404±	26			411±	27			415±	27			419±	27			422±	28			428±	26			433±	25
600ppm	408±	20			413±	20			416±	19			419±	19			423±	19			427±	19			430±	20
1200ppm	410±	20			414±	21			417±	21			420±	22			424±	23			431±	24			434±	24
2400ppm	383±	23**			389±	24**			390±	23**			392±	24**			395±	24**			401±	23**			400±	24**

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

Test of Dunnett

(HAN260)

BAIS 4

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 104  
 SEX : MALE

BODY WEIGHT CHANGES (SUMMARY)  
 ALL ANIMALS

PAGE : 5

Group Name	Administration week		74		78		82		86		90		94	
	70													
Control	433±	27	432±	25	432±	26	432±	26	427±	27	426±	25	426±	27
600ppm	431±	21	430±	20	426±	27	429±	21	425±	22	423±	23	422±	25
1200ppm	433±	23	432±	24	429±	24	428±	23	425±	22	422±	26	424±	20
2400ppm	401±	23**	401±	23**	399±	24**	399±	24**	395±	24**	389±	25**	389±	24**

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

Test of Dunnett

(HAN260)

BAIS 4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
UNIT : g  
REPORT TYPE : A1 104  
SEX : MALE

BODY WEIGHT CHANGES (SUMMARY)  
ALL ANIMALS

PAGE : 6

Group Name	Administration week					
	98		102		104	
Control	420±	30	413±	38	402±	46
600ppm	414±	32	410±	35	407±	38
1200ppm	419±	21	409±	26	398±	29
2400ppm	385±	27**	379±	26**	372±	31**

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

Test of Dunnett

(HAN260)

BAIS 4

## APPENDIX B 2

### BODY WEIGHT CHANGES : SUMMARY, RAT : FEMALE (2-YEAR STUDY)

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 104  
 SEX : FEMALE

BODY WEIGHT CHANGES (SUMMARY)  
 ALL ANIMALS

PAGE : 7

Group Name	Administration week		1		2		3		4		5		6	
	0													
Control	98±	4	114±	6	128±	7	138±	7	148±	8	155±	9	159±	10
600ppm	98±	4	112±	6	125±	7	136±	8	144±	8*	151±	9	156±	10
1200ppm	98±	4	113±	5	126±	6	136±	6	144±	7*	152±	7	156±	8
2400ppm	98±	4	111±	5	123±	6**	133±	6**	141±	7**	147±	8**	151±	8**

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

Test of Dunnett

(HAN260)

BAIS 4



STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 104  
 SEX : FEMALE

BODY WEIGHT CHANGES (SUMMARY)  
 ALL ANIMALS

PAGE : 8

Group Name	Administration week		7		8		9		10		11		12		13	
Control	165±	11	170±	11	175±	11	178±	12	183±	11	185±	12	187±	12		
600ppm	161±	10	167±	11	172±	12	175±	13	179±	13	182±	14	183±	13		
1200ppm	162±	8	167±	8	171±	9	174±	9	178±	10*	181±	10	184±	11		
2400ppm	157±	9**	162±	9**	166±	9**	169±	10**	172±	10**	175±	10**	176±	10**		

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

Test of Dunnett

(HAN260)

BAIS 4

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 104  
 SEX : FEMALE

BODY WEIGHT CHANGES (SUMMARY)  
 ALL ANIMALS

PAGE : 9

Group Name	Administration week		14		18		22		26		30		34		38	
Control	189±	12	197±	13	201±	14	209±	14	211±	15	218±	17	223±	19		
600ppm	186±	14	190±	15*	197±	17	204±	16	208±	16	216±	16	222±	17		
1200ppm	186±	10	192±	11	199±	12	205±	13	211±	14	219±	15	224±	17		
2400ppm	180±	10**	184±	10**	190±	11**	195±	13**	199±	12**	206±	13**	210±	14**		

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

Test of Dunnett

(HAN260)

BAIS 4

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 104  
 SEX : FEMALE

BODY WEIGHT CHANGES (SUMMARY)  
 ALL ANIMALS

PAGE : 10

Group Name	Administration week		46		50		54		58		62		66	
	42													
Control	227±	19	231±	20	234±	20	240±	22	246±	23	252±	25	259±	27
600ppm	228±	18	232±	20	235±	20	240±	22	246±	23	256±	25	260±	26
1200ppm	230±	19	233±	18	236±	18	240±	19	246±	21	256±	22	261±	22
2400ppm	218±	14*	222±	15*	222±	15**	226±	14**	229±	15**	237±	16**	238±	16**

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

Test of Dunnett

(HAN260)

BAIS 4

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 104  
 SEX : FEMALE

BODY WEIGHT CHANGES (SUMMARY)  
 ALL ANIMALS

PAGE : 11

Group Name	Administration week		74		78		82		86		90		94	
	70													
Control	260±	26	264±	26	268±	28	275±	29	278±	29	283±	34	283±	34
600ppm	264±	27	268±	28	270±	27	276±	27	280±	26	282±	25	284±	26
1200ppm	263±	22	268±	22	272±	22	276±	23	280±	24	282±	25	286±	27
2400ppm	240±	18**	245±	18**	247±	17**	254±	18**	257±	19**	257±	20**	259±	20**

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

Test of Dunnett

(HAN260)

BAIS 4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
UNIT : g  
REPORT TYPE : A1 104  
SEX : FEMALE

BODY WEIGHT CHANGES (SUMMARY)  
ALL ANIMALS

PAGE : 12

Group Name	Administration week					
	98		102		104	
Control	282±	39	284±	42	280±	45
600ppm	285±	27	285±	30	282±	34
1200ppm	288±	33	292±	30	291±	31
2400ppm	263±	25**	264±	27**	262±	26*

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

Test of Dunnett

(HAN260)

BAIS 4

## APPENDIX C 1

FOOD CONSUMPTION CHANGES : SUMMARY, RAT : MALE  
(2-YEAR STUDY)

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 104  
 SEX : MALE

FOOD CONSUMPTION CHANGES (SUMMARY)  
 ALL ANIMALS

PAGE : 1

Group Name	Administration week						
	1	2	3	4	5	6	7
Control	16.0± 1.2	17.5± 1.3	18.3± 1.3	18.6± 1.4	18.1± 1.2	18.0± 1.1	17.5± 1.2
600ppm	15.7± 1.1	17.5± 1.3	18.1± 1.3	18.4± 1.0	18.1± 1.3	17.9± 1.4	17.6± 1.1
1200ppm	15.3± 1.0**	17.0± 1.3	17.8± 1.0	18.2± 1.1	18.2± 1.0	18.1± 0.8	17.6± 1.2
2400ppm	15.0± 1.2**	16.7± 1.3**	17.5± 1.3**	17.9± 1.3*	18.2± 1.3	17.9± 1.3	17.8± 1.4

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

Test of Dunnett

(HAN260)

BAIS 4

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 104  
 SEX : MALE

FOOD CONSUMPTION CHANGES (SUMMARY)  
 ALL ANIMALS

PAGE : 2

Group Name	Administration week						
	8	9	10	11	12	13	14
Control	17.5± 1.2	17.6± 1.2	17.5± 1.1	17.4± 1.2	17.5± 1.1	17.1± 1.2	17.1± 1.1
600ppm	17.7± 1.0	17.9± 1.1	17.8± 1.1	17.8± 0.9	17.7± 0.9	17.5± 0.9	17.3± 1.0
1200ppm	17.5± 1.0	17.8± 1.0	17.8± 1.0	17.7± 1.0	17.6± 0.9	17.4± 1.0	17.4± 0.9
2400ppm	17.7± 1.4	18.0± 1.3	17.9± 1.2	18.0± 1.2*	17.6± 1.0	17.6± 1.1	17.4± 1.1

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

Test of Dunnett

(HAN260)

BAIS 4



STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 104  
 SEX : MALE

FOOD CONSUMPTION CHANGES (SUMMARY)  
 ALL ANIMALS

PAGE : 3

Group Name	Administration week						
	18	22	26	30	34	38	42
Control	16.9± 1.1	17.2± 1.1	17.2± 1.2	17.0± 1.1	17.0± 1.2	16.4± 1.0	16.6± 1.0
600ppm	17.2± 1.0	17.5± 1.1	17.5± 1.0	17.4± 0.9	17.6± 1.1*	16.7± 1.1	17.2± 1.0**
1200ppm	17.0± 0.8	17.6± 0.8	17.5± 0.8	17.5± 0.8	17.8± 1.0**	16.9± 1.0	17.4± 0.9**
2400ppm	17.0± 1.0	17.3± 1.0	17.3± 1.0	17.2± 1.0	17.6± 1.1*	16.9± 0.9	17.9± 1.2**

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

Test of Dunnett

(HAN260)

BAIS 4

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 104  
 SEX : MALE

FOOD CONSUMPTION CHANGES (SUMMARY)  
 ALL ANIMALS

PAGE : 4

Group Name	Administration week						
	46	50	54	58	62	66	70
Control	16.7± 1.0	16.6± 1.0	17.0± 1.0	16.6± 1.0	17.0± 1.0	17.1± 0.9	17.1± 0.9
600ppm	17.2± 0.9*	16.9± 0.8	17.3± 0.8	17.3± 0.8**	17.5± 1.0*	17.2± 0.9	17.4± 0.9
1200ppm	17.3± 1.0**	16.9± 0.9	17.4± 0.9	17.4± 0.9**	17.7± 0.9**	17.3± 0.9	17.3± 0.9
2400ppm	17.5± 1.1**	17.1± 0.9	17.2± 1.2	17.3± 1.2**	17.6± 1.3*	17.3± 1.3	17.3± 1.2

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

Test of Dunnett

(HAN260)

BAIS 4

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 104  
 SEX : MALE

FOOD CONSUMPTION CHANGES (SUMMARY)  
 ALL ANIMALS

PAGE : 5

Group Name	Administration week						
	74	78	82	86	90	94	98
Control	17.3± 1.0	16.9± 1.0	16.9± 1.1	16.4± 1.0	16.8± 0.8	16.8± 1.0	16.5± 0.9
600ppm	17.5± 0.8	17.1± 1.3	17.1± 1.1	16.6± 1.2	17.2± 1.2	17.3± 1.0	16.5± 1.5
1200ppm	17.8± 1.0*	17.2± 1.0	17.2± 1.1	17.3± 1.6**	17.4± 1.3	17.6± 1.4*	17.6± 1.6**
2400ppm	18.0± 1.6*	17.4± 1.4	17.2± 1.5	17.0± 1.7	17.1± 2.5	17.4± 1.7	17.0± 1.7

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

Test of Dunnett

(HAN260)

BAIS 4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
UNIT : g  
REPORT TYPE : A1 104  
SEX : MALE

FOOD CONSUMPTION CHANGES (SUMMARY)  
ALL ANIMALS

PAGE : 6

Group Name	Administration week	
	102	104
Control	16.1± 2.0	14.9± 2.8
600ppm	16.7± 2.1	16.6± 1.4**
1200ppm	17.3± 2.0*	16.5± 3.3**
2400ppm	16.8± 1.6	16.8± 2.4**

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

Test of Dunnett

(HAN260)

BAIS 4

## APPENDIX C 2

### FOOD CONSUMPTION CHANGES : SUMMARY, RAT : FEMALE (2-YEAR STUDY)

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 104  
 SEX : FEMALE

FOOD CONSUMPTION CHANGES (SUMMARY)  
 ALL ANIMALS

PAGE : 7

Group Name	Administration week						
	1	2	3	4	5	6	7
Control	11.9± 0.9	12.3± 0.9	12.6± 1.2	12.8± 1.2	12.9± 1.6	11.9± 1.1	12.1± 1.2
600ppm	11.5± 0.9	12.4± 1.2	12.6± 1.2	12.6± 1.2	12.8± 1.2	12.1± 1.2	12.1± 1.1
1200ppm	11.4± 0.5*	12.1± 0.8	12.7± 1.0	12.7± 0.8	12.8± 1.0	12.2± 0.7	12.6± 0.9
2400ppm	11.1± 0.7**	11.8± 0.9**	12.3± 1.0	12.7± 1.0	12.5± 1.0	12.2± 0.8	12.5± 1.1

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

Test of Dunnett

(HAN260)

BAIS 4

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 104  
 SEX : FEMALE

FOOD CONSUMPTION CHANGES (SUMMARY)  
 ALL ANIMALS

PAGE : 8

Group Name	Administration week						
	8	9	10	11	12	13	14
Control	12.1± 1.2	12.4± 1.1	12.3± 1.2	12.5± 1.2	12.2± 1.0	12.1± 1.1	12.1± 1.1
600ppm	12.1± 1.5	12.1± 1.2	12.4± 1.7	12.1± 1.3	12.6± 1.7	12.6± 1.7	12.1± 1.4
1200ppm	12.0± 1.0	12.2± 0.9	11.9± 0.9	12.2± 0.9	12.1± 1.0	12.2± 1.1	12.1± 1.0
2400ppm	12.0± 1.0	12.1± 1.0	12.1± 0.9	12.1± 0.9	12.2± 0.9	12.0± 0.9	12.1± 0.9

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

Test of Dunnett

(HAN260)

BAIS 4

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 104  
 SEX : FEMALE

FOOD CONSUMPTION CHANGES (SUMMARY)  
 ALL ANIMALS

PAGE : 9

Group Name	Administration week						
	18	22	26	30	34	38	42
Control	12.0± 1.0	12.0± 1.1	11.8± 1.0	11.9± 1.0	11.9± 1.2	11.6± 1.2	11.6± 0.9
600ppm	11.7± 1.0	12.4± 1.4	12.0± 1.1	11.9± 1.0	12.2± 1.2	12.0± 1.2	12.2± 1.2**
1200ppm	11.7± 0.9	12.4± 1.2	11.9± 0.9	12.4± 1.0*	12.2± 1.0	11.8± 1.1	12.1± 1.0*
2400ppm	11.7± 0.9	12.2± 0.9	11.6± 1.1	12.0± 0.8	12.6± 1.1*	11.7± 0.9	12.4± 1.0**

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

Test of Dunnett

(HAN260)

BAIS 4



STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 104  
 SEX : FEMALE

FOOD CONSUMPTION CHANGES (SUMMARY)  
 ALL ANIMALS

PAGE : 10

Group Name	Administration week						
	46	50	54	58	62	66	70
Control	11.9± 1.0	11.8± 1.1	12.1± 1.1	12.0± 1.2	12.2± 1.1	12.3± 1.1	12.3± 1.4
600ppm	12.2± 1.1	11.9± 1.0	12.7± 1.2*	12.6± 1.1*	12.9± 1.3**	12.6± 1.2	12.9± 1.4
1200ppm	12.3± 1.1	12.1± 1.0	12.6± 1.2	12.4± 1.1	12.7± 1.2*	12.6± 1.1	12.6± 1.0
2400ppm	12.4± 1.0	12.1± 0.8	12.1± 0.9	12.1± 0.9	12.4± 1.1	12.5± 0.8	12.2± 1.0

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

Test of Dunnett

(HAN260)

BAIS 4

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 UNIT : g  
 REPORT TYPE : A1 104  
 SEX : FEMALE

FOOD CONSUMPTION CHANGES (SUMMARY)  
 ALL ANIMALS

PAGE : 11

Group Name	Administration week						
	74	78	82	86	90	94	98
Control	12.8± 0.9	12.7± 1.2	12.6± 1.1	12.3± 1.2	12.9± 2.0	12.8± 1.7	12.4± 2.2
600ppm	13.1± 1.1	12.7± 1.0	13.0± 1.2	12.9± 1.2*	12.9± 1.1	13.4± 1.2*	13.0± 1.3
1200ppm	13.4± 1.1**	13.2± 1.2	12.9± 1.1	12.9± 1.3*	13.3± 1.1	13.4± 1.5*	13.7± 1.6**
2400ppm	13.3± 0.9*	12.8± 0.8	12.8± 1.0	12.9± 0.9*	12.7± 1.0	12.8± 1.1	13.0± 1.5

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

Test of Dunnett

(HAN260)

BAIS 4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
UNIT : g  
REPORT TYPE : A1 104  
SEX : FEMALE

FOOD CONSUMPTION CHANGES (SUMMARY)  
ALL ANIMALS

PAGE : 12

Group Name	Administration week	
	102	104
Control	12.7± 1.9	12.6± 2.1
600ppm	12.6± 1.9	12.6± 2.4
1200ppm	13.5± 1.6*	13.4± 1.6
2400ppm	12.9± 1.4	12.7± 1.2

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

Test of Dunnett

(HAN260)

BAIS 4

## APPENDIX D 1

HEMATOLOGY : SUMMARY, RAT : MALE

(2-YEAR STUDY)

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 MEASURE. TIME : 1  
 SEX : MALE

HEMATOLOGY (SUMMARY)  
 ALL ANIMALS (105W)

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>9</sup> /μl	
Control	40	8.27±	1.11	14.3±	2.5	41.8±	5.5	50.7±	3.4	17.2±	1.5	34.0±	2.1	942±	389
600ppm	38	8.24±	1.65	14.0±	3.3	41.1±	8.3	49.9±	2.5	16.8±	1.8	33.7±	2.4	977±	311
1200ppm	43	8.37±	1.55	14.5±	2.7	42.8±	6.9	52.4±	9.5	17.6±	1.9	33.8±	2.0	909±	241
2400ppm	38	8.65±	1.76	14.6±	3.5	43.0±	8.3	50.0±	4.0**	16.7±	1.6	33.5±	2.5	950±	337

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

\*\* :  $P \leq 0.01$

Test of Dunnett

(HCL070)

BAIS 4

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 MEASURE TIME : 1  
 SEX : MALE

HEMATOLOGY (SUMMARY)  
 ALL ANIMALS (105W)

REPORT TYPE : A1

PAGE : 2

Group Name	NO. of Animals	WBC 10 <sup>3</sup> /μl		Differential N-BAND		WBC (%) N-SEG		EOSINO		BASO		MONO		LYMPHO		OTHER	
Control	40	7.95±	16.38	2±	2	45±	10	2±	1	0±	0	4±	2	45±	10	3±	13
600ppm	38	4.86±	1.69	2±	2	46±	7	2±	1	0±	0	4±	2	46±	6	0±	1
1200ppm	43	8.04±	12.51	1±	1	43±	11	2±	1	0±	0	4±	2	44±	12	5±	19
2400ppm	38	15.89±	67.09	2±	2	46±	11	2±	1	0±	0	4±	1	43±	11	3±	15
Significant difference ; * : P ≤ 0.05      ** : P ≤ 0.01      Test of Dunnett																	
(HCL070)																BAIS 4	

## APPENDIX D 2

### HEMATOLOGY : SUMMARY, RAT : FEMALE (2-YEAR STUDY)

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 MEASURE. TIME : 1  
 SEX : FEMALE

HEMATOLOGY (SUMMARY)  
 ALL ANIMALS (105W)

REPORT TYPE : A1

PAGE : 3

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>9</sup> /μl	
Control	41	7.92±	0.65	15.1±	1.3	42.2±	3.1	53.3±	1.7	19.1±	0.8	35.9±	1.1	619±	77
600ppm	40	7.68±	1.59	14.7±	2.9	41.5±	7.2	55.5±	8.3	19.4±	1.7	35.2±	2.2	591±	138
1200ppm	47	7.83±	0.85	14.9±	1.5	42.1±	3.4	54.1±	3.3	19.1±	1.1	35.3±	1.5	655±	144
2400ppm	35	8.08±	0.55	15.2±	1.1	42.9±	2.9	53.1±	1.1	18.8±	0.5	35.4±	1.0	659±	92

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

Test of Dunnett

(HCL070)

BAIS 4



STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 MEASURE. TIME : 1  
 SEX : FEMALE

HEMATOLOGY (SUMMARY)  
 ALL ANIMALS (105W)

REPORT TYPE : A1

PAGE : 4

Group Name	NO. of Animals	WBC 10 <sup>3</sup> /μl		Differential N-BAND		WBC (%) N-SEG		EOSINO		BASO		MONO		LYMPHO		OTHER	
Control	41	4.06±	7.91	1±	1	43±	11	1±	1	0±	0	4±	1	50±	10	1±	4
600ppm	40	12.21±	51.01	1±	1	42±	13	2±	1	0±	0	4±	2	44±	14	7±	21
1200ppm	47	3.22±	3.82	1±	2	41±	11	2±	1*	0±	0	4±	2	52±	10	1±	2
2400ppm	35	2.57±	1.25	1±	1	39±	7	2±	1	0±	0	4±	1	54±	7	0±	1

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

\*\* :  $P \leq 0.01$

Test of Dunnett

(HCL070)

BAIS 4

## APPENDIX E 1

BIOCHEMISTRY : SUMMARY, RAT : MALE

(2-YEAR STUDY)

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 MEASURE. TIME : 1  
 SEX : MALE

BIOCHEMISTRY (SUMMARY)  
 ALL ANIMALS (105W)

REPORT TYPE : A1

PAGE : 1

Group Name	NO. of Animals	TOTAL PROTEIN g/dl		ALBUMIN g/dl		A/G RATIO		T-BILIRUBIN mg/dl		GLUCOSE mg/dl		T-CHOLESTEROL mg/dl		TRIGLYCERIDE mg/dl	
Control	40	6.4±	0.5	3.3±	0.3	1.1±	0.1	0.19±	0.09	159±	36	168±	61	91±	68
600ppm	38	6.5±	0.4	3.3±	0.2	1.0±	0.1	0.17±	0.03	160±	17	190±	66	128±	82
1200ppm	43	6.6±	0.4	3.3±	0.2	1.0±	0.1	0.42±	1.56	157±	25	230±	92**	199±	162**
2400ppm	38	6.5±	0.4	3.3±	0.2	1.1±	0.1	0.19±	0.06	154±	22	205±	70*	154±	127*

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

Test of Dunnett

(HCL074)

BAIS 4

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 MEASURE. TIME : 1  
 SEX : MALE

BIOCHEMISTRY (SUMMARY)  
 ALL ANIMALS (105W)

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	40	242±	86	91±	55	42±	21	214±	110	237±	129	10±	9	105±	77
600ppm	38	269±	79	113±	236	46±	82	384±	1172	180±	47	12±	7	92±	35
1200ppm	43	330±	135**	88±	100	40±	24	295±	723	187±	86*	16±	10**	95±	60
2400ppm	38	291±	88*	133±	370	54±	113	368±	1180	194±	80	23±	18**	98±	69

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

Test of Dunnett

(HCL074)

BAIS 4

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 MEASURE. TIME : 1  
 SEX : MALE

BIOCHEMISTRY (SUMMARY)  
 ALL ANIMALS (105W)

REPORT TYPE : A1

PAGE : 3

Group Name	NO. of Animals	UREA NITROGEN mg/dl		CREATININE mg/dl		SODIUM mEq/l		POTASSIUM mEq/l		CHLORIDE mEq/l		CALCIUM mg/dl		INORGANIC PHOSPHORUS mg/dl	
Control	40	19.9±	6.2	0.6±	0.1	142±	2	3.9±	0.5	107±	3	10.4±	0.3	4.1±	0.7
600ppm	38	21.8±	4.9*	0.6±	0.1	142±	1	3.8±	0.4	107±	2	10.6±	0.5	4.3±	0.7
1200ppm	43	28.2±	19.0**	0.8±	0.4**	142±	3*	3.8±	0.4	106±	3	11.0±	0.6**	4.8±	1.2**
2400ppm	38	28.7±	24.7**	0.8±	0.8**	142±	3*	3.8±	0.5	106±	2	10.8±	0.4**	4.9±	3.4

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

Test of Dunnett

(HCL074)

BAIS 4

## APPENDIX E 2

BIOCHEMISTRY : SUMMARY, RAT : FEMALE  
(2-YEAR STUDY)

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 MEASURE. TIME : 1  
 SEX : FEMALE

BIOCHEMISTRY (SUMMARY)  
 ALL ANIMALS (105W)

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	41	6.9±	0.5	3.8±	0.4	1.3±	0.2	0.16±	0.04	143±	20	151±	56	92±	117
600ppm	42	7.0±	0.5	3.9±	0.3	1.3±	0.1	0.23±	0.31*	144±	20	162±	47	105±	102
1200ppm	47	6.9±	0.4	3.8±	0.3	1.3±	0.2	0.17±	0.04	150±	19	165±	61	114±	120
2400ppm	36	7.0±	0.3	3.9±	0.2	1.3±	0.1	0.15±	0.02	149±	14	157±	44	60±	48

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

\*\* :  $P \leq 0.01$

Test of Dunnett

(HCL074)

BAIS 4

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 MEASURE, TIME : 1  
 SEX : FEMALE

BIOCHEMISTRY (SUMMARY)  
 ALL ANIMALS (105W)

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	41	264±	89	112±	51	58±	50	233±	78	193±	395	3±	3	79±	15
600ppm	42	287±	80	175±	253	76±	80	313±	196	136±	112	5±	6	93±	39
1200ppm	47	282±	98	135±	100	61±	38	251±	91	132±	79	5±	3**	90±	45
2400ppm	36	263±	63	107±	37	56±	24	225±	77	125±	29	5±	4**	83±	20

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

\*\* :  $P \leq 0.01$

Test of Dunnett

(HCL074)

BAIS 4



STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 MEASURE TIME : 1  
 SEX : FEMALE

BIOCHEMISTRY (SUMMARY)  
 ALL ANIMALS (105W)

REPORT TYPE : A1

PAGE : 6

Group Name	NO. of Animals	UREA NITROGEN mg/dl		CREATININE mg/dl		SODIUM mEq/l		POTASSIUM mEq/l		CHLORIDE mEq/l		CALCIUM mg/dl		INORGANIC PHOSPHORUS mg/dl	
Control	41	17.8±	3.8	0.5±	0.1	141±	2	3.4±	0.4	104±	2	10.7±	0.5	3.9±	0.7
600ppm	42	19.0±	3.2	0.5±	0.1	140±	2	3.6±	0.5	104±	3	10.8±	0.4	4.0±	0.8
1200ppm	47	18.2±	2.5	0.5±	0.1	140±	2	3.5±	0.4	104±	2	10.8±	0.4	4.1±	0.7
2400ppm	36	18.8±	2.5	0.5±	0.1	140±	1	3.5±	0.4	105±	2	10.7±	0.4	3.9±	0.9

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

\*\* :  $P \leq 0.01$

Test of Dunnett

(HCL074)

BAIS 4

## APPENDIX F 1

URINALYSIS : SUMMARY, RAT : MALE  
(2-YEAR STUDY)

STUDY NO. : 0399

## URINALYSIS

ANIMAL : RAT F344/DuCrj

MEASURE. TIME : 1

SEX : MALE

REPORT TYPE : A1

PAGE : 1

Group Name	NO. of Animals	pH							CHI	Protein					CHI	Glucose					CHI	Ketone body					CHI	Bilirubin				CHI		
		5.0	6.0	6.5	7.0	7.5	8.0	8.5		-	±	+	2+	3+		4+	-	±	+	2+		3+	4+	-	±	+		2+	3+	4+	-		+	2+
Control	39	0	1	5	11	18	4	0		0	0	0	5	25	9		39	0	0	0	0	0		37	2	0	0	0	0		39	0	0	0
600ppm	40	0	2	5	11	15	7	0		0	0	0	4	20	16		40	0	0	0	0	0		39	1	0	0	0	0		40	0	0	0
1200ppm	44	0	3	5	13	22	1	0		0	0	0	1	20	23	*	44	0	0	0	0	0		40	4	0	0	0	0		43	0	0	1
2400ppm	39	0	3	3	9	22	2	0		0	0	0	2	18	19	*	39	0	0	0	0	0		37	2	0	0	0	0		38	1	0	0

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

Test of CHI SQUARE

(HCL101)

BATS 4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
MEASURE TIME : 1  
SEX : MALE

URINALYSIS

REPORT TYPE : A1

PAGE : 2

Group Name	NO. of Animals	Occult blood					CHI	Urobilinogen					CHI
		-	±	+	2+	3+		±	+	2+	3+	4+	
Control	39	39	0	0	0	0		39	0	0	0	0	
600ppm	40	40	0	0	0	0		40	0	0	0	0	
1200ppm	44	43	0	0	0	1		43	0	0	1	0	
2400ppm	39	39	0	0	0	0		39	0	0	0	0	

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

Test of CHI SQUARE

(HCL101)

BAIS 4

## APPENDIX F 2

URINALYSIS : SUMMARY, RAT : FEMALE  
(2-YEAR STUDY)

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 MEASURE. TIME : 1  
 SEX : FEMALE

URINALYSIS

REPORT TYPE : A1

PAGE : 3

Group Name	NO. of Animals	pH							CHI	Protein						CHI	Glucose						CHI	Ketone body						CHI	Bilirubin				CHI
		5.0	6.0	6.5	7.0	7.5	8.0	8.5		—	±	+	2+	3+	4+		—	±	+	2+	3+	4+		—	±	+	2+	3+	4+		—	+	2+	3+	
Control	42	0	0	7	6	9	19	1		1	8	4	11	14	4		42	0	0	0	0	0		32	8	2	0	0	0		41	1	0	0	
600ppm	44	0	0	4	9	11	17	3		0	4	3	13	13	11		44	0	0	0	0	0		30	14	0	0	0	0		42	1	0	1	
1200ppm	47	0	1	4	3	10	23	6		0	1	7	12	15	12	*	47	0	0	0	0	0		19	26	1	0	1	0	**	47	0	0	0	
2400ppm	37	0	1	3	1	5	18	9	*	0	1	6	12	9	9		37	0	0	0	0	0		20	16	1	0	0	0		37	0	0	0	

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

Test of CHI SQUARE

(HCL101)

BAIS 4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
MEASURE TIME : 1  
SEX : FEMALE

URINALYSIS

REPORT TYPE : A1

PAGE : 4

Group Name	NO. of Animals	Occult blood					CHI	Urobilinogen					CHI
		-	±	+	2+	3+		±	+	2+	3+	4+	
Control	42	39	0	2	0	1		42	0	0	0	0	
600ppm	44	44	0	0	0	0		42	1	0	1	0	
1200ppm	47	47	0	0	0	0		47	0	0	0	0	
2400ppm	37	35	0	0	0	2		37	0	0	0	0	

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

Test of CHI SQUARE

(HCL101)

BAIS 4

## APPENDIX G 1

GROSS FINDINGS : SUMMARY, RAT : MALE

ALL ANIMALS

(2-YEAR STUDY)



STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

GROSS FINDINGS (SUMMARY)  
 ALL ANIMALS (0-105W)

PAGE : 1

Organ	Findings	Group Name NO. of Animals	Control		600ppm		1200ppm		2400ppm	
			50	(%)	50	(%)	50	(%)	50	(%)
skin/app	nodule		3	( 6)	6	( 12)	5	( 10)	4	( 8)
subcutis	jaundice		0	( 0)	0	( 0)	2	( 4)	0	( 0)
	mass		11	( 22)	8	( 16)	8	( 16)	7	( 14)
lung	white zone		2	( 4)	0	( 0)	2	( 4)	0	( 0)
	red zone		1	( 2)	1	( 2)	0	( 0)	1	( 2)
	brown zone		0	( 0)	0	( 0)	1	( 2)	0	( 0)
	nodule		0	( 0)	0	( 0)	3	( 6)	2	( 4)
lymph node	enlarged		1	( 2)	1	( 2)	0	( 0)	0	( 0)
spleen	enlarged		4	( 8)	4	( 8)	3	( 6)	1	( 2)
	nodule		1	( 2)	0	( 0)	0	( 0)	0	( 0)
	deformed		1	( 2)	0	( 0)	0	( 0)	0	( 0)
heart	white zone		1	( 2)	0	( 0)	0	( 0)	1	( 2)
	hypertrophy		1	( 2)	0	( 0)	0	( 0)	0	( 0)
	dilated		1	( 2)	0	( 0)	0	( 0)	0	( 0)
	fluid:brown		0	( 0)	0	( 0)	1	( 2)	0	( 0)
forestomach	nodule		0	( 0)	0	( 0)	0	( 0)	1	( 2)
	ulcer		0	( 0)	1	( 2)	0	( 0)	0	( 0)
	dilated		0	( 0)	1	( 2)	0	( 0)	0	( 0)
small intes	nodule		1	( 2)	0	( 0)	0	( 0)	0	( 0)
liver	enlarged		0	( 0)	0	( 0)	0	( 0)	1	( 2)
	white zone		1	( 2)	0	( 0)	0	( 0)	0	( 0)
	red zone		0	( 0)	1	( 2)	0	( 0)	1	( 2)

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

GROSS FINDINGS (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 2

Organ	Findings	Group Name NO. of Animals	Control		600ppm		1200ppm		2400ppm	
			50	(%)	50	(%)	50	(%)	50	(%)
liver	nodule		2	( 4)	2	( 4)	3	( 6)	4	( 8)
	cyst		0	( 0)	0	( 0)	0	( 0)	1	( 2)
	rough		0	( 0)	2	( 4)	1	( 2)	0	( 0)
	herniation		2	( 4)	6	( 12)	8	( 16)	5	( 10)
kidney	enlarged		0	( 0)	0	( 0)	0	( 0)	1	( 2)
	granular		6	( 12)	22	( 44)	28	( 56)	27	( 54)
urin bladd	urine:marked retention		0	( 0)	0	( 0)	0	( 0)	2	( 4)
pituitary	enlarged		3	( 6)	3	( 6)	6	( 12)	2	( 4)
	red zone		1	( 2)	4	( 8)	1	( 2)	1	( 2)
	nodule		3	( 6)	3	( 6)	2	( 4)	4	( 8)
thyroid	enlarged		3	( 6)	2	( 4)	1	( 2)	4	( 8)
	nodule		0	( 0)	1	( 2)	0	( 0)	0	( 0)
adrenal	enlarged		2	( 4)	0	( 0)	2	( 4)	1	( 2)
testis	atrophic		1	( 2)	0	( 0)	0	( 0)	0	( 0)
	nodule		42	( 84)	48	( 96)	39	( 78)	46	( 92)
epididymis	nodule		0	( 0)	1	( 2)	0	( 0)	0	( 0)
prostate	nodule		0	( 0)	1	( 2)	0	( 0)	0	( 0)
prep/cli gl	nodule		1	( 2)	1	( 2)	0	( 0)	0	( 0)
brain	brown zone		0	( 0)	1	( 2)	0	( 0)	0	( 0)
	hemorrhage		1	( 2)	0	( 0)	0	( 0)	0	( 0)
	nodule		0	( 0)	1	( 2)	0	( 0)	0	( 0)
eye	turbid		2	( 4)	0	( 0)	0	( 0)	0	( 0)

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

GROSS FINDINGS (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 3

Organ_____	Findings_____	Group Name NO. of Animals	Control		600ppm		1200ppm		2400ppm	
			50	(%)	50	(%)	50	(%)	50	(%)
eye	white		2	( 4)	5	( 10)	3	( 6)	2	( 4)
	red		1	( 2)	0	( 0)	0	( 0)	0	( 0)
Zymbal gl	nodule		1	( 2)	1	( 2)	1	( 2)	2	( 4)
muscle	nodule		0	( 0)	0	( 0)	1	( 2)	1	( 2)
bone	nodule		1	( 2)	0	( 0)	1	( 2)	1	( 2)
pleura	nodule		0	( 0)	0	( 0)	0	( 0)	1	( 2)
peritoneum	nodule		1	( 2)	2	( 4)	3	( 6)	0	( 0)
retroperit	mass		1	( 2)	0	( 0)	0	( 0)	1	( 2)
abdominal c	ascites		2	( 4)	1	( 2)	1	( 2)	0	( 0)
thoracic ca	pleural fluid		1	( 2)	3	( 6)	1	( 2)	0	( 0)
other	lip:nodule		0	( 0)	0	( 0)	0	( 0)	1	( 2)
	ear:nodule		0	( 0)	1	( 2)	0	( 0)	1	( 2)
	upper jaw:nodule		0	( 0)	1	( 2)	0	( 0)	0	( 0)
whole body	anemic		0	( 0)	0	( 0)	1	( 2)	0	( 0)

(HPT080)

BAIS 4

## APPENDIX G 2

GROSS FINDINGS : SUMMARY, RAT : MALE

DEAD AND MORIBUND ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

GROSS FINDINGS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 1

Organ	Findings	Group Name NO. of Animals	Control	600ppm	1200ppm	2400ppm
			10 (%)	10 (%)	6 (%)	12 (%)
skin/app	nodule		0 ( 0)	1 ( 10)	1 ( 17)	0 ( 0)
subcutis	jaundice		0 ( 0)	0 ( 0)	1 ( 17)	0 ( 0)
	mass		1 ( 10)	1 ( 10)	0 ( 0)	2 ( 17)
lung	white zone		1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)
	red zone		1 ( 10)	1 ( 10)	0 ( 0)	1 ( 8)
	nodule		0 ( 0)	0 ( 0)	0 ( 0)	2 ( 17)
lymph node	enlarged		1 ( 10)	1 ( 10)	0 ( 0)	0 ( 0)
spleen	enlarged		3 ( 30)	4 ( 40)	2 ( 33)	1 ( 8)
heart	white zone		1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)
	hypertrophy		1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)
	dilated		1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)
	fluid:brown		0 ( 0)	0 ( 0)	1 ( 17)	0 ( 0)
forestomach	nodule		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 8)
	ulcer		0 ( 0)	1 ( 10)	0 ( 0)	0 ( 0)
	dilated		0 ( 0)	1 ( 10)	0 ( 0)	0 ( 0)
liver	enlarged		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 8)
	white zone		1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)
	nodule		1 ( 10)	0 ( 0)	1 ( 17)	2 ( 17)
	rough		0 ( 0)	2 ( 20)	0 ( 0)	0 ( 0)
	herniation		1 ( 10)	2 ( 20)	2 ( 33)	1 ( 8)
kidney	granular		1 ( 10)	2 ( 20)	0 ( 0)	3 ( 25)
urin bladd	urine:marked retention		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 8)

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

GROSS FINDINGS (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 2

Organ	Findings	Group Name NO. of Animals	Control	600ppm	1200ppm	2400ppm
			10 (%)	10 (%)	6 (%)	12 (%)
pituitary	enlarged		3 ( 30)	2 ( 20)	2 ( 33)	1 ( 8)
	red zone		0 ( 0)	1 ( 10)	1 ( 17)	0 ( 0)
	nodule		0 ( 0)	1 ( 10)	0 ( 0)	2 ( 17)
thyroid	enlarged		0 ( 0)	0 ( 0)	1 ( 17)	0 ( 0)
adrenal	enlarged		2 ( 20)	0 ( 0)	0 ( 0)	1 ( 8)
testis	atrophic		1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)
	nodule		5 ( 50)	8 ( 80)	4 ( 67)	8 ( 67)
brain	brown zone		0 ( 0)	1 ( 10)	0 ( 0)	0 ( 0)
	hemorrhage		1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)
	nodule		0 ( 0)	1 ( 10)	0 ( 0)	0 ( 0)
eye	turbid		1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)
	white		0 ( 0)	0 ( 0)	1 ( 17)	0 ( 0)
	red		1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)
Zymbal gl	nodule		1 ( 10)	1 ( 10)	0 ( 0)	0 ( 0)
bone	nodule		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 8)
pleura	nodule		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 8)
peritoneum	nodule		0 ( 0)	1 ( 10)	1 ( 17)	0 ( 0)
retroperit	mass		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 8)
abdominal c	ascites		1 ( 10)	1 ( 10)	1 ( 17)	0 ( 0)
thoracic ca	pleural fluid		1 ( 10)	1 ( 10)	1 ( 17)	0 ( 0)
other	lip:nodule		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 8)
	ear:nodule		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 8)

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

GROSS FINDINGS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 3

Organ_____	Findings_____	Group Name	Control		600ppm		1200ppm		2400ppm					
		NO. of Animals	10	(%)	10	(%)	6	(%)	12	(%)				
whole body	anemic			0	( 0)		0	( 0)		1	( 17)		0	( 0)

(HPT080)

BAIS 4

## APPENDIX G 3

GROSS FINDINGS : SUMMARY, RAT : MALE

SACRIFICED ANIMALS

(2-YEAR STUDY)



STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

GROSS FINDINGS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 1

Organ	Findings	Group Name NO. of Animals	Control	600ppm	1200ppm	2400ppm
			40 (%)	40 (%)	44 (%)	38 (%)
skin/app	nodule		3 ( 8)	5 ( 13)	4 ( 9)	4 ( 11)
subcutis	jaundice		0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)
	mass		10 ( 25)	7 ( 18)	8 ( 18)	5 ( 13)
lung	white zone		1 ( 3)	0 ( 0)	2 ( 5)	0 ( 0)
	brown zone		0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)
	nodule		0 ( 0)	0 ( 0)	3 ( 7)	0 ( 0)
spleen	enlarged		1 ( 3)	0 ( 0)	1 ( 2)	0 ( 0)
	nodule		1 ( 3)	0 ( 0)	0 ( 0)	0 ( 0)
	deformed		1 ( 3)	0 ( 0)	0 ( 0)	0 ( 0)
heart	white zone		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 3)
small intes	nodule		1 ( 3)	0 ( 0)	0 ( 0)	0 ( 0)
liver	red zone		0 ( 0)	1 ( 3)	0 ( 0)	1 ( 3)
	nodule		1 ( 3)	2 ( 5)	2 ( 5)	2 ( 5)
	cyst		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 3)
	rough		0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)
	herniation		1 ( 3)	4 ( 10)	6 ( 14)	4 ( 11)
kidney	enlarged		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 3)
	granular		5 ( 13)	20 ( 50)	28 ( 64)	24 ( 63)
urin bladd	urine:marked retention		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 3)
pituitary	enlarged		0 ( 0)	1 ( 3)	4 ( 9)	1 ( 3)
	red zone		1 ( 3)	3 ( 8)	0 ( 0)	1 ( 3)
	nodule		3 ( 8)	2 ( 5)	2 ( 5)	2 ( 5)

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

GROSS FINDINGS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 2

Organ	Findings	Group Name NO. of Animals	Control		600ppm		1200ppm		2400ppm	
			40	(%)	40	(%)	44	(%)	38	(%)
thyroid	enlarged		3	( 8)	2	( 5)	0	( 0)	4	( 11)
	nodule		0	( 0)	1	( 3)	0	( 0)	0	( 0)
adrenal	enlarged		0	( 0)	0	( 0)	2	( 5)	0	( 0)
testis	nodule		37	( 93)	40	(100)	35	( 80)	38	(100)
epididymis	nodule		0	( 0)	1	( 3)	0	( 0)	0	( 0)
prostate	nodule		0	( 0)	1	( 3)	0	( 0)	0	( 0)
prep/cli gl	nodule		1	( 3)	1	( 3)	0	( 0)	0	( 0)
eye	turbid		1	( 3)	0	( 0)	0	( 0)	0	( 0)
	white		2	( 5)	5	( 13)	2	( 5)	2	( 5)
Zymbal gl	nodule		0	( 0)	0	( 0)	1	( 2)	2	( 5)
muscle	nodule		0	( 0)	0	( 0)	1	( 2)	1	( 3)
bone	nodule		1	( 3)	0	( 0)	1	( 2)	0	( 0)
peritoneum	nodule		1	( 3)	1	( 3)	2	( 5)	0	( 0)
retroperit	mass		1	( 3)	0	( 0)	0	( 0)	0	( 0)
abdominal c	ascites		1	( 3)	0	( 0)	0	( 0)	0	( 0)
thoracic ca	pleural fluid		0	( 0)	2	( 5)	0	( 0)	0	( 0)
other	ear:nodule		0	( 0)	1	( 3)	0	( 0)	0	( 0)
	upper jaw:nodule		0	( 0)	1	( 3)	0	( 0)	0	( 0)

## APPENDIX G 4

GROSS FINDINGS : SUMMARY, RAT : FEMALE

ALL ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

GROSS FINDINGS (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 4

Organ	Findings	Group Name NO. of Animals	Control	600ppm	1200ppm	2400ppm
			50 (%)	50 (%)	50 (%)	50 (%)
skin/app	nodule		1 ( 2)	2 ( 4)	1 ( 2)	1 ( 2)
subcutis	hemorrhage		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)
	jaundice		1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)
	dry		0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)
	mass		9 ( 18)	12 ( 24)	15 ( 30)	5 ( 10)
brown fat	nodule		0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)
lung	white zone		0 ( 0)	2 ( 4)	0 ( 0)	0 ( 0)
	red zone		0 ( 0)	2 ( 4)	0 ( 0)	0 ( 0)
	brown zone		1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)
	edema		1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)
	nodule		0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)
lymph node	enlarged		3 ( 6)	0 ( 0)	0 ( 0)	1 ( 2)
thymus	enlarged		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)
spleen	enlarged		3 ( 6)	4 ( 8)	3 ( 6)	4 ( 8)
heart	white zone		1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)
forestomach	ulcer		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)
gl stomach	ulcer		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)
liver	white patch/zone		0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)
	red zone		0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)
	nodule		2 ( 4)	2 ( 4)	2 ( 4)	2 ( 4)
	deformed		0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)
	rough		5 ( 10)	0 ( 0)	1 ( 2)	0 ( 0)

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

GROSS FINDINGS (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 5

Organ	Findings	Group Name NO. of Animals	Control	600ppm	1200ppm	2400ppm
			50 (%)	50 (%)	50 (%)	50 (%)
liver	nodular		1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)
	herniation		11 ( 22)	8 ( 16)	8 ( 16)	7 ( 14)
kidney	cyst		0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)
	deformed		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)
	granular		5 ( 10)	3 ( 6)	6 ( 12)	3 ( 6)
pituitary	enlarged		12 ( 24)	9 ( 18)	9 ( 18)	8 ( 16)
	red zone		7 ( 14)	10 ( 20)	6 ( 12)	9 ( 18)
	nodule		2 ( 4)	5 ( 10)	8 ( 16)	4 ( 8)
	cyst		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)
thyroid	enlarged		2 ( 4)	2 ( 4)	2 ( 4)	1 ( 2)
	nodule		1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)
adrenal	enlarged		0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)
ovary	enlarged		0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)
	cyst		3 ( 6)	1 ( 2)	1 ( 2)	1 ( 2)
uterus	nodule		4 ( 8)	5 ( 10)	2 ( 4)	9 ( 18)
vagina	fluid		0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)
prep/cli gl	nodule		1 ( 2)	1 ( 2)	0 ( 0)	1 ( 2)
brain	swollen		0 ( 0)	2 ( 4)	0 ( 0)	0 ( 0)
	red zone		0 ( 0)	1 ( 2)	0 ( 0)	1 ( 2)
	nodule		0 ( 0)	0 ( 0)	1 ( 2)	1 ( 2)
spinal cord	swollen		0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)
	red zone		0 ( 0)	1 ( 2)	0 ( 0)	1 ( 2)

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

GROSS FINDINGS (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 6

Organ	Findings	Group Name NO. of Animals	Control		600ppm		1200ppm		2400ppm	
			50	(%)	50	(%)	50	(%)	50	(%)
eye	white		2	( 4)	4	( 8)	3	( 6)	4	( 8)
	red		0	( 0)	1	( 2)	0	( 0)	0	( 0)
Zymbal gl	nodule		0	( 0)	1	( 2)	0	( 0)	0	( 0)
muscle	nodule		0	( 0)	0	( 0)	1	( 2)	0	( 0)
pleura	mass		0	( 0)	0	( 0)	0	( 0)	1	( 2)
mediastinum	mass		1	( 2)	0	( 0)	0	( 0)	0	( 0)
thoracic ca	pleural fluid		1	( 2)	0	( 0)	0	( 0)	0	( 0)
other	nodule		1	( 2)	0	( 0)	0	( 0)	0	( 0)
	lower jaw:nodule		0	( 0)	0	( 0)	0	( 0)	1	( 2)
whole body	anemic		0	( 0)	0	( 0)	0	( 0)	2	( 4)

(HPT080)

BAIS 4

## APPENDIX G 5

GROSS FINDINGS : SUMMARY, RAT : FEMALE

DEAD AND MORIBUND ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

GROSS FINDINGS (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 4

Organ	Findings	Group Name NO. of Animals	Control	600ppm	1200ppm	2400ppm
			8 (%)	6 (%)	3 (%)	14 (%)
subcutis	hemorrhage		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 7)
	jaundice		1 ( 13)	0 ( 0)	0 ( 0)	0 ( 0)
	dry		0 ( 0)	1 ( 17)	0 ( 0)	0 ( 0)
	mass		2 ( 25)	3 ( 50)	0 ( 0)	2 ( 14)
lung	red zone		0 ( 0)	2 ( 33)	0 ( 0)	0 ( 0)
	brown zone		1 ( 13)	0 ( 0)	0 ( 0)	0 ( 0)
	edema		1 ( 13)	0 ( 0)	0 ( 0)	0 ( 0)
lymph node	enlarged		2 ( 25)	0 ( 0)	0 ( 0)	1 ( 7)
thymus	enlarged		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 7)
spleen	enlarged		3 ( 38)	1 ( 17)	1 ( 33)	4 ( 29)
heart	white zone		1 ( 13)	0 ( 0)	0 ( 0)	0 ( 0)
forestomach	ulcer		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 7)
gl stomach	ulcer		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 7)
liver	red zone		0 ( 0)	1 ( 17)	0 ( 0)	0 ( 0)
	nodule		0 ( 0)	1 ( 17)	0 ( 0)	0 ( 0)
	deformed		0 ( 0)	1 ( 17)	0 ( 0)	0 ( 0)
	rough		2 ( 25)	0 ( 0)	0 ( 0)	0 ( 0)
	herniation		1 ( 13)	0 ( 0)	1 ( 33)	1 ( 7)
kidney	cyst		0 ( 0)	0 ( 0)	1 ( 33)	0 ( 0)
	deformed		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 7)
pituitary	enlarged		2 ( 25)	3 ( 50)	1 ( 33)	5 ( 36)
uterus	nodule		0 ( 0)	0 ( 0)	0 ( 0)	3 ( 21)



STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

GROSS FINDINGS (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 5

Organ	Findings	Group Name NO. of Animals	Control		600ppm		1200ppm		2400ppm	
			8	(%)	6	(%)	3	(%)	14	(%)
vagina	fluid		0	( 0)	1	( 17)	0	( 0)	0	( 0)
brain	swollen		0	( 0)	2	( 33)	0	( 0)	0	( 0)
	red zone		0	( 0)	1	( 17)	0	( 0)	1	( 7)
	nodule		0	( 0)	0	( 0)	1	( 33)	0	( 0)
spinal cord	swollen		0	( 0)	1	( 17)	0	( 0)	0	( 0)
	red zone		0	( 0)	1	( 17)	0	( 0)	1	( 7)
eye	white		0	( 0)	0	( 0)	0	( 0)	1	( 7)
	red		0	( 0)	1	( 17)	0	( 0)	0	( 0)
pleura	mass		0	( 0)	0	( 0)	0	( 0)	1	( 7)
thoracic ca	pleural fluid		1	( 13)	0	( 0)	0	( 0)	0	( 0)
other	nodule		1	( 13)	0	( 0)	0	( 0)	0	( 0)
whole body	anemic		0	( 0)	0	( 0)	0	( 0)	2	( 14)

## APPENDIX G 6

GROSS FINDINGS : SUMMARY, RAT : FEMALE

SACRIFICED ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

GROSS FINDINGS (SUMMARY)  
 SACRIFICED ANIMALS (105W)

PAGE : 3

Organ	Findings	Group Name NO. of Animals	Control	600ppm	1200ppm	2400ppm
			42 (%)	44 (%)	47 (%)	36 (%)
skin/app	nodule		1 ( 2)	2 ( 5)	1 ( 2)	1 ( 3)
subcutis	mass		7 ( 17)	9 ( 20)	15 ( 32)	3 ( 8)
brown fat	nodule		0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)
lung	white zone		0 ( 0)	2 ( 5)	0 ( 0)	0 ( 0)
	nodule		0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)
lymph node	enlarged		1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)
spleen	enlarged		0 ( 0)	3 ( 7)	2 ( 4)	0 ( 0)
liver	white patch/zone		0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)
	nodule		2 ( 5)	1 ( 2)	2 ( 4)	2 ( 6)
	rough		3 ( 7)	0 ( 0)	1 ( 2)	0 ( 0)
	nodular		1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)
	herniation		10 ( 24)	8 ( 18)	7 ( 15)	6 ( 17)
kidney	granular		5 ( 12)	3 ( 7)	6 ( 13)	3 ( 8)
pituitary	enlarged		10 ( 24)	6 ( 14)	8 ( 17)	3 ( 8)
	red zone		7 ( 17)	10 ( 23)	6 ( 13)	9 ( 25)
	nodule		2 ( 5)	5 ( 11)	8 ( 17)	4 ( 11)
	cyst		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 3)
thyroid	enlarged		2 ( 5)	2 ( 5)	2 ( 4)	1 ( 3)
	nodule		1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)
adrenal	enlarged		0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)
ovary	enlarged		0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)
	cyst		3 ( 7)	1 ( 2)	1 ( 2)	1 ( 3)

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

GROSS FINDINGS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 4

Organ	Findings	Group Name NO. of Animals	Control 42 (%)	600ppm 44 (%)	1200ppm 47 (%)	2400ppm 36 (%)
uterus	nodule		4 ( 10)	5 ( 11)	2 ( 4)	6 ( 17)
prep/cli gl	nodule		1 ( 2)	1 ( 2)	0 ( 0)	1 ( 3)
brain	nodule		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 3)
eye	white		2 ( 5)	4 ( 9)	3 ( 6)	3 ( 8)
Zymbal gl	nodule		0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)
muscle	nodule		0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)
mediastinum	mass		1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)
other	lower jaw:nodule		0 ( 0)	0 ( 0)	0 ( 0)	1 ( 3)

(HPT080)

BAIS 4

## APPENDIX H 1

ORGAN WEIGHT, ABSOLUTE : SUMMARY, RAT : MALE  
(2-YEAR STUDY)

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE  
 UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)  
 SURVIVAL ANIMALS (105W)

PAGE : 1

Group Name	NO. of Animals	Body Weight		ADRENALS		TESTES		HEART		LUNGS		KIDNEYS	
Control	40	379±	44	0.080±	0.011	3.942±	1.405	1.246±	0.098	1.487±	0.133	2.619±	0.288
600ppm	40	383±	37	0.079±	0.012	4.754±	1.396	1.244±	0.128	1.512±	0.150	2.757±	0.244
1200ppm	44	371±	32	0.090±	0.041	4.284±	1.836	1.264±	0.107	1.565±	0.294	2.864±	0.310**
2400ppm	38	347±	31**	0.086±	0.031	4.816±	1.517*	1.222±	0.103	1.498±	0.188	2.713±	0.288

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

Test of Dunnett

(HCL040)

BAIS 4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE  
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)  
SURVIVAL ANIMALS (105W)

PAGE : 2

Group Name	NO. of Animals	SPLEEN		LIVER		BRAIN	
Control	40	1.339±	1.972	10.838±	1.751	2.025±	0.048
600ppm	40	1.067±	0.314	11.435±	1.443	2.025±	0.052
1200ppm	44	1.276±	1.669	12.353±	1.854**	2.026±	0.080
2400ppm	38	1.313±	2.063	11.976±	2.211*	1.974±	0.057**

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

Test of Dunnett

(HCL040)

BAIS 4

## APPENDIX H 2

ORGAN WEIGHT, ABSOLUTE : SUMMARY, RAT : FEMALE  
(2-YEAR STUDY)



STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE  
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)  
SURVIVAL ANIMALS (105W)

PAGE : 3

Group Name	NO. of Animals	Body Weight		ADRENALS		OVARIES		HEART		LUNGS		KIDNEYS	
Control	42	263±	44	0.082±	0.015	0.218±	0.396	0.932±	0.121	1.066±	0.144	1.780±	0.196
600ppm	44	263±	34	0.089±	0.063	0.158±	0.113	0.937±	0.097	1.087±	0.209	1.772±	0.207
1200ppm	47	273±	30	0.083±	0.011	0.137±	0.053	0.945±	0.088	1.083±	0.110	1.798±	0.175
2400ppm	36	244±	25*	0.081±	0.008	0.135±	0.027	0.906±	0.071	1.077±	0.082	1.726±	0.131

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

Test of Dunnett

(HCL040)

BAIS 4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE  
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)  
SURVIVAL ANIMALS (105W)

PAGE : 4

Group Name	NO. of Animals	SPLEEN		LIVER		BRAIN	
Control	42	0.582±	0.230	6.969±	1.802	1.851±	0.052
600ppm	44	0.816±	1.065	7.024±	1.149	1.859±	0.062
1200ppm	47	0.827±	1.316	7.348±	1.247	1.855±	0.066
2400ppm	36	0.566±	0.178	6.654±	0.769	1.789±	0.052**

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

Test of Dunnett

(HCL040)

BAIS 4

## APPENDIX I 1

ORGAN WEIGHT, RELATIVE : SUMMARY, RAT : MALE

(2-YEAR STUDY)

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE  
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)  
SURVIVAL ANIMALS (105W)

PAGE : 1

Group Name	NO. of Animals	Body Weight (g)	ADRENALS	TESTES	HEART	LUNGS	KIDNEYS
Control	40	379± 44	0.021± 0.005	1.038± 0.340	0.332± 0.039	0.399± 0.075	0.705± 0.156
600ppm	40	383± 37	0.021± 0.003	1.243± 0.342	0.327± 0.036	0.398± 0.050	0.725± 0.086
1200ppm	44	371± 32	0.025± 0.014	1.147± 0.487	0.343± 0.043	0.425± 0.093	0.776± 0.097**
2400ppm	38	347± 31**	0.025± 0.009	1.379± 0.420**	0.354± 0.036*	0.435± 0.075**	0.784± 0.083**

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

Test of Dunnett

(HCL042)

BAIS 4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE  
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)  
SURVIVAL ANIMALS (105W)

PAGE : 2

Group Name	NO. of Animals	SPLEEN	LIVER	BRAIN
Control	40	0.363± 0.592	2.882± 0.523	0.543± 0.078
600ppm	40	0.279± 0.079	2.984± 0.226	0.534± 0.059
1200ppm	44	0.348± 0.480	3.341± 0.528**	0.550± 0.050
2400ppm	38	0.392± 0.689	3.452± 0.618**	0.573± 0.055**

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

Test of Dunnett

(HCL042)

BAIS 4

## APPENDIX I 2

ORGAN WEIGHT, RELATIVE : SUMMARY, RAT : FEMALE

(2-YEAR STUDY)

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE  
 UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)  
 SURVIVAL ANIMALS (105W)

PAGE : 3

Group Name	NO. of Animals	Body Weight (g)	ADRENALS	OVARIES	HEART	LUNGS	KIDNEYS
Control	42	263± 44	0.032± 0.007	0.079± 0.124	0.359± 0.039	0.414± 0.069	0.689± 0.096
600ppm	44	263± 34	0.034± 0.022	0.060± 0.042	0.362± 0.066	0.423± 0.120	0.682± 0.104
1200ppm	47	273± 30	0.031± 0.005	0.051± 0.022	0.349± 0.037	0.400± 0.047	0.664± 0.071
2400ppm	36	244± 25*	0.033± 0.004*	0.055± 0.010**	0.374± 0.047	0.446± 0.064**	0.713± 0.090

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

Test of Dunnett

(HCL042)

BAIS 4

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE  
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)  
SURVIVAL ANIMALS (105W)

PAGE : 4

Group Name	NO. of Animals	SPLEEN	LIVER	BRAIN
Control	42	0.225± 0.090	2.670± 0.609	0.723± 0.119
600ppm	44	0.340± 0.532	2.697± 0.503	0.720± 0.112
1200ppm	47	0.307± 0.491	2.697± 0.352	0.687± 0.070
2400ppm	36	0.232± 0.066*	2.729± 0.220**	0.741± 0.090

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

(HCL042)

BAIS 4



## APPENDIX J 1

HISTOPATHOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

RAT : MALE : ALL ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 ALL ANIMALS (0-105W)

PAGE : 1

Organ	Findings	Group Name No. of Animals on Study				Control				600ppm				1200ppm				2400ppm			
		50				50				50				50							
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)			
{Integumentary system/appandage}																					
skin/app		<50>				<50>				<50>				<50>							
	hyperplasia:epidermis	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)			
	scar:dermis	1 ( 2)	1 ( 2)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)			
	epidermal cyst	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 4)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)			
subcutis		<50>				<50>				<50>				<50>							
	hemorrhage	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)			
{Respiratory system}																					
nasal cavit		<50>				<50>				<50>				<50>							
	thrombus	0 ( 0)	1 ( 2)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	4 ( 8)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)			
	mineralization	32 ( 64)	0 ( 0)	0 ( 0)	0 ( 0)	25 ( 50)	0 ( 0)	0 ( 0)	0 ( 0)	37 ( 74)	0 ( 0)	0 ( 0)	0 ( 0)	21 ( 42)	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

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 ALL ANIMALS (0-105W)

PAGE : 2

Organ	Findings	Control				600ppm				1200ppm				2400ppm			
		50				50				50				50			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}																	
nasal cavit		<50>				<50>				<50>				<50>			
	eosinophilic change:olfactory epithelium	18 ( 36)	20 ( 40)	6 ( 12)	0 ( 0)	19 ( 38)	15 ( 30)	4 ( 8)	0 ( 0)	27 ( 54)	11 ( 22)	3 ( 6)	0 ( 0)	19 ( 38)	16 ( 32)	2 ( 4)	0 ( 0)
	eosinophilic change:respiratory epithelium	14 ( 28)	3 ( 6)	0 ( 0)	0 ( 0)	16 ( 32)	3 ( 6)	0 ( 0)	0 ( 0)	22 ( 44)	3 ( 6)	0 ( 0)	0 ( 0)	16 ( 32)	9 ( 18)	0 ( 0)	0 ( 0)
	inflammation:foreign body	9 ( 18)	5 ( 10)	0 ( 0)	0 ( 0)	9 ( 18)	0 ( 0)	1 ( 2)	0 ( 0)	7 ( 14)	4 ( 8)	0 ( 0)	0 ( 0)	11 ( 22)	5 ( 10)	1 ( 2)	0 ( 0)
	inflammation:respiratory epithelium	4 ( 8)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 4)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 4)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)
	respiratory metaplasia:olfactory epithelium	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
larynx		<50>				<50>				<50>				<50>			
	inflammation	18 ( 36)	3 ( 6)	0 ( 0)	0 ( 0)	18 ( 36)	1 ( 2)	0 ( 0)	0 ( 0)	11 ( 22)	1 ( 2)	0 ( 0)	0 ( 0)	13 ( 26)	3 ( 6)	0 ( 0)	0 ( 0)
lung		<50>				<50>				<50>				<50>			
	congestion	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 4)	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  
 Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 ALL ANIMALS (0-105W)

PAGE : 3

Organ_____	Findings_____	Group Name	Control				600ppm				1200ppm				2400ppm			
		No. of Animals on Study	50				50				50				50			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}																		
lung			<50>				<50>				<50>				<50>			
	hemorrhage		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	edema		0	2	0	0	0	1	0	0	0	0	0	0	0	1	1	0
			( 0)	( 4)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 2)	( 0)
	inflammation		0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)
	perivascular inflammation		0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
foreign body granuloma		2	1	0	0	1	1	0	0	0	0	0	0	1	0	0	0	
		( 4)	( 2)	( 0)	( 0)	( 2)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	
osseous metaplasia		1	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	
		( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 6)	( 0)	( 0)	( 0)	
accumulation of foamy cells		2	0	0	0	0	0	0	0	6	0	0	0	5	0	0	0	
		( 4)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 12)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	
bronchopneumonia		0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 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

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 ALL ANIMALS (0-105W)

PAGE : 4

		Group Name	Control				600ppm				1200ppm				2400ppm			
		No. of Animals on Study	50				50				50				50			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Organ	Findings		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}																		
lung			<50>				<50>				<50>				<50>			
	bronchiolar-alveolar cell hyperplasia		3	0	0	0	2	1	0	0	6	2	0	0	6	0	0	0
			( 6 )	( 0 )	( 0 )	( 0 )	( 4 )	( 2 )	( 0 )	( 0 )	( 12 )	( 4 )	( 0 )	( 0 )	( 12 )	( 0 )	( 0 )	( 0 )
{Hematopoietic system}																		
bone marrow			<50>				<50>				<50>				<50>			
	granulation		0	0	0	0	1	0	0	0	0	1	0	0	1	1	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 2 )	( 2 )	( 0 )	( 0 )
lymph node			<50>				<50>				<50>				<50>			
	lymphadenitis		1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
			( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )
spleen			<50>				<50>				<50>				<50>			
	deposit of hemosiderin		1	1	1	0	1	1	0	0	1	4	0	0	1	5	2	0
			( 2 )	( 2 )	( 2 )	( 0 )	( 2 )	( 2 )	( 0 )	( 0 )	( 2 )	( 8 )	( 0 )	( 0 )	( 2 )	( 10 )	( 4 )	( 0 )
	fibrosis		2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
			( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )
	extramedullary hematopoiesis		3	1	0	0	1	2	1	0	3	1	1	0	1	2	0	0
			( 6 )	( 2 )	( 0 )	( 0 )	( 2 )	( 4 )	( 2 )	( 0 )	( 6 )	( 2 )	( 2 )	( 0 )	( 2 )	( 4 )	( 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  
 Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 ALL ANIMALS (0-105W)

PAGE : 5

Organ	Findings	Group Name No. of Animals on Study				Control 50				600ppm 50				1200ppm 50				2400ppm 50			
		Grade																			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Hematopoietic system}																					
spleen		<50>				<50>				<50>				<50>				<50>			
	follicular hyperplasia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )
	capsule hyperplasia	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
{Circulatory system}																					
heart		<50>				<50>				<50>				<50>				<50>			
	thrombus	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
		( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	granulation	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )
	myocardial fibrosis	36	6	0	0	40	6	0	0	40	4	0	0	40	4	0	0	37	3	0	0
		( 72 )	( 12 )	( 0 )	( 0 )	( 80 )	( 12 )	( 0 )	( 0 )	( 80 )	( 8 )	( 0 )	( 0 )	( 80 )	( 8 )	( 0 )	( 0 )	( 74 )	( 6 )	( 0 )	( 0 )
	endomyocardial fibrosis	0	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	3	1	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 6 )	( 2 )	( 0 )	( 0 )
artery/aort		<50>				<50>				<50>				<50>				<50>			
	arteritis	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 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

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUM)  
 ALL ANIMALS (0-105W)

PAGE : 6

Organ	Findings	Group Name No. of Animals on Study Grade	Control 50				600ppm 50				1200ppm 50				2400ppm 50			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Digestive system}																		
tongue			<50>				<50>				<50>				<50>			
	arteritis		1	0	0	0	4	0	0	0	4	0	0	0	3	0	0	0
			( 2 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )
stomach			<50>				<50>				<50>				<50>			
	inflammatory infiltration		0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	basal cell hyperplasia		0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	epidermal cyst		0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )
	ulcer:forestomach		0	4	0	0	0	3	0	0	0	2	0	0	1	0	0	0
			( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )
	hyperplasia:forestomach		1	2	0	0	0	3	0	0	2	1	0	0	1	4	0	0
			( 2 )	( 4 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 4 )	( 2 )	( 0 )	( 0 )	( 2 )	( 8 )	( 0 )	( 0 )
	erosion:glandular stomach		5	1	0	0	3	0	0	0	6	1	0	0	1	2	0	0
			( 10 )	( 2 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )	( 12 )	( 2 )	( 0 )	( 0 )	( 2 )	( 4 )	( 0 )	( 0 )
small intes			<50>				<50>				<50>				<50>			
	erosion		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 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  
 Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 ALL ANIMALS (0-105W)

PAGE : 7

Organ	Findings	Control				600ppm				1200ppm				2400ppm			
		50				50				50				50			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Digestive system}																	
liver																	
	herniation	<50>				<50>				<50>				<50>			
		2	0	0	0	6	0	0	0	9	0	0	0	5	0	0	0
		( 4)	( 0)	( 0)	( 0)	( 12)	( 0)	( 0)	( 0)	( 18)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)
	necrosis:central	0	0	0	0	0	2	0	0	1	1	0	0	0	1	1	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 2)	( 2)	( 0)	( 0)	( 0)	( 2)	( 2)	( 0)
	necrosis:focal	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	fatty change	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)
	granulation	0	4	0	0	1	0	0	0	1	0	0	0	0	0	0	0
		( 0)	( 8)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	clear cell focus	7	3	0	0	8	0	0	0	9	3	0	0	8	1	0	0
		( 14)	( 6)	( 0)	( 0)	( 16)	( 0)	( 0)	( 0)	( 18)	( 6)	( 0)	( 0)	( 16)	( 2)	( 0)	( 0)
	acidophilic cell focus	3	0	0	0	7	0	0	0	8	1	0	0	8	3	0	0 *
		( 6)	( 0)	( 0)	( 0)	( 14)	( 0)	( 0)	( 0)	( 16)	( 2)	( 0)	( 0)	( 16)	( 6)	( 0)	( 0)
	basophilic cell focus	9	2	0	0	6	3	0	0	8	4	0	0	9	4	0	0
		( 18)	( 4)	( 0)	( 0)	( 12)	( 6)	( 0)	( 0)	( 16)	( 8)	( 0)	( 0)	( 18)	( 8)	( 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 ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square



STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
ALL ANIMALS (0-105W)

PAGE : 8

Organ	Findings	Control				600ppm				1200ppm				2400ppm			
		50				50				50				50			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Digestive system}																	
liver		<50>				<50>				<50>				<50>			
	vacuolated cell focus	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
		( 4)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)
	spongiosis hepatitis	2	0	0	0	3	2	0	0	9	1	0	0 *	13	5	0	0 **
		( 4)	( 0)	( 0)	( 0)	( 6)	( 4)	( 0)	( 0)	( 18)	( 2)	( 0)	( 0)	( 26)	( 10)	( 0)	( 0)
	bile duct hyperplasia	5	44	0	0	6	44	0	0	4	45	0	0	4	44	0	0
		( 10)	( 88)	( 0)	( 0)	( 12)	( 88)	( 0)	( 0)	( 8)	( 90)	( 0)	( 0)	( 8)	( 88)	( 0)	( 0)
	cholangiofibrosis	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
pancreas		<50>				<50>				<50>				<50>			
	atrophy	8	2	1	0	13	0	1	0	10	1	0	0	5	1	0	0
		( 16)	( 4)	( 2)	( 0)	( 26)	( 0)	( 2)	( 0)	( 20)	( 2)	( 0)	( 0)	( 10)	( 2)	( 0)	( 0)
{Urinary system}																	
kidney		<50>				<50>				<50>				<50>			
	deposit of hemosiderin	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0
		( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 2)	( 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  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 ALL ANIMALS (0-105W)

PAGE : 9

Organ	Findings	Control				600ppm				1200ppm				2400ppm			
		50				50				50				50			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Urinary system}																	
kidney																	
	inflammation	<50>				<50>				<50>				<50>			
		0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	chronic nephropathy	9	23	15	1	6	20	20	2	4	15	24	6 *	4	15	24	5
		( 18)	( 46)	( 30)	( 2)	( 12)	( 40)	( 40)	( 4)	( 8)	( 30)	( 48)	( 12)	( 8)	( 30)	( 48)	( 10)
	mineralization:papilla	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)
	urothelial hyperplasia:pelvis	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
{Endocrine system}																	
pituitary																	
	angiectasis	<50>				<49>				<49>				<50>			
		0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)
	cyst	5	0	0	0	4	0	0	0	2	0	0	0	1	0	0	0
		( 10)	( 0)	( 0)	( 0)	( 8)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)
	hyperplasia	11	1	0	0	11	0	0	0	6	2	0	0	9	1	0	0
		( 22)	( 2)	( 0)	( 0)	( 22)	( 0)	( 0)	( 0)	( 12)	( 4)	( 0)	( 0)	( 18)	( 2)	( 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

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUM)  
 ALL ANIMALS (0-105W)

PAGE : 10

Organ	Findings	Group Name	Control				600ppm				1200ppm				2400ppm			
		No. of Animals on Study	50				50				50				50			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
(Endocrine system)																		
pituitary			<50>				<49>				<49>				<50>			
	Rathke pouch		2	0	0	0	2	0	0	0	4	0	0	0	1	0	0	0
			( 4 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )
	focal hypertrophy		2	0	0	0	1	0	0	0	3	0	0	0	3	0	0	0
			( 4 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )
thyroid			<50>				<50>				<50>				<50>			
	C-cell hyperplasia		13	1	0	0	11	1	0	0	6	1	0	0	5	0	0	0
			( 26 )	( 2 )	( 0 )	( 0 )	( 22 )	( 2 )	( 0 )	( 0 )	( 12 )	( 2 )	( 0 )	( 0 )	( 10 )	( 0 )	( 0 )	( 0 )
	focal follicular cell hyperplasia		0	0	0	0	1	0	0	0	2	1	0	0	2	5	0	0 *
			( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 4 )	( 2 )	( 0 )	( 0 )	( 4 )	( 10 )	( 0 )	( 0 )
adrenal			<50>				<50>				<50>				<50>			
	cyst		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	hyperplasia:cortical cell		3	0	0	0	1	0	0	0	3	2	0	0	3	0	0	0
			( 6 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 6 )	( 4 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )
	hyperplasia:medulla		2	2	0	0	6	1	0	0	5	2	0	0	4	1	0	0
			( 4 )	( 4 )	( 0 )	( 0 )	( 12 )	( 2 )	( 0 )	( 0 )	( 10 )	( 4 )	( 0 )	( 0 )	( 8 )	( 2 )	( 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																		

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUM)  
 ALL ANIMALS (0-105W)

PAGE : 11

Organ	Findings	Group Name No. of Animals on Study				Control 50				600ppm 50				1200ppm 50				2400ppm 50			
		Grade																			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Endocrine system}																					
adrenal	focal fatty change:cortex	<50>				<50>				<50>				<50>				<50>			
		5	1	0	0	7	0	0	0	5	3	0	0	7	0	0	0	7	0	0	0
		( 10)	( 2)	( 0)	( 0)	( 14)	( 0)	( 0)	( 0)	( 10)	( 6)	( 0)	( 0)	( 14)	( 0)	( 0)	( 0)	( 14)	( 0)	( 0)	( 0)
{Reproductive system}																					
testis	atrophy	<50>				<50>				<50>				<50>				<50>			
		1	1	46	0	0	1	49	0	0	0	48	0	1	2	45	0	1	2	45	0
		( 2)	( 2)	( 92)	( 0)	( 0)	( 2)	( 98)	( 0)	( 0)	( 0)	( 96)	( 0)	( 2)	( 4)	( 90)	( 0)	( 2)	( 4)	( 90)	( 0)
	arteritis	<50>				<50>				<50>				<50>				<50>			
		2	1	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0
		( 4)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 4)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	interstitial cell hyperplasia	<50>				<50>				<50>				<50>				<50>			
		1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
		( 2)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)
epididymis	hemorrhage	<50>				<50>				<50>				<50>				<50>			
		0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
prostate	inflammation	<50>				<50>				<50>				<50>				<50>			
		7	5	0	0	6	5	0	0	11	5	0	0	6	4	1	0	6	4	1	0
		( 14)	( 10)	( 0)	( 0)	( 12)	( 10)	( 0)	( 0)	( 22)	( 10)	( 0)	( 0)	( 12)	( 8)	( 2)	( 0)	( 12)	( 8)	( 2)	( 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  
 Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 ALL ANIMALS (0-105W)

PAGE : 12

Organ	Findings	Group Name No. of Animals on Study Grade	Control				600ppm				1200ppm				2400ppm			
			50				50				50				50			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Reproductive system}																		
prostate	hyperplasia		<50>				<50>				<50>				<50>			
			10	0	0	0	4	1	0	0	14	1	0	0	11	0	0	0
			( 20)	( 0)	( 0)	( 0)	( 8)	( 2)	( 0)	( 0)	( 28)	( 2)	( 0)	( 0)	( 22)	( 0)	( 0)	( 0)
mammary gl	galactoceles		<50>				<50>				<50>				<50>			
			0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)
{Nervous system}																		
brain	hemorrhage		<50>				<50>				<50>				<50>			
			0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	necrosis:focal		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	degeneration:granular cell		0	0	0	0	0	0	0	0	0	0	0	0	1	1	4	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 2)	( 8)	( 0)
spinal cord	gliosis		<50>				<50>				<50>				<50>			
			0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 2)	( 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  
 Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 ALL ANIMALS (0-105W)

PAGE : 13

		Group Name	Control				600ppm				1200ppm				2400ppm			
		No. of Animals on Study	50				50				50				50			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
(Special sense organs/appendage)																		
eye			<50>				<50>				<50>				<50>			
	cataract		2	0	0	0	1	4	0	0	0	3	0	0	1	2	0	0
			( 4 )	( 0 )	( 0 )	( 0 )	( 2 )	( 8 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 2 )	( 4 )	( 0 )	( 0 )
	retinal atrophy		1	1	2	0	0	0	5	0	0	1	3	0	0	1	1	0
			( 2 )	( 2 )	( 4 )	( 0 )	( 0 )	( 0 )	( 10 )	( 0 )	( 0 )	( 2 )	( 6 )	( 0 )	( 0 )	( 2 )	( 2 )	( 0 )
	keratitis		1	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0
			( 2 )	( 2 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	iritis		0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 2 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
Harder gl			<50>				<50>				<50>				<50>			
	degeneration		0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )
	lymphocytic infiltration		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	granulation		2	0	0	0	1	0	0	0	1	0	0	0	2	0	0	0
			( 4 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )
Zymbal gl			<50>				<50>				<50>				<50>			
	inflammation		0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 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

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUM)  
 ALL ANIMALS (0-105W)

PAGE : 14

Organ	Findings	Control				600ppm				1200ppm				2400ppm			
		No. of Animals on Study				No. of Animals on Study				No. of Animals on Study				No. of Animals on Study			
		Grade				Grade				Grade				Grade			

{Musculoskeletal system}

muscle		<50>				<50>				<50>				<50>			
	atrophy	2	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
		( 4 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 2 )	( 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  
 Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

(HPT150)

BAIS4

## APPENDIX J 2

HISTOPATHOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

RAT : MALE : DEAD AND MORIBUND ANIMALS

(2-YEAR STUDY)



STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 1

Organ	Findings	Group Name No. of Animals on Study Grade	Control				600ppm				1200ppm				2400ppm			
			10				10				6				12			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Integumentary system/appandage}																		
skin/app	scar:dermis		<10>				<10>				< 6>				<12>			
			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)	( 0)	( 0)	( 0)	( 0)
{Respiratory system}																		
nasal cavit	thrombus		<10>				<10>				< 6>				<12>			
			0	1	1	0	0	0	1	0	0	3	0	0	0	0	0	0
			( 0)	( 10)	( 10)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 50)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	mineralization		6	0	0	0	6	0	0	0	4	0	0	0	2	0	0	0
			( 60)	( 0)	( 0)	( 0)	( 60)	( 0)	( 0)	( 0)	( 67)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)
	eosinophilic change:olfactory epithelium		2	3	1	0	3	5	0	0	2	2	0	0	4	2	0	0
			( 20)	( 30)	( 10)	( 0)	( 30)	( 50)	( 0)	( 0)	( 33)	( 33)	( 0)	( 0)	( 33)	( 17)	( 0)	( 0)
	eosinophilic change:respiratory epithelium		0	0	0	0	5	0	0	0 *	3	0	0	0	1	1	0	0
			( 0)	( 0)	( 0)	( 0)	( 50)	( 0)	( 0)	( 0)	( 50)	( 0)	( 0)	( 0)	( 8)	( 8)	( 0)	( 0)
	inflammation:foreign body		2	1	0	0	3	0	0	0	0	1	0	0	4	0	1	0
			( 20)	( 10)	( 0)	( 0)	( 30)	( 0)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 33)	( 0)	( 8)	( 0)
	inflammation:respiratory epithelium		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)	( 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 ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 2

		Group Name	Control				600ppm				1200ppm				2400ppm			
		No. of Animals on Study	10				10				6				12			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}																		
larynx	inflammation		<10>				<10>				< 6>				<12>			
		1	1	0	0	4	0	0	0	0	0	0	0	2	0	0	0	
			( 10)	( 10)	( 0)	( 0)	( 40)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)
lung	congestion		<10>				<10>				< 6>				<12>			
		0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	
				( 0)	( 0)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 17)	( 0)
	edema		0	2	0	0	0	1	0	0	0	0	0	0	0	1	1	0
					( 0)	( 20)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 8)	( 8)
	perivascular inflammation			0	0	0	0	1	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)	( 0)
accumulation of foamy cells			0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
bronchiolar-alveolar cell hyperplasia			0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
{Hematopoietic system}																		
spleen	deposit of hemosiderin		<10>				<10>				< 6>				<12>			
		0	1	1	0	1	1	0	0	1	2	0	0	0	4	2	0	
			( 0)	( 10)	( 10)	( 0)	( 10)	( 10)	( 0)	( 0)	( 17)	( 33)	( 0)	( 0)	( 0)	( 33)	( 17)	( 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

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 3

Organ	Findings	Control				600ppm				1200ppm				2400ppm			
		10				10				6				12			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Hematopoietic system}																	
spleen		<10>				<10>				< 6>				<12>			
	extramedullary hematopoiesis	0	0	0	0	0	0	1	0	1	1	1	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 10 )	( 0 )	( 17 )	( 17 )	( 17 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )
{Circulatory system}																	
heart		<10>				<10>				< 6>				<12>			
	thrombus	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 )	( 0 )	( 0 )	( 0 )	( 0 )
	myocardial fibrosis	4	2	0	0	8	1	0	0	1	0	0	0	5	2	0	0
		( 40 )	( 20 )	( 0 )	( 0 )	( 80 )	( 10 )	( 0 )	( 0 )	( 17 )	( 0 )	( 0 )	( 0 )	( 42 )	( 17 )	( 0 )	( 0 )
{Digestive system}																	
stomach		<10>				<10>				< 6>				<12>			
	epidermal cyst	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )
	ulcer:forestomach	0	3	0	0	0	3	0	0	0	1	0	0	1	0	0	0
		( 0 )	( 30 )	( 0 )	( 0 )	( 0 )	( 30 )	( 0 )	( 0 )	( 0 )	( 17 )	( 0 )	( 0 )	( 8 )	( 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 ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 4

Organ	Findings	Control				600ppm				1200ppm				2400ppm			
		10				10				6				12			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Digestive system}																	
stomach		<10>				<10>				< 6>				<12>			
	hyperplasia:forestomach	0	1	0	0	0	3	0	0	0	0	0	0	0	3	0	0
		( 0)	( 10)	( 0)	( 0)	( 0)	( 30)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 25)	( 0)	( 0)
		<10>				<10>				< 6>				<12>			
	erosion:glandular stomach	3	0	0	0	1	0	0	0	2	0	0	0	1	1	0	0
		( 30)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 33)	( 0)	( 0)	( 0)	( 8)	( 8)	( 0)	( 0)
small intes		<10>				<10>				< 6>				<12>			
	erosion	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
liver		<10>				<10>				< 6>				<12>			
	herniation	1	0	0	0	2	0	0	0	2	0	0	0	1	0	0	0
		( 10)	( 0)	( 0)	( 0)	( 20)	( 0)	( 0)	( 0)	( 33)	( 0)	( 0)	( 0)	( 8)	( 0)	( 0)	( 0)
		<10>				<10>				< 6>				<12>			
	necrosis:central	0	0	0	0	0	1	0	0	1	1	0	0	0	1	1	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 17)	( 17)	( 0)	( 0)	( 0)	( 8)	( 8)	( 0)
		<10>				<10>				< 6>				<12>			
	fatty change	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)
		<10>				<10>				< 6>				<12>			
	clear cell focus	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)	( 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  
Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 5

Organ	Findings	Control				600ppm				1200ppm				2400ppm			
		10				10				6				12			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Digestive system}																	
liver		<10>				<10>				< 6>				<12>			
	acidophilic cell focus	0	0	0	0	1	0	0	0	0	0	0	0	4	1	0	0
		( 0)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 33)	( 8)	( 0)	( 0)
	basophilic cell focus	1	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0
		( 10)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)
	vacuolated cell focus	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)	( 0)	( 0)	( 0)	( 0)	( 0)
	spongiosis hepatitis	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)
	bile duct hyperplasia	3	6	0	0	3	7	0	0	3	2	0	0	1	9	0	0
		( 30)	( 60)	( 0)	( 0)	( 30)	( 70)	( 0)	( 0)	( 50)	( 33)	( 0)	( 0)	( 8)	( 75)	( 0)	( 0)
pancreas		<10>				<10>				< 6>				<12>			
	atrophy	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0
		( 0)	( 10)	( 0)	( 0)	( 20)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
{Urinary system}																	
kidney		<10>				<10>				< 6>				<12>			
	deposit of hemosiderin	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
		( 0)	( 10)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 17)	( 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

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 6

Organ	Findings	Group Name	Control				600ppm				1200ppm				2400ppm			
		No. of Animals on Study	10				10				6				12			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Urinary system}																		
kidney			<10>				<10>				< 6>				<12>			
	inflammation		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)
	chronic nephropathy		1	5	2	0	4	1	3	0	4	0	0	1 *	4	2	2	2
			( 10)	( 50)	( 20)	( 0)	( 40)	( 10)	( 30)	( 0)	( 67)	( 0)	( 0)	( 17)	( 33)	( 17)	( 17)	( 17)
{Endocrine system}																		
pituitary			<10>				<10>				< 6>				<12>			
	angiectasis		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	cyst		2	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
			( 20)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	hyperplasia		3	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0
			( 30)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)
	Rathke pouch		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)	( 0)
	focal hypertrophy		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 17)	( 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

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 7

Organ	Findings	Control				600ppm				1200ppm				2400ppm			
		10				10				6				12			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Endocrine system}																	
thyroid		<10>				<10>				< 6>				<12>			
	C-cell hyperplasia	2 ( 20)	1 ( 10)	0 ( 0)	0 ( 0)	1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	focal follicular cell hyperplasia	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 17)	0 ( 0)	0 ( 0)
adrenal		<10>				<10>				< 6>				<12>			
	hyperplasia:medulla	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 8)	0 ( 0)	0 ( 0)	0 ( 0)
	focal fatty change:cortex	2 ( 20)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	3 ( 25)	0 ( 0)	0 ( 0)	0 ( 0)
{Reproductive system}																	
testis		<10>				<10>				< 6>				<12>			
	atrophy	1 ( 10)	1 ( 10)	6 ( 60)	0 ( 0)	0 ( 0)	1 ( 10)	9 ( 90)	0 ( 0)	0 ( 0)	0 ( 0)	4 ( 67)	0 ( 0)	1 ( 8)	2 ( 17)	7 ( 58)	0 ( 0)
	arteritis	1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)

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

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 8

Organ	Findings	Group Name	Control				600ppm				1200ppm				2400ppm			
		No. of Animals on Study	10				10				6				12			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Reproductive system}																		
testis			<10>				<10>				< 6>				<12>			
	interstitial cell hyperplasia		1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
			( 10)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 8)	( 0)	( 0)	( 0)
prostate			<10>				<10>				< 6>				<12>			
	inflammation		1	1	0	0	2	3	0	0	1	1	0	0	2	2	0	0
			( 10)	( 10)	( 0)	( 0)	( 20)	( 30)	( 0)	( 0)	( 17)	( 17)	( 0)	( 0)	( 17)	( 17)	( 0)	( 0)
	hyperplasia		1	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0
			( 10)	( 0)	( 0)	( 0)	( 20)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 8)	( 0)	( 0)	( 0)
{Nervous system}																		
brain			<10>				<10>				< 6>				<12>			
	hemorrhage		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)	( 0)	( 0)	( 0)	( 0)
	necrosis:focal		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	degeneration:granular cell		0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 8)	( 33)	( 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



STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 9

		Group Name	Control				600ppm				1200ppm				2400ppm			
		No. of Animals on Study	10				10				6				12			
Organ_____	Findings_____	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
<hr/>																		
{Special sense organs/appendage}																		
eye			<10>				<10>				< 6>				<12>			
	cataract		0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 17 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )
	retinal atrophy		0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
			( 0 )	( 0 )	( 10 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 17 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	keratitis		0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 10 )	( 0 )	( 0 )	( 10 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	iritis		0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 10 )	( 10 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
Harder gl			<10>				<10>				< 6>				<12>			
	degeneration		0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )
Zymbal gl			<10>				<10>				< 6>				<12>			
	inflammation		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 )
<hr/>																		
{Musculoskeletal system}																		
muscle			<10>				<10>				< 6>				<12>			
	atrophy		0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 10 )	( 0 )	( 0 )	( 0 )	( 17 )	( 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  
 Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

## APPENDIX J 3

HISTOPATHOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

RAT : MALE : SACRIFICED ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 SACRIFICED ANIMALS (105W)

PAGE : 1

		Group Name	Control				600ppm				1200ppm				2400ppm			
		No. of Animals on Study	40				40				44				38			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Integumentary system/appandage}																		
skin/app			<40>				<40>				<44>				<38>			
	hyperplasia:epidermis		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 3)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	scar:dermis		1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
			( 3)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	epidermal cyst		0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0
			( 0)	( 3)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 5)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
subcutis			<40>				<40>				<44>				<38>			
	hemorrhage		0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
{Respiratory system}																		
nasal cavit			<40>				<40>				<44>				<38>			
	thrombus		0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	mineralization		26	0	0	0	19	0	0	0	33	0	0	0	19	0	0	0
			( 65)	( 0)	( 0)	( 0)	( 48)	( 0)	( 0)	( 0)	( 75)	( 0)	( 0)	( 0)	( 50)	( 0)	( 0)	( 0)

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

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 SACRIFICED ANIMALS (105W)

PAGE : 2

Organ	Findings	Group Name No. of Animals on Study				Control				600ppm				1200ppm				2400ppm			
		Grade				40				40				44				38			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}																					
nasal cavit		<40>				<40>				<44>				<38>							
	eosinophilic change:olfactory epithelium	16	17	5	0	16	10	4	0	25	9	3	0	15	14	2	0				
		( 40)	( 43)	( 13)	( 0)	( 40)	( 25)	( 10)	( 0)	( 57)	( 20)	( 7)	( 0)	( 39)	( 37)	( 5)	( 0)				
	eosinophilic change:respiratory epithelium	14	3	0	0	11	3	0	0	19	3	0	0	15	8	0	0				
		( 35)	( 8)	( 0)	( 0)	( 28)	( 8)	( 0)	( 0)	( 43)	( 7)	( 0)	( 0)	( 39)	( 21)	( 0)	( 0)				
	inflammation:foreign body	7	4	0	0	6	0	1	0	7	3	0	0	7	5	0	0				
		( 18)	( 10)	( 0)	( 0)	( 15)	( 0)	( 3)	( 0)	( 16)	( 7)	( 0)	( 0)	( 18)	( 13)	( 0)	( 0)				
	inflammation:respiratory epithelium	3	0	0	0	2	0	0	0	2	0	0	0	1	0	0	0				
		( 8)	( 0)	( 0)	( 0)	( 5)	( 0)	( 0)	( 0)	( 5)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)	( 0)				
	respiratory metaplasia:olfactory epithelium	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0				
		( 3)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)				
larynx		<40>				<40>				<44>				<38>							
	inflammation	17	2	0	0	14	1	0	0	11	1	0	0	11	3	0	0				
		( 43)	( 5)	( 0)	( 0)	( 35)	( 3)	( 0)	( 0)	( 25)	( 2)	( 0)	( 0)	( 29)	( 8)	( 0)	( 0)				
lung		<40>				<40>				<44>				<38>							
	hemorrhage	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
		( 3)	( 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

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 SACRIFICED ANIMALS (105W)

PAGE : 3

Organ	Findings	Control 40				600ppm 40				1200ppm 44				2400ppm 38			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}																	
lung		<40>				<40>				<44>				<38>			
	inflammation	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )
	foreign body granuloma	2	1	0	0	1	1	0	0	0	0	0	0	1	0	0	0
		( 5 )	( 3 )	( 0 )	( 0 )	( 3 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
	osseous metaplasia	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
		( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )
	accumulation of foamy cells	2	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0
		( 5 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )	( 13 )	( 0 )	( 0 )	( 0 )
	bronchopneumonia	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )
	bronchiolar-alveolar cell hyperplasia	3	0	0	0	2	1	0	0	5	2	0	0	6	0	0	0
		( 8 )	( 0 )	( 0 )	( 0 )	( 5 )	( 3 )	( 0 )	( 0 )	( 11 )	( 5 )	( 0 )	( 0 )	( 16 )	( 0 )	( 0 )	( 0 )
{Hematopoietic system}																	
bone marrow		<40>				<40>				<44>				<38>			
	granulation	0	0	0	0	1	0	0	0	0	1	0	0	1	1	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 3 )	( 3 )	( 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

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUM/  
 SACRIFICED ANIMALS (105W)

PAGE : 4

Organ	Findings	Group Name	Control				600ppm				1200ppm				2400ppm			
		No. of Animals on Study	40				40				44				38			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Hematopoietic system}																		
lymph node			<40>				<40>				<44>				<38>			
	lymphadenitis		1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
			( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	
spleen			<40>				<40>				<44>				<38>			
	deposit of hemosiderin		1	0	0	0	0	0	0	0	0	2	0	1	1	0	0	
				( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 3 )	( 3 )	( 0 )	( 0 )	
	fibrosis		2	0	0	0	0	0	0	0	1	0	0	1	0	0	0	
				( 5 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	
	extramedullary hematopoiesis		3	1	0	0	1	2	0	0	2	0	0	0	2	0	0	
			( 8 )	( 3 )	( 0 )	( 0 )	( 3 )	( 5 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	
	follicular hyperplasia		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	
	capsule hyperplasia		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
			( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	
{Circulatory system}																		
heart			<40>				<40>				<44>				<38>			
	thrombus		0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 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

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 SACRIFICED ANIMALS (105W)

PAGE : 5

Organ	Findings	Control No. of Animals on Study Grade				600ppm 40				1200ppm 44				2400ppm 38			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Circulatory system}																	
heart	granulation	<40>				<40>				<44>				<38>			
		0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)	( 0)
	myocardial fibrosis	32	4	0	0	32	5	0	0	39	4	0	0	32	1	0	0
		( 80)	( 10)	( 0)	( 0)	( 80)	( 13)	( 0)	( 0)	( 89)	( 9)	( 0)	( 0)	( 84)	( 3)	( 0)	( 0)
	endomyocardial fibrosis	0	0	0	0	3	0	0	0	1	0	0	0	3	1	0	0
		( 0)	( 0)	( 0)	( 0)	( 8)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 8)	( 3)	( 0)	( 0)
artery/aort	arteritis	<40>				<40>				<44>				<38>			
		0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)
{Digestive system}																	
tongue	arteritis	<40>				<40>				<44>				<38>			
		1	0	0	0	4	0	0	0	4	0	0	0	3	0	0	0
		( 3)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 9)	( 0)	( 0)	( 0)	( 8)	( 0)	( 0)	( 0)
stomach	inflammatory infiltration	<40>				<40>				<44>				<38>			
		0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 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  
 Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUM)  
SACRIFICED ANIMALS (105W)

PAGE : 6

Organ	Findings	Control 40				600ppm 40				1200ppm 44				2400ppm 38			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Digestive system}																	
stomach																	
	basal cell hyperplasia	<40>				<40>				<44>				<38>			
		0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	ulcer:forestomach	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
		( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	hyperplasia:forestomach	1	1	0	0	0	0	0	0	2	1	0	0	1	1	0	0
		( 3 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 5 )	( 2 )	( 0 )	( 0 )	( 3 )	( 3 )	( 0 )	( 0 )
	erosion:glandular stomach	2	1	0	0	2	0	0	0	4	1	0	0	0	1	0	0
		( 5 )	( 3 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 9 )	( 2 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )
liver																	
	herniation	<40>				<40>				<44>				<38>			
		1	0	0	0	4	0	0	0	7	0	0	0	4	0	0	0
		( 3 )	( 0 )	( 0 )	( 0 )	( 10 )	( 0 )	( 0 )	( 0 )	( 16 )	( 0 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )
	necrosis:central	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	necrosis:focal	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	fatty change	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 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  
Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square



STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
SACRIFICED ANIMALS (105W)

PAGE : 7

Organ	Findings	Control				600ppm				1200ppm				2400ppm			
		40				40				44				38			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Digestive system}																	
liver																	
	granulation	<40>				<40>				<44>				<38>			
		0	4	0	0	1	0	0	0	1	0	0	0	0	0	0	0
		( 0 )	( 10 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	clear cell focus	7	3	0	0	7	0	0	0	9	3	0	0	8	1	0	0
		( 18 )	( 8 )	( 0 )	( 0 )	( 18 )	( 0 )	( 0 )	( 0 )	( 20 )	( 7 )	( 0 )	( 0 )	( 21 )	( 3 )	( 0 )	( 0 )
	acidophilic cell focus	3	0	0	0	6	0	0	0	8	1	0	0	4	2	0	0
		( 8 )	( 0 )	( 0 )	( 0 )	( 15 )	( 0 )	( 0 )	( 0 )	( 18 )	( 2 )	( 0 )	( 0 )	( 11 )	( 5 )	( 0 )	( 0 )
	basophilic cell focus	8	2	0	0	5	3	0	0	8	4	0	0	7	4	0	0
		( 20 )	( 5 )	( 0 )	( 0 )	( 13 )	( 8 )	( 0 )	( 0 )	( 18 )	( 9 )	( 0 )	( 0 )	( 18 )	( 11 )	( 0 )	( 0 )
	vacuolated cell focus	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
		( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
	spongiosis hepatitis	2	0	0	0	3	2	0	0	9	1	0	0	11	5	0	0 **
		( 5 )	( 0 )	( 0 )	( 0 )	( 8 )	( 5 )	( 0 )	( 0 )	( 20 )	( 2 )	( 0 )	( 0 )	( 29 )	( 13 )	( 0 )	( 0 )
	bile duct hyperplasia	2	38	0	0	3	37	0	0	1	43	0	0	3	35	0	0
		( 5 )	( 95 )	( 0 )	( 0 )	( 8 )	( 93 )	( 0 )	( 0 )	( 2 )	( 98 )	( 0 )	( 0 )	( 8 )	( 92 )	( 0 )	( 0 )
	cholangiofibrosis	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 2 )	( 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 ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 SACRIFICED ANIMALS (105W)

PAGE : 8

		Group Name	Control				600ppm				1200ppm				2400ppm			
		No. of Animals on Study	40				40				44				38			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Digestive system}																		
pancreas			<40>				<40>				<44>				<38>			
	atrophy		8	1	1	0	11	0	1	0	10	1	0	0	5	1	0	0
			( 20)	( 3)	( 3)	( 0)	( 28)	( 0)	( 3)	( 0)	( 23)	( 2)	( 0)	( 0)	( 13)	( 3)	( 0)	( 0)
{Urinary system}																		
kidney			<40>				<40>				<44>				<38>			
	deposit of hemosiderin		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	chronic nephropathy		8	18	13	1	2	19	17	2	0	15	24	5 **	0	13	22	3 **
			( 20)	( 45)	( 33)	( 3)	( 5)	( 48)	( 43)	( 5)	( 0)	( 34)	( 55)	( 11)	( 0)	( 34)	( 58)	( 8)
	mineralization:papilla		0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)
	urothelial hyperplasia:pelvis		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
{Endocrine system}																		
pituitary			<40>				<39>				<43>				<38>			
	angiectasis		0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 5)	( 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

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 SACRIFICED ANIMALS (105W)

PAGE : 9

Organ	Findings	Control 40				600ppm 40				1200ppm 44				2400ppm 38			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Endocrine system}																	
pituitary		<40>				<39>				<43>				<38>			
	cyst	3	0	0	0	3	0	0	0	1	0	0	0	1	0	0	0
		( 8)	( 0)	( 0)	( 0)	( 8)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)	( 0)
	hyperplasia	8	1	0	0	10	0	0	0	6	2	0	0	7	1	0	0
		( 20)	( 3)	( 0)	( 0)	( 26)	( 0)	( 0)	( 0)	( 14)	( 5)	( 0)	( 0)	( 18)	( 3)	( 0)	( 0)
	Rathke pouch	2	0	0	0	1	0	0	0	4	0	0	0	1	0	0	0
		( 5)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)	( 0)	( 9)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)	( 0)
	focal hypertrophy	2	0	0	0	1	0	0	0	2	0	0	0	3	0	0	0
		( 5)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)	( 0)	( 5)	( 0)	( 0)	( 0)	( 8)	( 0)	( 0)	( 0)
thyroid		<40>				<40>				<44>				<38>			
	C-cell hyperplasia	11	0	0	0	10	1	0	0	6	1	0	0	5	0	0	0
		( 28)	( 0)	( 0)	( 0)	( 25)	( 3)	( 0)	( 0)	( 14)	( 2)	( 0)	( 0)	( 13)	( 0)	( 0)	( 0)
	focal follicular cell hyperplasia	0	0	0	0	0	0	0	0	2	1	0	0	2	3	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 5)	( 2)	( 0)	( 0)	( 5)	( 8)	( 0)	( 0)
adrenal		<40>				<40>				<44>				<38>			
	cyst	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 3)	( 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  
 Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUM)  
SACRIFICED ANIMALS (105W)

PAGE : 10

Organ	Findings	Control 40				600ppm 40				1200ppm 44				2400ppm 38			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Endocrine system}																	
adrenal		<40>				<40>				<44>				<38>			
	hyperplasia:cortical cell	3	0	0	0	1	0	0	0	3	2	0	0	3	0	0	0
		( 8 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 7 )	( 5 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )
	hyperplasia:medulla	2	2	0	0	5	1	0	0	5	2	0	0	3	1	0	0
		( 5 )	( 5 )	( 0 )	( 0 )	( 13 )	( 3 )	( 0 )	( 0 )	( 11 )	( 5 )	( 0 )	( 0 )	( 8 )	( 3 )	( 0 )	( 0 )
	focal fatty change:cortex	3	1	0	0	6	0	0	0	5	3	0	0	4	0	0	0
		( 8 )	( 3 )	( 0 )	( 0 )	( 15 )	( 0 )	( 0 )	( 0 )	( 11 )	( 7 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )
{Reproductive system}																	
testis		<40>				<40>				<44>				<38>			
	atrophy	0	0	40	0	0	0	40	0	0	0	44	0	0	0	38	0
		( 0 )	( 0 )	( 100 )	( 0 )	( 0 )	( 0 )	( 100 )	( 0 )	( 0 )	( 0 )	( 100 )	( 0 )	( 0 )	( 0 )	( 100 )	( 0 )
	arteritis	1	1	0	0	0	0	0	0	2	1	0	0	0	0	0	0
		( 3 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 5 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	interstitial cell hyperplasia	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
epididymis		<40>				<40>				<44>				<38>			
	hemorrhage	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 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

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 SACRIFICED ANIMALS (105W)

PAGE : 11

Organ	Findings	Group Name No. of Animals on Study Grade	Control 40				600ppm 40				1200ppm 44				2400ppm 38			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Reproductive system}																		
prostate	inflammation		<40>				<40>				<44>				<38>			
			6 ( 15)	4 ( 10)	0 ( 0)	0 ( 0)	4 ( 10)	2 ( 5)	0 ( 0)	0 ( 0)	10 ( 23)	4 ( 9)	0 ( 0)	0 ( 0)	4 ( 11)	2 ( 5)	1 ( 3)	0 ( 0)
	hyperplasia		<40>				<40>				<44>				<38>			
			9 ( 23)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 5)	1 ( 3)	0 ( 0)	0 ( 0)	14 ( 32)	1 ( 2)	0 ( 0)	0 ( 0)	10 ( 26)	0 ( 0)	0 ( 0)	0 ( 0)
mammary gl	galactoceles		<40>				<40>				<44>				<38>			
			0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 3)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 3)	0 ( 0)	0 ( 0)	0 ( 0)
{Nervous system}																		
brain	hemorrhage		<40>				<40>				<44>				<38>			
			0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	degeneration:granular cell		<40>				<40>				<44>				<38>			
			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 ( 3)	0 ( 0)	0 ( 0)	0 ( 0)
spinal cord	gliosis		<40>				<40>				<44>				<38>			
			0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 3)	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  
 Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
SACRIFICED ANIMALS (105W)

PAGE : 12

Organ	Findings	Control No. of Animals on Study Grade				600ppm 40				1200ppm 44				2400ppm 38			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Special sense organs/appendage}																	
eye		<40>				<40>				<44>				<38>			
	cataract	2	0	0	0	1	4	0	0	0	2	0	0	0	2	0	0
		( 5 )	( 0 )	( 0 )	( 0 )	( 3 )	( 10 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )
	retinal atrophy	1	1	1	0	0	0	5	0	0	1	2	0	0	1	1	0
		( 3 )	( 3 )	( 3 )	( 0 )	( 0 )	( 0 )	( 13 )	( 0 )	( 0 )	( 2 )	( 5 )	( 0 )	( 0 )	( 3 )	( 3 )	( 0 )
	keratitis	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
		( 3 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
Harder gl		<40>				<40>				<44>				<38>			
	lymphocytic infiltration	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	granulation	2	0	0	0	1	0	0	0	1	0	0	0	2	0	0	0
		( 5 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )
{Musculoskeletal system}																	
muscle		<40>				<40>				<44>				<38>			
	atrophy	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 5 )	( 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 J 4

HISTOPATHOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

RAT : FEMALE: ALL ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 ALL ANIMALS (0-105W)

PAGE : 15

Organ	Findings	Group Name	Control				600ppm				1200ppm				2400ppm			
		No. of Animals on Study	50				50				50				50			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Integumentary system/appandage}																		
skin/app			<50>				<50>				<50>				<50>			
	inflammation		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 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	epidermal cyst		1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	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 system}																		
nasal cavit			<50>				<50>				<50>				<50>			
	thrombus		1 ( 2 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	mineralization		31 ( 62 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	18 ( 36 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	16 ( 32 )	0 ( 0 )	0 ( 0 )	0 ( 34 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	eosinophilic change:olfactory epithelium		3 ( 6 )	18 ( 36 )	28 ( 56 )	0 ( 0 )	0 ( 0 )	19 ( 38 )	30 ( 60 )	0 ( 0 )	4 ( 8 )	20 ( 40 )	26 ( 52 )	0 ( 0 )	4 ( 8 )	27 ( 54 )	16 ( 32 )	0 ( 0 )
	eosinophilic change:respiratory epithelium		28 ( 56 )	6 ( 12 )	0 ( 0 )	0 ( 0 )	33 ( 66 )	5 ( 10 )	0 ( 0 )	0 ( 0 )	24 ( 48 )	7 ( 14 )	0 ( 0 )	0 ( 0 )	29 ( 58 )	11 ( 22 )	0 ( 0 )	0 ( 0 )
	inflammation:foreign body		1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	3 ( 6 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 2 )	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 ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square



STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 ALL ANIMALS (0-105W)

PAGE : 16

Organ	Findings	Control				600ppm				1200ppm				2400ppm			
		50				50				50				50			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}																	
nasal cavit																	
	inflammation:respiratory epithelium	1 ( 2)	1 ( 2)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	atrophy:olfactory epithelium	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
larynx																	
	inflammation	12 ( 24)	1 ( 2)	0 ( 0)	0 ( 0)	6 ( 12)	0 ( 0)	0 ( 0)	0 ( 0)	9 ( 18)	0 ( 0)	0 ( 0)	0 ( 0)	14 ( 28)	0 ( 0)	0 ( 0)	0 ( 0)
lung																	
	hemorrhage	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	edema	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 4)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	1 ( 2)	0 ( 0)	0 ( 0)
	inflammation	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 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)
	osseous metaplasia	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	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  
 Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM'  
 ALL ANIMALS (0-105W)

PAGE : 17

Organ	Findings	Group Name No. of Animals on Study Grade	Control 50				600ppm 50				1200ppm 50				2400ppm 50			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}																		
lung			<50>				<50>				<50>				<50>			
	accumulation of foamy cells		2 ( 4)	0 ( 0)	0 ( 0)	0 ( 0)	5 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)	4 ( 8)	0 ( 0)	0 ( 0)	0 ( 0)	5 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)
	bronchopneumonia		0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	bronchiolar-alveolar cell hyperplasia		2 ( 4)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	3 ( 6)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
{Hematopoietic system}																		
bone marrow			<50>				<50>				<50>				<50>			
	granulation		0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	3 ( 6)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 4)	0 ( 0)	0 ( 0)	0 ( 0)
spleen			<50>				<50>				<50>				<50>			
	atrophy		0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	deposit of hemosiderin		5 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)	6 ( 12)	1 ( 2)	0 ( 0)	0 ( 0)	5 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)	4 ( 8)	4 ( 8)	1 ( 2)	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  
 Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 ALL ANIMALS (0-105W)

PAGE : 18

Organ	Findings	Group Name No. of Animals on Study Grade	Control 50				600ppm 50				1200ppm 50				2400ppm 50			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Hematopoietic system}																		
spleen			<50>				<50>				<50>				<50>			
	inflammatory infiltration		1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	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		3 ( 6)	1 ( 2)	1 ( 2)	0 ( 0)	2 ( 4)	1 ( 2)	0 ( 0)	0 ( 0)	2 ( 4)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 4)	1 ( 2)	0 ( 0)
	follicular hyperplasia		0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
{Circulatory system}																		
heart			<50>				<50>				<50>				<50>			
	thrombus		0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)
	myocardial fibrosis		31 ( 62)	1 ( 2)	0 ( 0)	0 ( 0)	31 ( 62)	0 ( 0)	0 ( 0)	0 ( 0)	31 ( 62)	0 ( 0)	0 ( 0)	0 ( 0)	28 ( 56)	1 ( 2)	0 ( 0)	0 ( 0)
	endomyocardial fibrosis		2 ( 4)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
{Digestive system}																		
tongue			<50>				<50>				<50>				<50>			
	inflammation		0 ( 0)	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 ( 2)	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

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
ALL ANIMALS (0-105W)

PAGE : 19

Organ	Findings	Group Name	Control				600ppm				1200ppm				2400ppm			
		No. of Animals on Study	50				50				50				50			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Digestive system}																		
tongue	arteritis		<50>				<50>				<50>				<50>			
		3	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	
		( 6)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 8)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	
stomach	erosion:forestomach		<50>				<50>				<50>				<50>			
		0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	
			( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	
	ulcer:forestomach		0	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0
				( 0)	( 6)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)
	hyperplasia:forestomach		1	3	0	0	0	1	0	0	1	0	0	0	0	0	0	0
		( 2)	( 6)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	
	erosion:glandular stomach		1	0	0	0	1	1	0	0	1	0	0	0	0	1	0	0
				( 2)	( 0)	( 0)	( 0)	( 2)	( 2)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)
	herniation		<50>				<50>				<50>				<50>			
		10	0	0	0	8	0	0	0	7	0	0	0	7	0	0	0	
			( 20)	( 0)	( 0)	( 0)	( 16)	( 0)	( 0)	( 0)	( 14)	( 0)	( 0)	( 0)	( 14)	( 0)	( 0)	( 0)
	necrosis:central		0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 4)	( 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  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 ALL ANIMALS (0-105W)

PAGE : 20

Organ	Findings	Control				600ppm				1200ppm				2400ppm			
		50				50				50				50			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Digestive system}																	
liver																	
	necrosis:focal	<50>				<50>				<50>				<50>			
		1	1	0	0	2	1	0	0	2	0	0	0	0	0	0	0
		( 2)	( 2)	( 0)	( 0)	( 4)	( 2)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	fatty change	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	fatty change:peripheral	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	inflammatory infiltration	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	lymphocytic infiltration	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	granulation	11	3	0	0	11	4	1	0	14	2	2	0	10	1	0	0
		( 22)	( 6)	( 0)	( 0)	( 22)	( 8)	( 2)	( 0)	( 28)	( 4)	( 4)	( 0)	( 20)	( 2)	( 0)	( 0)
	perivascular inflammation	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	clear cell focus	3	0	0	0	4	0	0	0	1	0	0	0	2	0	0	0
		( 6)	( 0)	( 0)	( 0)	( 8)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 4)	( 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 ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 ALL ANIMALS (0-105W)

PAGE : 21

		Control				600ppm				1200ppm				2400ppm			
		No. of Animals on Study				50				50				50			
		Grade				50				50				50			
Organ	Findings	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Digestive system}																	
liver		<50>				<50>				<50>				<50>			
	acidophilic cell focus	2	1	0	0	3	0	0	0	1	0	0	0	2	0	0	0
		( 4)	( 2)	( 0)	( 0)	( 6)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)
	basophilic cell focus	14	16	0	0	8	21	0	0	20	20	0	0	19	14	0	0
		( 28)	( 32)	( 0)	( 0)	( 16)	( 42)	( 0)	( 0)	( 40)	( 40)	( 0)	( 0)	( 38)	( 28)	( 0)	( 0)
	vacuolated cell focus	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0
		( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)
	mixed cell focus	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	
	bile duct hyperplasia	13	2	0	0	15	1	0	0	11	0	0	0	8	1	0	0
		( 26)	( 4)	( 0)	( 0)	( 30)	( 2)	( 0)	( 0)	( 22)	( 0)	( 0)	( 0)	( 16)	( 2)	( 0)	( 0)
	bile ductular proliferation	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	cholangiofibrosis	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
pancreas		<50>				<50>				<50>				<50>			
	atrophy	2	1	0	0	4	0	0	0	4	0	0	0	2	0	0	0
		( 4)	( 2)	( 0)	( 0)	( 8)	( 0)	( 0)	( 0)	( 8)	( 0)	( 0)	( 0)	( 4)	( 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

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 ALL ANIMALS (0-105W)

PAGE : 22

		Group Name	Control				600ppm				1200ppm				2400ppm			
		No. of Animals on Study	50				50				50				50			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Urinary system}																		
kidney			<50>				<50>				<50>				<50>			
	cyst		0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	chronic nephropathy		15	9	3	0	20	8	5	0	22	4	6	1	17	6	3	0
			( 30)	( 18)	( 6)	( 0)	( 40)	( 16)	( 10)	( 0)	( 44)	( 8)	( 12)	( 2)	( 34)	( 12)	( 6)	( 0)
	tubular necrosis		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	
	mineralization:papilla		1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
			( 2)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	mineralization:pelvis		5	0	0	0	2	0	0	0	3	0	0	0	0	0	0	0
			( 10)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)	( 6)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
{Endocrine system}																		
pituitary			<49>				<49>				<48>				<50>			
	angiectasis		3	2	1	0	4	6	1	0	6	4	1	0	7	4	2	0
			( 6)	( 4)	( 2)	( 0)	( 8)	( 12)	( 2)	( 0)	( 13)	( 8)	( 2)	( 0)	( 14)	( 8)	( 4)	( 0)
	cyst		15	13	0	0	19	11	1	0	16	14	3	0	23	7	2	0
			( 31)	( 27)	( 0)	( 0)	( 39)	( 22)	( 2)	( 0)	( 33)	( 29)	( 6)	( 0)	( 46)	( 14)	( 4)	( 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  
 Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
ALL ANIMALS (0-105W)

PAGE : 23

Organ	Findings	Control				600ppm				1200ppm				2400ppm			
		50				50				50				50			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Endocrine system}																	
pituitary		<49>				<49>				<48>				<50>			
	hyperplasia	4	3	0	0	4	6	0	0	4	4	0	0	4	5	0	0
		( 8)	( 6)	( 0)	( 0)	( 8)	( 12)	( 0)	( 0)	( 8)	( 8)	( 0)	( 0)	( 8)	( 10)	( 0)	( 0)
	Rathke pouch	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	focal hypertrophy	3	0	0	0	1	0	0	0	1	0	0	0	3	0	0	0
		( 6)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 6)	( 0)	( 0)	( 0)
thyroid		<50>				<50>				<50>				<50>			
	C-cell hyperplasia	7	0	0	0	12	0	0	0	8	0	0	0	7	0	0	0
		( 14)	( 0)	( 0)	( 0)	( 24)	( 0)	( 0)	( 0)	( 16)	( 0)	( 0)	( 0)	( 14)	( 0)	( 0)	( 0)
	focal follicular cell hyperplasia	2	0	0	0	1	0	0	0	2	0	0	0	1	0	0	0
		( 4)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)
adrenal		<50>				<50>				<50>				<50>			
	peliosis-like lesion	37	2	0	0	40	1	0	0	41	2	0	0	40	3	0	0
		( 74)	( 4)	( 0)	( 0)	( 80)	( 2)	( 0)	( 0)	( 82)	( 4)	( 0)	( 0)	( 80)	( 6)	( 0)	( 0)
	cyst	0	1	0	0	1	0	0	0	0	1	0	0	0	1	0	0
		( 0)	( 2)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 2)	( 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  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square



STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM'  
ALL ANIMALS (0-105W)

PAGE : 24

		Group Name	Control				600ppm				1200ppm				2400ppm			
		No. of Animals on Study	50				50				50				50			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Endocrine system}																		
adrenal																		
	hyperplasia:cortical cell		<50>				<50>				<50>				<50>			
			0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	hyperplasia:medulla		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	focal fatty change:cortex		8	3	0	0	11	2	0	0	15	1	0	0	11	2	0	0
			( 16)	( 6)	( 0)	( 0)	( 22)	( 4)	( 0)	( 0)	( 30)	( 2)	( 0)	( 0)	( 22)	( 4)	( 0)	( 0)
{Reproductive system}																		
ovary																		
	cyst		<50>				<50>				<50>				<50>			
			0	3	0	0	1	3	0	0	0	1	0	0	1	1	0	0
			( 0)	( 6)	( 0)	( 0)	( 2)	( 6)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 2)	( 2)	( 0)	( 0)
uterus																		
	dilatation		<50>				<50>				<50>				<50>			
			0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)
	hemorrhage		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 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  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
ALL ANIMALS (0-105W)

PAGE : 25

Organ	Findings	Group Name No. of Animals on Study				Control				600ppm				1200ppm				2400ppm			
		Grade				50				50				50				50			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Reproductive system}																					
uterus	hyperplasia:gland	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	cystic endometrial hyperplasia	6	0	0	0	3	2	0	0	1	1	0	0	2	1	0	0	2	1	0	0
		( 12 )	( 0 )	( 0 )	( 0 )	( 6 )	( 4 )	( 0 )	( 0 )	( 2 )	( 2 )	( 0 )	( 0 )	( 4 )	( 2 )	( 0 )	( 0 )	( 4 )	( 2 )	( 0 )	( 0 )
vagina	dilatation	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
mammary gl	galactoceles	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
{Nervous system}																					
brain	hemorrhage	2	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	necrosis:focal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 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  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 ALL ANIMALS (0-105W)

PAGE : 26

Organ	Findings	Control				600ppm				1200ppm				2400ppm			
		50				50				50				50			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		Grade				Grade				Grade				Grade			
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Nervous system}																	
brain		<50>				<50>				<50>				<50>			
	degeneration:granular cell	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0 *
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 10 )	( 0 )
{Special sense organs/appendage}																	
eye		<50>				<50>				<50>				<50>			
	hemorrhage	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )
	cataract	0	2	0	0	0	5	0	0	0	3	0	0	1	3	0	0
		( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 10 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 2 )	( 6 )	( 0 )	( 0 )
	retinal atrophy	0	0	2	0	2	0	5	0	0	0	3	0	1	0	4	0
		( 0 )	( 0 )	( 4 )	( 0 )	( 4 )	( 0 )	( 10 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 2 )	( 0 )	( 8 )	( 0 )
	keratitis	3	0	0	0	2	0	0	0	4	0	0	0	1	0	0	0
		( 6 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )
Harder gl		<50>				<50>				<50>				<50>			
	degeneration	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

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

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
ALL ANIMALS (0-105W)

PAGE : 27

Organ	Findings	Group Name No. of Animals on Study Grade	Control				600ppm				1200ppm				2400ppm			
			50				50				50				50			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Special sense organs/appendage}																		
Harder gl	lymphocytic infiltration		<50>				<50>				<50>				<50>			
			0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	granulation		1	0	0	0	3	0	0	0	3	0	0	0	1	0	0	0
			( 2 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )
{Musculoskeletal system}																		
muscle	atrophy		<50>				<50>				<50>				<50>			
			0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
bone	osteosclerosis		<50>				<50>				<50>				<50>			
			4	2	1	0	4	1	0	0	5	2	0	0	3	2	1	0
			( 8 )	( 4 )	( 2 )	( 0 )	( 8 )	( 2 )	( 0 )	( 0 )	( 10 )	( 4 )	( 0 )	( 0 )	( 6 )	( 4 )	( 2 )	( 0 )
{Body cavities}																		
adipose	granulation		<50>				<50>				<50>				<50>			
			0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 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  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

## APPENDIX J 5

HISTOPATHOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

RAT : FEMALE : DEAD AND MORIBUND ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 10

Organ	Findings	Control				600ppm				1200ppm				2400ppm			
		8				6				3				14			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Integumentary system/appandage}																	
skin/app		< 8>				< 6>				< 3>				<14>			
	inflammation	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 0)	( 0)	( 0)
{Respiratory system}																	
nasal cavit		< 8>				< 6>				< 3>				<14>			
	thrombus	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 13)	( 13)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 0)	( 0)	( 0)
	mineralization	4	0	0	0	1	0	0	0	0	0	0	0	4	0	0	0
		( 50)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 29)	( 0)	( 0)	( 0)
	eosinophilic change:olfactory epithelium	2	4	1	0	0	3	2	0	0	1	2	0	3	5	4	0
		( 25)	( 50)	( 13)	( 0)	( 0)	( 50)	( 33)	( 0)	( 0)	( 33)	( 67)	( 0)	( 21)	( 36)	( 29)	( 0)
	eosinophilic change:respiratory epithelium	2	1	0	0	3	0	0	0	2	0	0	0	9	0	0	0
		( 25)	( 13)	( 0)	( 0)	( 50)	( 0)	( 0)	( 0)	( 67)	( 0)	( 0)	( 0)	( 64)	( 0)	( 0)	( 0)
	inflammation:foreign body	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 0)	( 0)	( 0)
	atrophy:olfactory epithelium	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 33)	( 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 ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 11

Organ	Findings	Group Name No. of Animals on Study Grade	Control 8				600ppm 6				1200ppm 3				2400ppm 14			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}																		
larynx	inflammation		< 8>				< 6>				< 3>				<14>			
			1	0	0	0	1	0	0	0	0	0	0	0	3	0	0	0
			( 13)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 21)	( 0)	( 0)	( 0)
lung	hemorrhage		< 8>				< 6>				< 3>				<14>			
			0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	edema		1	0	0	0	2	1	0	0	0	0	0	0	1	1	0	0
			( 13)	( 0)	( 0)	( 0)	( 33)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 7)	( 0)	( 0)
	bronchiolar-alveolar cell hyperplasia		0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
{Hematopoietic system}																		
spleen	atrophy		< 8>				< 6>				< 3>				<14>			
			0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 0)	( 0)	( 13)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	deposit of hemosiderin		0	0	0	0	2	1	0	0	2	0	0	0	2	4	1	0
			( 0)	( 0)	( 0)	( 0)	( 33)	( 17)	( 0)	( 0)	( 67)	( 0)	( 0)	( 0)	( 14)	( 29)	( 7)	( 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  
 Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 12

Organ	Findings	Group Name No. of Animals on Study Grade	Control 8				600ppm 6				1200ppm 3				2400ppm 14			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Hematopoietic system}																		
spleen	extramedullary hematopoiesis		< 8>				< 6>				< 3>				<14>			
			1	1	1	0	0	1	0	0	0	0	0	0	0	1	1	0
			( 13)	( 13)	( 13)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 7)	( 0)
{Circulatory system}																		
heart	thrombus		< 8>				< 6>				< 3>				<14>			
			0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
			( 0)	( 0)	( 13)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 0)	( 0)	( 0)
	myocardial fibrosis		4	0	0	0	4	0	0	0	1	0	0	0	6	0	0	0
			( 50)	( 0)	( 0)	( 0)	( 67)	( 0)	( 0)	( 0)	( 33)	( 0)	( 0)	( 0)	( 43)	( 0)	( 0)	( 0)
{Digestive system}																		
tongue	inflammation		< 8>				< 6>				< 3>				<14>			
			0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 0)	( 0)
stomach	ulcer:forestomach		< 8>				< 6>				< 3>				<14>			
			0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0
			( 0)	( 25)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 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  
 Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square



STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 13

Organ	Findings	Control				600ppm				1200ppm				2400ppm			
		8				6				3				14			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Digestive system}																	
stomach		< 8>				< 6>				< 3>				<14>			
	hyperplasia:forestomach	1 ( 13)	2 ( 25)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 33)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 * ( 0)
	erosion:glandular stomach	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 7)	0 ( 0)	0 ( 0)
liver		< 8>				< 6>				< 3>				<14>			
	herniation	1 ( 13)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 33)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 14)	0 ( 0)	0 ( 0)	0 ( 0)
	necrosis: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)	2 ( 14)	0 ( 0)	0 ( 0)
	necrosis:focal	0 ( 0)	1 ( 13)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	fatty change:peripheral	0 ( 0)	0 ( 0)	1 ( 13)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	granulation	1 ( 13)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	acidophilic cell focus	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 ( 7)	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

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 14

Organ	Findings	Group Name No. of Animals on Study Grade	Control 8				600ppm 6				1200ppm 3				2400ppm 14			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Digestive system}																		
liver			< 8>				< 6>				< 3>				<14>			
	basophilic cell focus		0	1	0	0	2	0	0	0	2	0	0	0 *	2	1	0	0
			( 0 )	( 13 )	( 0 )	( 0 )	( 33 )	( 0 )	( 0 )	( 0 )	( 67 )	( 0 )	( 0 )	( 0 )	( 14 )	( 7 )	( 0 )	( 0 )
	bile duct hyperplasia		1	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0
			( 13 )	( 0 )	( 0 )	( 0 )	( 17 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 14 )	( 0 )	( 0 )	( 0 )
	cholangiofibrosis		0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 17 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
{Urinary system}																		
kidney			< 8>				< 6>				< 3>				<14>			
	cyst		0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 33 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	chronic nephropathy		1	2	0	0	2	1	0	0	0	1	0	0	3	0	1	0
			( 13 )	( 25 )	( 0 )	( 0 )	( 33 )	( 17 )	( 0 )	( 0 )	( 0 )	( 33 )	( 0 )	( 0 )	( 21 )	( 0 )	( 7 )	( 0 )
	tubular necrosis		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 7 )	( 0 )
	mineralization:pelvis		0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 17 )	( 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

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 15

Organ	Findings	Control 8				600ppm 6				1200ppm 3				2400ppm 14			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Endocrine system}																	
pituitary		< 8>				< 6>				< 3>				<14>			
	angiectasis	1	0	0	0	0	0	0	0	0	1	0	0	2	1	0	0
		( 13)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 33)	( 0)	( 0)	( 14)	( 7)	( 0)	( 0)
	cyst	3	1	0	0	1	0	0	0	0	0	0	0	5	3	0	0
		( 38)	( 13)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 36)	( 21)	( 0)	( 0)
	hyperplasia	1	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0
		( 13)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 7)	( 0)	( 0)
thyroid		< 8>				< 6>				< 3>				<14>			
	C-cell hyperplasia	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 33)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
adrenal		< 8>				< 6>				< 3>				<14>			
	peliosis-like lesion	3	0	0	0	3	0	0	0	3	0	0	0	7	0	0	0
		( 38)	( 0)	( 0)	( 0)	( 50)	( 0)	( 0)	( 0)	(100)	( 0)	( 0)	( 0)	( 50)	( 0)	( 0)	( 0)
	focal fatty change:cortex	0	1	0	0	0	0	0	0	2	0	0	0 *	4	0	0	0
		( 0)	( 13)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 67)	( 0)	( 0)	( 0)	( 29)	( 0)	( 0)	( 0)
{Reproductive system}																	
ovary		< 8>				< 6>				< 3>				<14>			
	cyst	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 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  
 Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM'  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 16

Organ	Findings	Group Name	Control				600ppm				1200ppm				2400ppm			
		No. of Animals on Study	8				6				3				14			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Reproductive system}																		
uterus	hemorrhage		< 8>				< 6>				< 3>				<14>			
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 0)	
cystic endometrial hyperplasia		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	( 13)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	
	vagina	dilatation		< 8>				< 6>				< 3>				<14>		
0			0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	
( 0)			( 0)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	
mammary gl	galactoceles		< 8>				< 6>				< 3>				<14>			
		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		( 13)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	
{Nervous system}																		
brain	hemorrhage		< 8>				< 6>				< 3>				<14>			
		2	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	
		( 25)	( 0)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 33)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	
degeneration:granular cell		0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	
	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 36)	( 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																		

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 17

Organ	Findings	Group Name No. of Animals on Study Grade	Control 8				600ppm 6				1200ppm 3				2400ppm 14			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Special sense organs/appendage}																		
eye			< 8>				< 6>				< 3>				<14>			
	hemorrhage		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 0)	( 0)	( 0)
	cataract		0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 0)	( 0)
	retinal atrophy		0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 0)	( 7)	( 0)
	keratitis		1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
			( 13)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
{Musculoskeletal system}																		
muscle			< 8>				< 6>				< 3>				<14>			
	atrophy		0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
bone			< 8>				< 6>				< 3>				<14>			
	osteosclerosis		2	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
			( 25)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 33)	( 0)	( 0)	( 0)	( 0)	( 7)	( 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  
Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

## APPENDIX J 6

HISTOPATHOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

RAT : FEMALE : SACRIFICED ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
SACRIFICED ANIMALS (105W)

PAGE : 13

Organ	Findings	Control 42				600ppm 44				1200ppm 47				2400ppm 36			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Integumentary system/appandage}																	
skin/app		<42>				<44>				<47>				<36>			
	epidermal cyst	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	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 system}																	
nasal cavit		<42>				<44>				<47>				<36>			
	thrombus	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	mineralization	27 ( 64)	0 ( 0)	0 ( 0)	0 ( 0)	17 ( 39)	0 ( 0)	0 ( 0)	0 * ( 0)	16 ( 34)	0 ( 0)	0 ( 0)	0 ** ( 0)	13 ( 36)	0 ( 0)	0 ( 0)	0 * ( 0)
	eosinophilic change:olfactory epithelium	1 ( 2)	14 ( 33)	27 ( 64)	0 ( 0)	0 ( 0)	16 ( 36)	28 ( 64)	0 ( 0)	4 ( 9)	19 ( 40)	24 ( 51)	0 ( 0)	1 ( 3)	22 ( 61)	12 ( 33)	0 * ( 0)
	eosinophilic change:respiratory epithelium	26 ( 62)	5 ( 12)	0 ( 0)	0 ( 0)	30 ( 68)	5 ( 11)	0 ( 0)	0 ( 0)	22 ( 47)	7 ( 15)	0 ( 0)	0 ( 0)	20 ( 56)	11 ( 31)	0 ( 0)	0 ( 0)
	inflammation:foreign body	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	3 ( 6)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	inflammation:respiratory epithelium	1 ( 2)	1 ( 2)	0 ( 0)	0 ( 0)	1 ( 2)	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

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 SACRIFICED ANIMALS (105W)

PAGE : 14

Organ	Findings	Group Name No. of Animals on Study Grade	Control 42				600ppm 44				1200ppm 47				2400ppm 36			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Respiratory system}																		
larynx			<42>				<44>				<47>				<36>			
	inflammation		11	1	0	0	5	0	0	0	9	0	0	0	11	0	0	0
			( 26)	( 2)	( 0)	( 0)	( 11)	( 0)	( 0)	( 0)	( 19)	( 0)	( 0)	( 0)	( 31)	( 0)	( 0)	( 0)
lung			<42>				<44>				<47>				<36>			
	inflammation		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)	( 0)
	osseous metaplasia		1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	accumulation of foamy cells		2	0	0	0	5	0	0	0	4	0	0	0	5	0	0	0
			( 5)	( 0)	( 0)	( 0)	( 11)	( 0)	( 0)	( 0)	( 9)	( 0)	( 0)	( 0)	( 14)	( 0)	( 0)	( 0)
	bronchopneumonia		0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	bronchiolar-alveolar cell hyperplasia		2	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
			( 5)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 6)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
{Hematopoietic system}																		
bone marrow			<42>				<44>				<47>				<36>			
	granulation		0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 6)	( 0)	( 0)	( 0)	( 6)	( 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



STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
SACRIFICED ANIMALS (105W)

PAGE : 15

Organ	Findings	Control 42				600ppm 44				1200ppm 47				2400ppm 36			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Hematopoietic system}																	
spleen		<42>				<44>				<47>				<36>			
	deposit of hemosiderin	5 ( 12)	0 ( 0)	0 ( 0)	0 ( 0)	4 ( 9)	0 ( 0)	0 ( 0)	0 ( 0)	3 ( 6)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 6)	0 ( 0)	0 ( 0)	0 ( 0)
	inflammatory infiltration	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	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	2 ( 5)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 5)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 4)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 3)	0 ( 0)	0 ( 0)
	follicular hyperplasia	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
{Circulatory system}																	
heart		<42>				<44>				<47>				<36>			
	myocardial fibrosis	27 ( 64)	1 ( 2)	0 ( 0)	0 ( 0)	27 ( 61)	0 ( 0)	0 ( 0)	0 ( 0)	30 ( 64)	0 ( 0)	0 ( 0)	0 ( 0)	22 ( 61)	1 ( 3)	0 ( 0)	0 ( 0)
	endomyocardial fibrosis	2 ( 5)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
{Digestive system}																	
tongue		<42>				<44>				<47>				<36>			
	arteritis	3 ( 7)	0 ( 0)	0 ( 0)	0 ( 0)	5 ( 11)	0 ( 0)	0 ( 0)	0 ( 0)	4 ( 9)	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

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 SACRIFICED ANIMALS (105W)

PAGE : 16

Organ	Findings	Control 42				600ppm 44				1200ppm 47				2400ppm 36			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Digestive system}																	
stomach		<42>				<44>				<47>				<36>			
	erosion:forestomach	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	ulcer:forestomach	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	hyperplasia:forestomach	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	erosion:glandular stomach	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 2 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
liver		<42>				<44>				<47>				<36>			
	herniation	9 ( 21 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	8 ( 18 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	6 ( 13 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	5 ( 14 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	necrosis:focal	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 5 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	2 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	fatty change	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	inflammatory infiltration	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 2 )	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

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
SACRIFICED ANIMALS (105W)

PAGE : 17

Organ	Findings	Control 42				600ppm 44				1200ppm 47				2400ppm 36			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Digestive system}																	
liver		<42>				<44>				<47>				<36>			
	lymphocytic infiltration	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	granulation	10 ( 24 )	3 ( 7 )	0 ( 0 )	0 ( 0 )	11 ( 25 )	4 ( 9 )	1 ( 2 )	0 ( 0 )	14 ( 30 )	2 ( 4 )	2 ( 4 )	0 ( 0 )	10 ( 28 )	1 ( 3 )	0 ( 0 )	0 ( 0 )
	perivascular inflammation	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	clear cell focus	3 ( 7 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	4 ( 9 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 6 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	acidophilic cell focus	2 ( 5 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	3 ( 7 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	basophilic cell focus	14 ( 33 )	15 ( 36 )	0 ( 0 )	0 ( 0 )	6 ( 14 )	21 ( 48 )	0 ( 0 )	0 ( 0 )	18 ( 38 )	20 ( 43 )	0 ( 0 )	0 ( 0 )	17 ( 47 )	13 ( 36 )	0 ( 0 )	0 ( 0 )
	vacuolated cell focus	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )
	mixed cell focus	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 ( 3 )	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

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 SACRIFICED ANIMALS (105W)

PAGE : 18

Organ	Findings	Group Name No. of Animals on Study Grade	Control 42				600ppm 44				1200ppm 47				2400ppm 36			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Digestive system}																		
liver			<42>				<44>				<47>				<36>			
	bile duct hyperplasia		12 ( 29)	2 ( 5)	0 ( 0)	0 ( 0)	14 ( 32)	1 ( 2)	0 ( 0)	0 ( 0)	11 ( 23)	0 ( 0)	0 ( 0)	0 ( 0)	6 ( 17)	1 ( 3)	0 ( 0)	0 ( 0)
	bile ductular proliferation		0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
pancreas			<42>				<44>				<47>				<36>			
	atrophy		2 ( 5)	1 ( 2)	0 ( 0)	0 ( 0)	4 ( 9)	0 ( 0)	0 ( 0)	0 ( 0)	4 ( 9)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 6)	0 ( 0)	0 ( 0)	0 ( 0)
{Urinary system}																		
kidney			<42>				<44>				<47>				<36>			
	chronic nephropathy		14 ( 33)	7 ( 17)	3 ( 7)	0 ( 0)	18 ( 41)	7 ( 16)	5 ( 11)	0 ( 0)	22 ( 47)	3 ( 6)	6 ( 13)	1 ( 2)	14 ( 39)	6 ( 17)	2 ( 6)	0 ( 0)
	mineralization:papilla		1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	mineralization:pelvis		5 ( 12)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	3 ( 6)	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  
 Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
SACRIFICED ANIMALS (105W)

PAGE : 19

Organ	Findings	Group Name No. of Animals on Study Grade				Control 42				600ppm 44				1200ppm 47				2400ppm 36			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Endocrine system}																					
pituitary		<41>				<43>				<45>				<36>							
	angiectasis	2 ( 5)	2 ( 5)	1 ( 2)	0 ( 0)	4 ( 9)	6 ( 14)	1 ( 2)	0 ( 0)	6 ( 13)	3 ( 7)	1 ( 2)	0 ( 0)	5 ( 14)	3 ( 8)	2 ( 6)	0 ( 0)				
	cyst	12 ( 29)	12 ( 29)	0 ( 0)	0 ( 0)	18 ( 42)	11 ( 26)	1 ( 2)	0 ( 0)	16 ( 36)	14 ( 31)	3 ( 7)	0 ( 0)	18 ( 50)	4 ( 11)	2 ( 6)	0 ( 0)				
	hyperplasia	3 ( 7)	3 ( 7)	0 ( 0)	0 ( 0)	3 ( 7)	6 ( 14)	0 ( 0)	0 ( 0)	4 ( 9)	4 ( 9)	0 ( 0)	0 ( 0)	3 ( 8)	4 ( 11)	0 ( 0)	0 ( 0)				
	Rathke pouch	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)				
	focal hypertrophy	3 ( 7)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	3 ( 8)	0 ( 0)	0 ( 0)	0 ( 0)				
thyroid		<42>				<44>				<47>				<36>							
	C-cell hyperplasia	7 ( 17)	0 ( 0)	0 ( 0)	0 ( 0)	10 ( 23)	0 ( 0)	0 ( 0)	0 ( 0)	8 ( 17)	0 ( 0)	0 ( 0)	0 ( 0)	7 ( 19)	0 ( 0)	0 ( 0)	0 ( 0)				
	focal follicular cell hyperplasia	2 ( 5)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 4)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 3)	0 ( 0)	0 ( 0)	0 ( 0)				
adrenal		<42>				<44>				<47>				<36>							
	peliosis-like lesion	34 ( 81)	2 ( 5)	0 ( 0)	0 ( 0)	37 ( 84)	1 ( 2)	0 ( 0)	0 ( 0)	38 ( 81)	2 ( 4)	0 ( 0)	0 ( 0)	33 ( 92)	3 ( 8)	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  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
SACRIFICED ANIMALS (105W)

PAGE : 20

Organ	Findings	Group Name No. of Animals on Study Grade	Control 42				600ppm 44				1200ppm 47				2400ppm 36			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Endocrine system}																		
adrenal	cyst		<42>				<44>				<47>				<36>			
			0	1	0	0	1	0	0	0	0	1	0	0	0	1	0	0
			( 0 )	( 2 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )
	hyperplasia:cortical cell		0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	hyperplasia:medulla		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	focal fatty change:cortex		8	2	0	0	11	2	0	0	13	1	0	0	7	2	0	0
			( 19 )	( 5 )	( 0 )	( 0 )	( 25 )	( 5 )	( 0 )	( 0 )	( 28 )	( 2 )	( 0 )	( 0 )	( 19 )	( 6 )	( 0 )	( 0 )
{Reproductive system}																		
ovary	cyst		<42>				<44>				<47>				<36>			
			0	3	0	0	1	3	0	0	0	1	0	0	0	1	0	0
			( 0 )	( 7 )	( 0 )	( 0 )	( 2 )	( 7 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )
uterus	dilatation		<42>				<44>				<47>				<36>			
			0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 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  
Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUM'  
SACRIFICED ANIMALS (105W)

PAGE : 21

Organ	Findings	Control 42				600ppm 44				1200ppm 47				2400ppm 36			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Reproductive system}																	
uterus		<42>				<44>				<47>				<36>			
	hyperplasia:gland	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	cystic endometrial hyperplasia	5	0	0	0	3	2	0	0	1	1	0	0	2	1	0	0
		( 12)	( 0)	( 0)	( 0)	( 7)	( 5)	( 0)	( 0)	( 2)	( 2)	( 0)	( 0)	( 6)	( 3)	( 0)	( 0)
{Nervous system}																	
brain		<42>				<44>				<47>				<36>			
	necrosis:focal	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)	( 0)
{Special sense organs/appendage}																	
eye		<42>				<44>				<47>				<36>			
	cataract	0	2	0	0	0	4	0	0	0	3	0	0	1	2	0	0
		( 0)	( 5)	( 0)	( 0)	( 0)	( 9)	( 0)	( 0)	( 0)	( 6)	( 0)	( 0)	( 3)	( 6)	( 0)	( 0)
	retinal atrophy	0	0	2	0	2	0	4	0	0	0	3	0	0	0	3	0
		( 0)	( 0)	( 5)	( 0)	( 5)	( 0)	( 9)	( 0)	( 0)	( 0)	( 6)	( 0)	( 0)	( 0)	( 8)	( 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  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMM  
 SACRIFICED ANIMALS (105W)

PAGE : 22

Organ	Findings	Control 42				600ppm 44				1200ppm 47				2400ppm 36			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
{Special sense organs/appendage}																	
eye	keratitis	<42>				<44>				<47>				<36>			
		2	0	0	0	1	0	0	0	4	0	0	0	1	0	0	0
		( 5)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 9)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)	( 0)
Harder gl	degeneration	<42>				<44>				<47>				<36>			
		0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	lymphocytic infiltration	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	granulation	1	0	0	0	3	0	0	0	3	0	0	0	1	0	0	0
		( 2)	( 0)	( 0)	( 0)	( 7)	( 0)	( 0)	( 0)	( 6)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)	( 0)
{Musculoskeletal system}																	
bone	osteosclerosis	<42>				<44>				<47>				<36>			
		2	2	1	0	4	1	0	0	4	2	0	0	3	1	1	0
		( 5)	( 5)	( 2)	( 0)	( 9)	( 2)	( 0)	( 0)	( 9)	( 4)	( 0)	( 0)	( 8)	( 3)	( 3)	( 0)
{Body cavities}																	
adipose	granulation	<42>				<44>				<47>				<36>			
		0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 2)	( 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 K 1

NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF  
TUMORS-TIME RELATED, RAT : MALE  
(2-YEAR STUDY)

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF TUMORS - TIME RELATED

PAGE : 1

Time-related Weeks	Items	Group Name	Control	600ppm	1200ppm	2400ppm
0 - 52	NO. OF EXAMINED ANIMALS		0	0	1	1
	NO. OF ANIMALS WITH TUMORS		0	0	0	1
	NO. OF ANIMALS WITH SINGLE TUMORS		0	0	0	1
	NO. OF ANIMALS WITH MULTIPLE TUMORS		0	0	0	0
	NO. OF BENIGN TUMORS		0	0	0	1
	NO. OF MALIGNANT TUMORS		0	0	0	0
	NO. OF TOTAL TUMORS		0	0	0	1
53 - 78	NO. OF EXAMINED ANIMALS		2	0	1	1
	NO. OF ANIMALS WITH TUMORS		2	0	1	1
	NO. OF ANIMALS WITH SINGLE TUMORS		2	0	1	1
	NO. OF ANIMALS WITH MULTIPLE TUMORS		0	0	0	0
	NO. OF BENIGN TUMORS		0	0	0	0
	NO. OF MALIGNANT TUMORS		2	0	1	1
	NO. OF TOTAL TUMORS		2	0	1	1
79 - 104	NO. OF EXAMINED ANIMALS		8	10	4	10
	NO. OF ANIMALS WITH TUMORS		8	10	4	10
	NO. OF ANIMALS WITH SINGLE TUMORS		1	0	0	0
	NO. OF ANIMALS WITH MULTIPLE TUMORS		7	10	4	10
	NO. OF BENIGN TUMORS		11	18	7	19
	NO. OF MALIGNANT TUMORS		5	8	3	5
	NO. OF TOTAL TUMORS		16	26	10	24
105 - 105	NO. OF EXAMINED ANIMALS		40	40	44	38
	NO. OF ANIMALS WITH TUMORS		40	40	44	38
	NO. OF ANIMALS WITH SINGLE TUMORS		10	6	11	12
	NO. OF ANIMALS WITH MULTIPLE TUMORS		30	34	33	26
	NO. OF BENIGN TUMORS		84	90	91	73
	NO. OF MALIGNANT TUMORS		10	9	9	7
	NO. OF TOTAL TUMORS		94	99	100	80

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF TUMORS - TIME RELATED

PAGE : 2

Time-related Weeks	Items	Group Name	Control	600ppm	1200ppm	2400ppm
0 - 105	NO. OF EXAMINED ANIMALS		50	50	50	50
	NO. OF ANIMALS WITH TUMORS		50	50	49	50
	NO. OF ANIMALS WITH SINGLE TUMORS		13	6	12	14
	NO. OF ANIMALS WITH MULTIPLE TUMORS		37	44	37	36
	NO. OF BENIGN TUMORS		95	108	98	93
	NO. OF MALIGNANT TUMORS		17	17	13	13
	NO. OF TOTAL TUMORS		112	125	111	106

(HPT070)

BAIS4

## APPENDIX K 2

NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF  
TUMORS-TIME RELATED, RAT : FEMALE  
(2-YEAR STUDY)

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF TUMORS - TIME RELATED

PAGE : 3

Time-related Weeks	Items	Group Name	Control	600ppm	1200ppm	2400ppm
0 - 52	NO. OF EXAMINED ANIMALS		0	0	0	0
	NO. OF ANIMALS WITH TUMORS		0	0	0	0
	NO. OF ANIMALS WITH SINGLE TUMORS		0	0	0	0
	NO. OF ANIMALS WITH MULTIPLE TUMORS		0	0	0	0
	NO. OF BENIGN TUMORS		0	0	0	0
	NO. OF MALIGNANT TUMORS		0	0	0	0
	NO. OF TOTAL TUMORS		0	0	0	0
53 - 78	NO. OF EXAMINED ANIMALS		1	1	0	2
	NO. OF ANIMALS WITH TUMORS		1	1	0	1
	NO. OF ANIMALS WITH SINGLE TUMORS		1	1	0	1
	NO. OF ANIMALS WITH MULTIPLE TUMORS		0	0	0	0
	NO. OF BENIGN TUMORS		0	0	0	0
	NO. OF MALIGNANT TUMORS		1	1	0	1
	NO. OF TOTAL TUMORS		1	1	0	1
79 - 104	NO. OF EXAMINED ANIMALS		7	5	3	12
	NO. OF ANIMALS WITH TUMORS		7	5	3	10
	NO. OF ANIMALS WITH SINGLE TUMORS		4	2	3	8
	NO. OF ANIMALS WITH MULTIPLE TUMORS		3	3	0	2
	NO. OF BENIGN TUMORS		8	6	2	6
	NO. OF MALIGNANT TUMORS		3	4	1	6
	NO. OF TOTAL TUMORS		11	10	3	12
105 - 105	NO. OF EXAMINED ANIMALS		42	44	47	36
	NO. OF ANIMALS WITH TUMORS		32	30	35	19
	NO. OF ANIMALS WITH SINGLE TUMORS		19	14	18	11
	NO. OF ANIMALS WITH MULTIPLE TUMORS		13	16	17	8
	NO. OF BENIGN TUMORS		42	39	49	25
	NO. OF MALIGNANT TUMORS		9	10	9	2
	NO. OF TOTAL TUMORS		51	49	58	27

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF TUMORS - TIME RELATED

PAGE : 4

Time-related Weeks	Items	Group Name	Control	600ppm	1200ppm	2400ppm
0 - 105	NO. OF EXAMINED ANIMALS		50	50	50	50
	NO. OF ANIMALS WITH TUMORS		40	36	38	30
	NO. OF ANIMALS WITH SINGLE TUMORS		24	17	21	20
	NO. OF ANIMALS WITH MULTIPLE TUMORS		16	19	17	10
	NO. OF BENIGN TUMORS		50	45	51	31
	NO. OF MALIGNANT TUMORS		13	15	10	9
	NO. OF TOTAL TUMORS		63	60	61	40

(HPT070)

BAIS4

## APPENDIX L 1

### HISTOPATHOLOGICAL FINDINGS : NEOPLASTIC LESIONS : SUMMARY

RAT : MALE

(2-YEAR STUDY)

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

HISTOPATHOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 1

Organ	Findings	Group Name No. of animals on Study	Control 50	600ppm 50	1200ppm 50	2400ppm 50
{Integumentary system/appandage}						
skin/app			<50>	<50>	<50>	<50>
	squamous cell papilloma		0 ( 0%)	2 ( 4%)	1 ( 2%)	2 ( 4%)
	trichoepithelioma		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
	keratoacanthoma		1 ( 2%)	3 ( 6%)	3 ( 6%)	1 ( 2%)
	sebaceous adenoma		0 ( 0%)	1 ( 2%)	0 ( 0%)	1 ( 2%)
	basal cell carcinoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
subcutis			<50>	<50>	<50>	<50>
	fibroma		6 ( 12%)	6 ( 12%)	7 ( 14%)	3 ( 6%)
	lipoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
	fibrosarcoma		1 ( 2%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
	schwannoma:malignant		0 ( 0%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
{Respiratory system}						
nasal cavit			<50>	<50>	<50>	<50>
	adenoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
lung			<50>	<50>	<50>	<50>
	osteoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
	bronchiolar-alveolar adenoma		2 ( 4%)	3 ( 6%)	6 ( 12%)	0 ( 0%)

< a > a : Number of animals examined at the site  
b ( c ) b : Number of animals with neoplasm c : b / a \* 100



STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
 ALL ANIMALS (0-105W)

PAGE : 2

Organ	Findings	Group Name No. of animals on Study	Control 50	600ppm 50	1200ppm 50	2400ppm 50
{Hematopoietic system}						
bone marrow			<50>	<50>	<50>	<50>
	histiocytic sarcoma		1 ( 2%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
thymus			<50>	<50>	<50>	<50>
	thymoma:benign		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
spleen			<50>	<50>	<50>	<50>
	mononuclear cell leukemia		4 ( 8%)	5 ( 10%)	5 ( 10%)	3 ( 6%)
{Digestive system}						
oral cavity			<50>	<50>	<50>	<50>
	squamous cell papilloma		0 ( 0%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
small intes			<50>	<50>	<50>	<50>
	fibroma		1 ( 2%)	0 ( 0%)	0 ( 0%)	0 ( 0%)
liver			<50>	<50>	<50>	<50>
	hepatocellular adenoma		2 ( 4%)	1 ( 2%)	4 ( 8%)	4 ( 8%)
	hepatocellular carcinoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
pancreas			<50>	<50>	<50>	<50>
	islet cell adenoma		6 ( 12%)	5 ( 10%)	1 ( 2%)	2 ( 4%)
	acinar cell adenoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
	islet cell adenocarcinoma		1 ( 2%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
{Urinary system}						
kidney			<50>	<50>	<50>	<50>
	lipoma		0 ( 0%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
< a > a : Number of animals examined at the site b ( c ) b : Number of animals with neoplasm c : b / a * 100						

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

HISTOPATHOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 3

Organ	Findings	Group Name No. of animals on Study	Control 50	600ppm 50	1200ppm 50	2400ppm 50
{Urinary system}						
kidney			<50>	<50>	<50>	<50>
	renal cell adenoma		0 ( 0%)	0 ( 0%)	2 ( 4%)	1 ( 2%)
urin bladd			<50>	<50>	<50>	<50>
	transitional cell papilloma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
{Endocrine system}						
pituitary			<50>	<49>	<49>	<50>
	adenoma		9 ( 18%)	15 ( 31%)	12 ( 24%)	10 ( 20%)
	adenocarcinoma		1 ( 2%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
thyroid			<50>	<50>	<50>	<50>
	C-cell adenoma		15 ( 30%)	15 ( 30%)	7 ( 14%)	11 ( 22%)
	follicular adenoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
	C-cell carcinoma		3 ( 6%)	1 ( 2%)	1 ( 2%)	2 ( 4%)
	follicular adenocarcinoma		1 ( 2%)	2 ( 4%)	0 ( 0%)	2 ( 4%)
parathyroid			<50>	<50>	<50>	<50>
	adenoma		0 ( 0%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
adrenal			<50>	<50>	<50>	<50>
	pheochromocytoma		5 ( 10%)	3 ( 6%)	1 ( 2%)	5 ( 10%)
	cortical adenoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	1 ( 2%)
	pheochromocytoma:malignant		2 ( 4%)	0 ( 0%)	2 ( 4%)	1 ( 2%)

< a > a : Number of animals examined at the site  
b ( c ) b : Number of animals with neoplasm c : b / a \* 100

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
 ALL ANIMALS (0-105W)

PAGE : 4

Organ	Findings	Group Name No. of animals on Study	Control 50	600ppm 50	1200ppm 50	2400ppm 50
{Reproductive system}						
testis			<50>	<50>	<50>	<50>
	interstitial cell tumor		46 ( 92%)	48 ( 96%)	44 ( 88%)	47 ( 94%)
	rete testis adenoma		0 ( 0%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
prostate			<50>	<50>	<50>	<50>
	adenocarcinoma		0 ( 0%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
mammary gl			<50>	<50>	<50>	<50>
	adenoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
	fibroadenoma		1 ( 2%)	1 ( 2%)	0 ( 0%)	1 ( 2%)
prep/cli gl			<50>	<50>	<50>	<50>
	adenoma		1 ( 2%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
{Nervous system}						
brain			<50>	<50>	<50>	<50>
	glioma		0 ( 0%)	1 ( 2%)	1 ( 2%)	0 ( 0%)
{Special sense organs/appendage}						
Zymbal gl			<50>	<50>	<50>	<50>
	squamous cell papilloma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
	adenoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	2 ( 4%)
	squamous cell carcinoma		1 ( 2%)	0 ( 0%)	0 ( 0%)	0 ( 0%)
{Musculoskeletal system}						
bone			<50>	<50>	<50>	<50>
	osteoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
< a > a : Number of animals examined at the site b ( c ) b : Number of animals with neoplasm c : b / a * 100						

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

HISTOPATHOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 5

Organ	Findings	Group Name No. of animals on Study	Control 50	600ppm 50	1200ppm 50	2400ppm 50
{Musculoskeletal system}						
bone			<50>	<50>	<50>	<50>
	osteosarcoma		1 ( 2%)	1 ( 2%)	0 ( 0%)	2 ( 4%)
vertebra			<50>	<50>	<50>	<50>
	chordoma:malignant		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
{Body cavities}						
peritoneum			<50>	<50>	<50>	<50>
	mesothelioma		1 ( 2%)	2 ( 4%)	3 ( 6%)	0 ( 0%)

< a > a : Number of animals examined at the site  
b ( c ) b : Number of animals with neoplasm c : b / a \* 100

(HPT085)

BAIS4

## APPENDIX L 2

### HISTOPATHOLOGICAL FINDINGS : NEOPLASTIC LESIONS : SUMMARY

RAT : FEMALE

(2-YEAR STUDY)

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
 ALL ANIMALS (0-105W)

PAGE : 6

Organ	Findings	Group Name No. of animals on Study	Control 50	600ppm 50	1200ppm 50	2400ppm 50
{Integumentary system/appandage}						
skin/app			<50>	<50>	<50>	<50>
	squamous cell papilloma		0 ( 0%)	1 ( 2%)	0 ( 0%)	1 ( 2%)
	keratoacanthoma		0 ( 0%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
subcutis			<50>	<50>	<50>	<50>
	fibroma		4 ( 8%)	2 ( 4%)	0 ( 0%)	0 ( 0%)
	leiomyosarcoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
	histiocytic sarcoma		0 ( 0%)	1 ( 2%)	1 ( 2%)	0 ( 0%)
{Respiratory system}						
nasal cavit			<50>	<50>	<50>	<50>
	adenoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
lung			<50>	<50>	<50>	<50>
	bronchiolar-alveolar adenoma		3 ( 6%)	1 ( 2%)	2 ( 4%)	0 ( 0%)
{Hematopoietic system}						
lymph node			<50>	<50>	<50>	<50>
	malignant lymphoma		1 ( 2%)	0 ( 0%)	0 ( 0%)	0 ( 0%)
thymus			<50>	<50>	<50>	<50>
	thymoma:malignant		1 ( 2%)	0 ( 0%)	0 ( 0%)	0 ( 0%)
spleen			<50>	<50>	<50>	<50>
	mononuclear cell leukemia		5 ( 10%)	5 ( 10%)	4 ( 8%)	6 ( 12%)
{Digestive system}						
liver			<50>	<50>	<50>	<50>
	hepatocellular adenoma		1 ( 2%)	1 ( 2%)	1 ( 2%)	0 ( 0%)

< a > a : Number of animals examined at the site  
 b ( c ) b : Number of animals with neoplasm c : b / a \* 100

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
 ALL ANIMALS (0-105W)

PAGE : 7

Organ	Findings	Group Name No. of animals on Study	Control 50	600ppm 50	1200ppm 50	2400ppm 50
{Digestive system}						
liver	cholangiocellular adenoma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)
	hepatocellular carcinoma		1 ( 2%)	0 ( 0%)	0 ( 0%)	0 ( 0%)
pancreas	islet cell adenoma		<50> 1 ( 2%)	<50> 1 ( 2%)	<50> 1 ( 2%)	<50> 0 ( 0%)
{Urinary system}						
urin bladd	transitional cell papilloma		<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 1 ( 2%)	<50> 0 ( 0%)
{Endocrine system}						
pituitary	adenoma		<49> 17 ( 35%)	<49> 14 ( 29%)	<48> 19 ( 40%)	<50> 12 ( 24%)
	adenocarcinoma		3 ( 6%)	3 ( 6%)	1 ( 2%)	1 ( 2%)
thyroid	C-cell adenoma		<50> 10 ( 20%)	<50> 6 ( 12%)	<50> 9 ( 18%)	<50> 5 ( 10%)
	C-cell carcinoma		1 ( 2%)	1 ( 2%)	0 ( 0%)	1 ( 2%)
adrenal	pheochromocytoma		<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)
	pheochromocytoma:malignant		1 ( 2%)	1 ( 2%)	1 ( 2%)	0 ( 0%)
{Reproductive system}						
uterus	adenoma		<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)

< a > a : Number of animals examined at the site  
 b ( c ) b : Number of animals with neoplasm c : b / a \* 100

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
 ALL ANIMALS (0-105W)

PAGE : 8

Organ	Findings	Group Name No. of animals on Study	Control 50	600ppm 50	1200ppm 50	2400ppm 50
{Reproductive system}						
uterus			<50>	<50>	<50>	<50>
	endometrial stromal polyp		4 ( 8%)	7 ( 14%)	2 ( 4%)	6 ( 12%)
	endometrial stromal sarcoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
mammary gl			<50>	<50>	<50>	<50>
	adenoma		2 ( 4%)	5 ( 10%)	4 ( 8%)	2 ( 4%)
	fibroadenoma		5 ( 10%)	3 ( 6%)	10 ( 20%)	2 ( 4%)
	adenocarcinoma		0 ( 0%)	2 ( 4%)	0 ( 0%)	0 ( 0%)
prep/cli gl			<50>	<50>	<50>	<50>
	adenoma		1 ( 2%)	2 ( 4%)	0 ( 0%)	2 ( 4%)
{Nervous system}						
brain			<50>	<50>	<50>	<50>
	glioma		0 ( 0%)	1 ( 2%)	1 ( 2%)	0 ( 0%)
{Special sense organs/appendage}						
Zymbal gl			<50>	<50>	<50>	<50>
	squamous cell carcinoma		0 ( 0%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
{Musculoskeletal system}						
bone			<50>	<50>	<50>	<50>
	osteosarcoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)

< a > a : Number of animals examined at the site  
 b ( c ) b : Number of animals with neoplasm c : b / a \* 100



## APPENDIX M 1

### NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS, RAT : MALE (2-YEAR STUDY)

STUDY No. : 0399  
ANIMAL : RAT F344/DuCrj  
SEX : MALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 1

Group Name	Control	600ppm	1200ppm	2400ppm
SITE : skin/appendage TUMOR : keratoacanthoma				
Tumor rate				
Overall rates(a)	1/50( 2.0)	3/50( 6.0)	3/50( 6.0)	1/50( 2.0)
Adjusted rates(b)	2.50	7.50	6.67	2.63
Terminal rates(c)	1/40( 2.5)	3/40( 7.5)	2/44( 4.5)	1/38( 2.6)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.5678			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.8073			
Fisher Exact test(e)		P = 0.3087	P = 0.3087	P = 0.7525
SITE : skin/appendage TUMOR : squamous cell papilloma, keratoacanthoma				
Tumor rate				
Overall rates(a)	1/50( 2.0)	5/50( 10.0)	4/50( 8.0)	3/50( 6.0)
Adjusted rates(b)	2.50	12.50	8.89	7.14
Terminal rates(c)	1/40( 2.5)	5/40( 12.5)	3/44( 6.8)	2/38( 5.3)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.3105			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.6626			
Fisher Exact test(e)		P = 0.1022	P = 0.1811	P = 0.3087
SITE : skin/appendage TUMOR : squamous cell papilloma, keratoacanthoma, basal cell carcinoma				
Tumor rate				
Overall rates(a)	1/50( 2.0)	5/50( 10.0)	4/50( 8.0)	4/50( 8.0)
Adjusted rates(b)	2.50	12.50	8.89	9.52
Terminal rates(c)	1/40( 2.5)	5/40( 12.5)	3/44( 6.8)	3/38( 7.9)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.1845			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.3991			
Fisher Exact test(e)		P = 0.1022	P = 0.1811	P = 0.1811

STUDY No. : 0399  
ANIMAL : RAT F344/DuCrj  
SEX : MALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 2

Group Name	Control	600ppm	1200ppm	2400ppm
SITE : subcutis TUMOR : fibroma				
Tumor rate				
Overall rates(a)	6/50( 12.0)	6/50( 12.0)	7/50( 14.0)	3/50( 6.0)
Adjusted rates(b)	15.00	14.29	15.91	5.26
Terminal rates(c)	6/40( 15.0)	5/40( 12.5)	7/44( 15.9)	2/38( 5.3)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.1064			
Prevalence method(d)	P = 0.9191			
Combined analysis(d)	P = 0.8407			
Cochran-Armitage test(e)	P = 0.3206			
Fisher Exact test(e)		P = 0.6202	P = 0.5000	P = 0.2435
SITE : subcutis TUMOR : fibroma, fibrosarcoma				
Tumor rate				
Overall rates(a)	7/50( 14.0)	7/50( 14.0)	7/50( 14.0)	3/50( 6.0)
Adjusted rates(b)	17.50	16.67	15.91	5.26
Terminal rates(c)	7/40( 17.5)	6/40( 15.0)	7/44( 15.9)	2/38( 5.3)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.1064			
Prevalence method(d)	P = 0.9597			
Combined analysis(d)	P = 0.9110			
Cochran-Armitage test(e)	P = 0.1855			
Fisher Exact test(e)		P = 0.6129	P = 0.6129	P = 0.1589
SITE : lung TUMOR : bronchiolar-alveolar adenoma				
Tumor rate				
Overall rates(a)	2/50( 4.0)	3/50( 6.0)	6/50( 12.0)	0/50( 0.0)
Adjusted rates(b)	4.35	7.50	13.64	0.0
Terminal rates(c)	1/40( 2.5)	3/40( 7.5)	6/44( 13.6)	0/38( 0.0)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.7989			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.3728			
Fisher Exact test(e)		P = 0.5000	P = 0.1343	P = 0.2475

STUDY No. : 0399  
ANIMAL : RAT F344/DuCrj  
SEX : MALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 3

Group Name	Control	600ppm	1200ppm	2400ppm
SITE : spleen TUMOR : mononuclear cell leukemia				
Tumor rate				
Overall rates(a)	4/50( 8.0)	5/50( 10.0)	5/50( 10.0)	3/50( 6.0)
Adjusted rates(b)	2.50	2.50	9.09	5.26
Terminal rates(c)	1/40( 2.5)	1/40( 2.5)	4/44( 9.1)	2/38( 5.3)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.9019			
Prevalence method(d)	P = 0.2154			
Combined analysis(d)	P = 0.6523			
Cochran-Armitage test(e)	P = 0.6373			
Fisher Exact test(e)		P = 0.5000	P = 0.5000	P = 0.5000
SITE : liver TUMOR : hepatocellular adenoma				
Tumor rate				
Overall rates(a)	2/50( 4.0)	1/50( 2.0)	4/50( 8.0)	4/50( 8.0)
Adjusted rates(b)	5.00	2.50	8.33	9.76
Terminal rates(c)	2/40( 5.0)	1/40( 2.5)	3/44( 6.8)	3/38( 7.9)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.1009			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.2279			
Fisher Exact test(e)		P = 0.5000	P = 0.3389	P = 0.3389
SITE : liver TUMOR : hepatocellular adenoma, hepatocellular carcinoma				
Tumor rate				
Overall rates(a)	2/50( 4.0)	1/50( 2.0)	4/50( 8.0)	5/50( 10.0)
Adjusted rates(b)	5.00	2.50	8.33	9.76
Terminal rates(c)	2/40( 5.0)	1/40( 2.5)	3/44( 6.8)	3/38( 7.9)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.1057			
Prevalence method(d)	P = 0.1009			
Combined analysis(d)	P = 0.0484*			
Cochran-Armitage test(e)	P = 0.1073			
Fisher Exact test(e)		P = 0.5000	P = 0.3389	P = 0.2180

STUDY No. : 0399  
ANIMAL : RAT F344/DuCrj  
SEX : MALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 4

Group Name	Control	600ppm	1200ppm	2400ppm
SITE : pancreas TUMOR : islet cell adenoma				
Tumor rate				
Overall rates(a)	6/50( 12.0)	5/50( 10.0)	1/50( 2.0)	2/50( 4.0)
Adjusted rates(b)	15.00	10.42	2.27	5.26
Terminal rates(c)	6/40( 15.0)	4/40( 10.0)	1/44( 2.3)	2/38( 5.3)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.9656			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.0751			
Fisher Exact test(e)		P = 0.5000	P = 0.0559	P = 0.1343
SITE : pancreas TUMOR : islet cell adenoma, islet cell adenocarcinoma				
Tumor rate				
Overall rates(a)	7/50( 14.0)	6/50( 12.0)	1/50( 2.0)	2/50( 4.0)
Adjusted rates(b)	17.50	10.42	2.27	5.26
Terminal rates(c)	7/40( 17.5)	4/40( 10.0)	1/44( 2.3)	2/38( 5.3)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.5840			
Prevalence method(d)	P = 0.9827			
Combined analysis(d)	P = 0.9854			
Cochran-Armitage test(e)	P = 0.0345*			
Fisher Exact test(e)		P = 0.5000	P = 0.0297*	P = 0.0798
SITE : pituitary gland TUMOR : adenoma				
Tumor rate				
Overall rates(a)	9/50( 18.0)	15/49( 30.6)	12/49( 24.5)	10/50( 20.0)
Adjusted rates(b)	15.00	27.66	25.58	20.51
Terminal rates(c)	6/40( 15.0)	10/39( 25.6)	11/43( 25.6)	7/38( 18.4)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.6603			
Prevalence method(d)	P = 0.4718			
Combined analysis(d)	P = 0.5552			
Cochran-Armitage test(e)	P = 0.8547			
Fisher Exact test(e)		P = 0.1093	P = 0.2935	P = 0.5000

STUDY No. : 0399  
ANIMAL : RAT F344/DuCrj  
SEX : MALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 5

Group Name	Control	600ppm	1200ppm	2400ppm
SITE : pituitary gland TUMOR : adenoma, adenocarcinoma				
Tumor rate				
Overall rates(a)	10/50( 20.0)	15/49( 30.6)	13/49( 26.5)	10/50( 20.0)
Adjusted rates(b)	17.50	27.66	25.58	20.51
Terminal rates(c)	7/40( 17.5)	10/39( 25.6)	11/43( 25.6)	7/38( 18.4)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.6292			
Prevalence method(d)	P = 0.5571			
Combined analysis(d)	P = 0.6165			
Cochran-Armitage test(e)	P = 0.7275			
Fisher Exact test(e)		P = 0.1627	P = 0.2978	P = 0.5984
SITE : thyroid TUMOR : C-cell adenoma				
Tumor rate				
Overall rates(a)	15/50( 30.0)	15/50( 30.0)	7/50( 14.0)	11/50( 22.0)
Adjusted rates(b)	35.00	32.50	15.91	23.91
Terminal rates(c)	14/40( 35.0)	13/40( 32.5)	7/44( 15.9)	8/38( 21.1)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.8816			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.2182			
Fisher Exact test(e)		P = 0.5862	P = 0.0448*	P = 0.2472
SITE : thyroid TUMOR : C-cell carcinoma				
Tumor rate				
Overall rates(a)	3/50( 6.0)	1/50( 2.0)	1/50( 2.0)	2/50( 4.0)
Adjusted rates(b)	7.50	2.50	0.0	5.26
Terminal rates(c)	3/40( 7.5)	1/40( 2.5)	0/44( 0.0)	2/38( 5.3)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.3908			
Prevalence method(d)	P = 0.6380			
Combined analysis(d)	P = 0.6004			
Cochran-Armitage test(e)	P = 0.7450			
Fisher Exact test(e)		P = 0.3087	P = 0.3087	P = 0.5000

STUDY No. : 0399  
ANIMAL : RAT F344/DuCrj  
SEX : MALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 6

Group Name	Control	600ppm	1200ppm	2400ppm
SITE : thyroid TUMOR : C-cell adenoma,C-cell carcinoma				
Tumor rate				
Overall rates(a)	18/50( 36.0)	16/50( 32.0)	8/50( 16.0)	12/50( 24.0)
Adjusted rates(b)	42.50	35.00	15.91	26.09
Terminal rates(c)	17/40( 42.5)	14/40( 35.0)	7/44( 15.9)	9/38( 23.7)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.3908			
Prevalence method(d)	P = 0.9407			
Combined analysis(d)	P = 0.9345			
Cochran-Armitage test(e)	P = 0.1184			
Fisher Exact test(e)		P = 0.4165	P = 0.0195*	P = 0.1376
SITE : adrenal gland TUMOR : pheochromocytoma				
Tumor rate				
Overall rates(a)	5/50( 10.0)	3/50( 6.0)	1/50( 2.0)	5/50( 10.0)
Adjusted rates(b)	12.50	7.50	2.27	13.16
Terminal rates(c)	5/40( 12.5)	3/40( 7.5)	1/44( 2.3)	5/38( 13.2)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.4323			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.9254			
Fisher Exact test(e)		P = 0.3575	P = 0.1022	P = 0.6297
SITE : adrenal gland TUMOR : pheochromocytoma,pheochromocytoma:malignant				
Tumor rate				
Overall rates(a)	7/50( 14.0)	3/50( 6.0)	3/50( 6.0)	6/50( 12.0)
Adjusted rates(b)	12.50	7.50	6.82	13.16
Terminal rates(c)	5/40( 12.5)	3/40( 7.5)	3/44( 6.8)	5/38( 13.2)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.6539			
Prevalence method(d)	P = 0.3986			
Combined analysis(d)	P = 0.4834			
Cochran-Armitage test(e)	P = 0.9675			
Fisher Exact test(e)		P = 0.1589	P = 0.1589	P = 0.5000

STUDY No. : 0399  
ANIMAL : RAT F344/DuCrj  
SEX : MALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 7

Group Name	Control	600ppm	1200ppm	2400ppm
SITE : testis TUMOR : interstitial cell tumor				
Tumor rate				
Overall rates(a)	46/50( 92.0)	48/50( 96.0)	44/50( 88.0)	47/50( 94.0)
Adjusted rates(b)	100.00	100.00	91.67	100.00
Terminal rates(c)	40/40(100.0)	40/40(100.0)	40/44( 90.9)	38/38(100.0)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.3827			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.9638			
Fisher Exact test(e)		P = 0.3389	P = 0.3703	P = 0.5000
SITE : peritoneum TUMOR : mesothelioma				
Tumor rate				
Overall rates(a)	1/50( 2.0)	2/50( 4.0)	3/50( 6.0)	0/50( 0.0)
Adjusted rates(b)	2.50	2.50	4.55	0.0
Terminal rates(c)	1/40( 2.5)	1/40( 2.5)	2/44( 4.5)	0/38( 0.0)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.5513			
Prevalence method(d)	P = 0.7308			
Combined analysis(d)	P = 0.7378			
Cochran-Armitage test(e)	P = 0.4835			
Fisher Exact test(e)		P = 0.5000	P = 0.3087	P = 0.5000

(HPT360A)

BAIS4

- (a): Number of tumor-bearing animals/number of animals examined at the site.  
(b): Kaplan-Meire estimated tumor incidence at the end of the study after adjusting for intercurrent mortality.  
(c): Observed tumor incidence at terminal kill.  
(d): Beneath the control incidence are the P-values associated with the trend test.  
Standard method : Death analysis  
Prevalence method : Incidental tumor test  
Combined analysis : Death analysis + Incidental tumor test  
(e): The Cochran-Armitage and Fisher exact test compare directly the overall incidence rates.  
? : The conditional probabilities of the largest and smallest possible outcomes can not be estimated or this P-value is beyond the estimated P-value.  
----- : There is no data which should be statistical analysis.  
Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$   
N.C. : Statistical value cannot be calculated and was not significant.



## APPENDIX M 2

### NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS, RAT : FEMALE (2-YEAR STUDY)

STUDY No. : 0399  
ANIMAL : RAT F344/DuCrj  
SEX : FEMALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 8

Group Name	Control	600ppm	1200ppm	2400ppm
SITE : subcutis TUMOR : fibroma				
Tumor rate				
Overall rates(a)	4/50( 8.0)	2/50( 4.0)	0/50( 0.0)	0/50( 0.0)
Adjusted rates(b)	6.52	4.55	0.0	0.0
Terminal rates(c)	1/42( 2.4)	2/44( 4.5)	0/47( 0.0)	0/36( 0.0)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.9117 ?			
Prevalence method(d)	P = 0.9881			
Combined analysis(d)	P = 0.9960			
Cochran-Armitage test(e)	P = 0.0172*			
Fisher Exact test(e)		P = 0.3389	P = 0.0587	P = 0.0587
SITE : lung TUMOR : bronchiolar-alveolar adenoma				
Tumor rate				
Overall rates(a)	3/50( 6.0)	1/50( 2.0)	2/50( 4.0)	0/50( 0.0)
Adjusted rates(b)	6.82	2.27	4.26	0.0
Terminal rates(c)	2/42( 4.8)	1/44( 2.3)	2/47( 4.3)	0/36( 0.0)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.9353			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.1232			
Fisher Exact test(e)		P = 0.3087	P = 0.5000	P = 0.1212
SITE : spleen TUMOR : mononuclear cell leukemia				
Tumor rate				
Overall rates(a)	5/50( 10.0)	5/50( 10.0)	4/50( 8.0)	6/50( 12.0)
Adjusted rates(b)	4.76	9.09	6.38	2.78
Terminal rates(c)	2/42( 4.8)	4/44( 9.1)	3/47( 6.4)	1/36( 2.8)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.1067			
Prevalence method(d)	P = 0.7231			
Combined analysis(d)	P = 0.3061			
Cochran-Armitage test(e)	P = 0.7499			
Fisher Exact test(e)		P = 0.6297	P = 0.5000	P = 0.5000

STUDY No. : 0399  
ANIMAL : RAT F344/DuCrj  
SEX : FEMALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 9

Group Name	Control	600ppm	1200ppm	2400ppm
SITE : pituitary gland TUMOR : adenoma				
Tumor rate				
Overall rates(a)	17/49( 34.7)	14/49( 28.6)	19/48( 39.6)	12/50( 24.0)
Adjusted rates(b)	35.71	27.91	37.78	25.00
Terminal rates(c)	14/41( 34.1)	12/43( 27.9)	17/45( 37.8)	9/36( 25.0)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.4597			
Prevalence method(d)	P = 0.7419			
Combined analysis(d)	P = 0.7109			
Cochran-Armitage test(e)	P = 0.3457			
Fisher Exact test(e)		P = 0.3322	P = 0.3867	P = 0.1716
SITE : pituitary gland TUMOR : adenocarcinoma				
Tumor rate				
Overall rates(a)	3/49( 6.1)	3/49( 6.1)	1/48( 2.1)	1/50( 2.0)
Adjusted rates(b)	7.32	4.65	2.22	0.0
Terminal rates(c)	3/41( 7.3)	2/43( 4.7)	1/45( 2.2)	0/36( 0.0)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.2376			
Prevalence method(d)	P = 0.9697			
Combined analysis(d)	P = 0.8700			
Cochran-Armitage test(e)	P = 0.2175			
Fisher Exact test(e)		P = 0.6612	P = 0.3164	P = 0.3010
SITE : pituitary gland TUMOR : adenoma, adenocarcinoma				
Tumor rate				
Overall rates(a)	20/49( 40.8)	17/49( 34.7)	20/48( 41.7)	13/50( 26.0)
Adjusted rates(b)	42.86	32.56	40.00	25.00
Terminal rates(c)	17/41( 41.5)	14/43( 32.6)	18/45( 40.0)	9/36( 25.0)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.3383			
Prevalence method(d)	P = 0.9103			
Combined analysis(d)	P = 0.8440			
Cochran-Armitage test(e)	P = 0.1543			
Fisher Exact test(e)		P = 0.3386	P = 0.5481	P = 0.0883

STUDY No. : 0399  
ANIMAL : RAT F344/DuCrj  
SEX : FEMALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 10

Group Name	Control	600ppm	1200ppm	2400ppm
SITE : thyroid TUMOR : C-cell adenoma				
Tumor rate				
Overall rates(a)	10/50( 20.0)	6/50( 12.0)	9/50( 18.0)	5/50( 10.0)
Adjusted rates(b)	23.81	12.50	19.15	13.89
Terminal rates(c)	10/42( 23.8)	5/44( 11.4)	9/47( 19.1)	5/36( 13.9)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.8191			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.2551			
Fisher Exact test(e)		P = 0.2070	P = 0.5000	P = 0.1312
SITE : thyroid TUMOR : C-cell adenoma,C-cell carcinoma				
Tumor rate				
Overall rates(a)	11/50( 22.0)	7/50( 14.0)	9/50( 18.0)	6/50( 12.0)
Adjusted rates(b)	26.19	14.58	19.15	16.67
Terminal rates(c)	11/42( 26.2)	6/44( 13.6)	9/47( 19.1)	6/36( 16.7)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.8106			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.2597			
Fisher Exact test(e)		P = 0.2178	P = 0.4016	P = 0.1434
SITE : uterus TUMOR : endometrial stromal polyp				
Tumor rate				
Overall rates(a)	4/50( 8.0)	7/50( 14.0)	2/50( 4.0)	6/50( 12.0)
Adjusted rates(b)	9.52	15.91	4.26	13.89
Terminal rates(c)	4/42( 9.5)	7/44( 15.9)	2/47( 4.3)	5/36( 13.9)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.3311			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.7754			
Fisher Exact test(e)		P = 0.2623	P = 0.3389	P = 0.3703

STUDY No. : 0399  
ANIMAL : RAT F344/DuCrj  
SEX : FEMALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 11

Group Name	Control	600ppm	1200ppm	2400ppm
SITE : mammary gland TUMOR : adenoma				
Tumor rate				
Overall rates(a)	2/50( 4.0)	5/50( 10.0)	4/50( 8.0)	2/50( 4.0)
Adjusted rates(b)	4.76	10.87	8.51	2.78
Terminal rates(c)	2/42( 4.8)	4/44( 9.1)	4/47( 8.5)	1/36( 2.8)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.0857 ?			
Prevalence method(d)	P = 0.7378			
Combined analysis(d)	P = 0.5559			
Cochran-Armitage test(e)	P = 0.7343			
Fisher Exact test(e)		P = 0.2180	P = 0.3389	P = 0.6913
SITE : mammary gland TUMOR : fibroadenoma				
Tumor rate				
Overall rates(a)	5/50( 10.0)	3/50( 6.0)	10/50( 20.0)	2/50( 4.0)
Adjusted rates(b)	9.52	6.25	21.28	5.56
Terminal rates(c)	4/42( 9.5)	1/44( 2.3)	10/47( 21.3)	2/36( 5.6)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.9109 ?			
Prevalence method(d)	P = 0.5968			
Combined analysis(d)	P = 0.6968			
Cochran-Armitage test(e)	P = 0.5238			
Fisher Exact test(e)		P = 0.3575	P = 0.1312	P = 0.2180
SITE : mammary gland TUMOR : adenoma, fibroadenoma				
Tumor rate				
Overall rates(a)	7/50( 14.0)	8/50( 16.0)	14/50( 28.0)	4/50( 8.0)
Adjusted rates(b)	14.29	16.67	29.79	8.33
Terminal rates(c)	6/42( 14.3)	5/44( 11.4)	14/47( 29.8)	3/36( 8.3)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.3703			
Prevalence method(d)	P = 0.7260			
Combined analysis(d)	P = 0.6911			
Cochran-Armitage test(e)	P = 0.4589			
Fisher Exact test(e)		P = 0.5000	P = 0.0698	P = 0.2623

STUDY No. : 0399  
 ANIMAL : RAT F344/DuCrj  
 SEX : FEMALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 12

Group Name	Control	600ppm	1200ppm	2400ppm
SITE : mammary gland				
TUMOR : adenoma, fibroadenoma, adenocarcinoma				
Tumor rate				
Overall rates(a)	7/50( 14.0)	9/50( 18.0)	14/50( 28.0)	4/50( 8.0)
Adjusted rates(b)	14.29	18.75	29.79	8.33
Terminal rates(c)	6/42( 14.3)	6/44( 13.6)	14/47( 29.8)	3/36( 8.3)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.3703			
Prevalence method(d)	P = 0.7536			
Combined analysis(d)	P = 0.7197			
Cochran-Armitage test(e)	P = 0.4081			
Fisher Exact test(e)		P = 0.3929	P = 0.0698	P = 0.2623

(HPT360A)

BATS4

- (a): Number of tumor-bearing animals/number of animals examined at the site.  
 (b): Kaplan-Meire estimated tumor incidence at the end of the study after adjusting for intercurrent mortality.  
 (c): Observed tumor incidence at terminal kill.  
 (d): Beneath the control incidence are the P-values associated with the trend test.  
     Standard method : Death analysis  
     Prevalence method : Incidental tumor test  
     Combined analysis : Death analysis + Incidental tumor test  
 (e): The Cochran-Armitage and Fisher exact test compare directly the overall incidence rates.  
 ? : The conditional probabilities of the largest and smallest possible out comes can not estimated or this P-value is beyond the estimated P-value.  
 ----- : There is no data which should be statistical analysis.  
 Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$   
 N.C. : Statistical value cannot be calculated and was not significant.

## APPENDIX N 1

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR : SUMMARY

RAT : MALE : ALL ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 1

		Group Name	Control	600ppm	1200ppm	2400ppm
		No. of Animals on Study	50	50	50	50
Organ	Findings					
{Respiratory system}						
nasal cavit			<50>	<50>	<50>	<50>
	leukemic cell infiltration		1	0	0	0
trachea			<50>	<50>	<50>	<50>
	metastasis:thyroid tumor		0	0	0	1
lung			<50>	<50>	<50>	<50>
	leukemic cell infiltration		4	5	4	2
	metastasis:thyroid tumor		1	0	0	0
	metastasis:peritoneum tumor		0	0	1	0
	metastasis:bone tumor		1	0	0	2
	metastasis:zymlal gland tumor		1	0	0	0
	metastasis:bone marrow tumor		1	0	0	0
{Hematopoietic system}						
bone marrow			<50>	<50>	<50>	<50>
	leukemic cell infiltration		3	1	1	0
lymph node			<50>	<50>	<50>	<50>
	leukemic cell infiltration		3	1	0	0
	metastasis:bone tumor		1	0	0	0
thymus			<50>	<50>	<50>	<50>
	leukemic cell infiltration		1	1	0	0
spleen			<50>	<50>	<50>	<50>
	metastasis:bone marrow tumor		1	0	0	0
< a >	a : Number of animals examined at the site					
b	b : Number of animals with lesion					



STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 2

		Group Name	Control	600ppm	1200ppm	2400ppm
		No. of Animals on Study	50	50	50	50
Organ	Findings					
{Circulatory system}						
heart	leukemic cell infiltration		<50> 0	<50> 1	<50> 0	<50> 0
	metastasis:peritoneum tumor		0	0	1	0
{Digestive system}						
salivary gl	leukemic cell infiltration		<50> 1	<50> 0	<50> 0	<50> 0
stomach	leukemic cell infiltration		<50> 0	<50> 1	<50> 0	<50> 0
liver	leukemic cell infiltration		<50> 4	<50> 5	<50> 4	<50> 2
	metastasis:bone marrow tumor		1	0	0	0
pancreas	leukemic cell infiltration		<50> 1	<50> 1	<50> 0	<50> 0
	metastasis:bone marrow tumor		1	0	0	0
{Urinary system}						
kidney	leukemic cell infiltration		<50> 1	<50> 2	<50> 0	<50> 0
	metastasis:bone marrow tumor		1	0	0	0
{Endocrine system}						
pituitary	leukemic cell infiltration		<50> 1	<49> 0	<49> 0	<50> 0

< a > a : Number of animals examined at the site  
b : Number of animals with lesion

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
 ALL ANIMALS (0-105W)

PAGE : 3

		Group Name	Control	600ppm	1200ppm	2400ppm
		No. of Animals on Study	50	50	50	50
Organ	Findings					
{Endocrine system}						
thyroid	leukemic cell infiltration		<50> 1	<50> 1	<50> 0	<50> 0
parathyroid	leukemic cell infiltration		<50> 1	<50> 0	<50> 0	<50> 0
{Reproductive system}						
testis	leukemic cell infiltration		<50> 1	<50> 0	<50> 0	<50> 0
semin ves	leukemic cell infiltration		<50> 1	<50> 0	<50> 0	<50> 0
prostate	leukemic cell infiltration		<50> 1	<50> 0	<50> 0	<50> 0
{Nervous system}						
brain	leukemic cell infiltration		<50> 1	<50> 0	<50> 0	<50> 0
	metastasis:bone tumor		0	1	0	0
	metastasis:pituitary tumor		1	0	0	0
spinal cord	leukemic cell infiltration		<50> 0	<50> 1	<50> 0	<50> 0
{Special sense organs/appendage}						
eye	leukemic cell infiltration		<50> 1	<50> 0	<50> 0	<50> 0
< a > a : Number of animals examined at the site b b : Number of animals with lesion						

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 4

		Group Name	Control	600ppm	1200ppm	2400ppm
		No. of Animals on Study	50	50	50	50
Organ	Findings					
{Special sense organs/appendage}						
Harder gl	leukemic cell infiltration		<50> 1	<50> 1	<50> 0	<50> 0
{Musculoskeletal system}						
muscle	leukemic cell infiltration		<50> 1	<50> 0	<50> 0	<50> 0
{Body cavities}						
pleura	metastasis:bone tumor		<50> 0	<50> 0	<50> 0	<50> 1
< a > a : Number of animals examined at the site						
b b : Number of animals with lesion						

(JPT150)

BAIS4

## APPENDIX N 2

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR : SUMMARY

RAT : MALE : DEAD AND MORIBUND ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 1

Group Name No. of Animals on Study		Control 10	600ppm 10	1200ppm 6	2400ppm 12
Organ	Findings				
{Respiratory system}					
nasal cavit	leukemic cell infiltration	<10> 1	<10> 0	< 6> 0	<12> 0
lung	leukemic cell infiltration	<10> 3	<10> 4	< 6> 1	<12> 1
	metastasis:peritoneum tumor	0	0	1	0
	metastasis:bone tumor	0	0	0	2
	metastasis:zymlal gland tumor	1	0	0	0
	metastasis:bone marrow tumor	1	0	0	0
{Hematopoietic system}					
bone marrow	leukemic cell infiltration	<10> 3	<10> 1	< 6> 1	<12> 0
lymph node	leukemic cell infiltration	<10> 2	<10> 1	< 6> 0	<12> 0
thymus	leukemic cell infiltration	<10> 1	<10> 1	< 6> 0	<12> 0
spleen	metastasis:bone marrow tumor	<10> 1	<10> 0	< 6> 0	<12> 0
{Circulatory system}					
heart	leukemic cell infiltration	<10> 0	<10> 1	< 6> 0	<12> 0
	metastasis:peritoneum tumor	0	0	1	0
< a >	a : Number of animals examined at the site				
b	b : Number of animals with lesion				

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 2

		Group Name No. of Animals on Study	Control 10	600ppm 10	1200ppm 6	2400ppm 12
Organ	Findings					
{Digestive system}						
salivary gl			<10>	<10>	< 6>	<12>
	leukemic cell infiltration		1	0	0	0
stomach			<10>	<10>	< 6>	<12>
	leukemic cell infiltration		0	1	0	0
liver			<10>	<10>	< 6>	<12>
	leukemic cell infiltration		3	4	1	1
	metastasis:bone marrow tumor		1	0	0	0
pancreas			<10>	<10>	< 6>	<12>
	leukemic cell infiltration		1	1	0	0
	metastasis:bone marrow tumor		1	0	0	0
{Urinary system}						
kidney			<10>	<10>	< 6>	<12>
	leukemic cell infiltration		1	2	0	0
	metastasis:bone marrow tumor		1	0	0	0
{Endocrine system}						
pituitary			<10>	<10>	< 6>	<12>
	leukemic cell infiltration		1	0	0	0
thyroid			<10>	<10>	< 6>	<12>
	leukemic cell infiltration		1	1	0	0
parathyroid			<10>	<10>	< 6>	<12>
	leukemic cell infiltration		1	0	0	0
< a >	a : Number of animals examined at the site					
b	b : Number of animals with lesion					

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : MALE

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 3

Group Name No. of Animals on Study		Control 10	600ppm 10	1200ppm 6	2400ppm 12
Organ	Findings				
{Reproductive system}					
testis		<10>	<10>	< 6>	<12>
	leukemic cell infiltration	1	0	0	0
semin ves		<10>	<10>	< 6>	<12>
	leukemic cell infiltration	1	0	0	0
prostate		<10>	<10>	< 6>	<12>
	leukemic cell infiltration	1	0	0	0
{Nervous system}					
brain		<10>	<10>	< 6>	<12>
	leukemic cell infiltration	1	0	0	0
	metastasis:bone tumor	0	1	0	0
spinal cord		<10>	<10>	< 6>	<12>
	leukemic cell infiltration	0	1	0	0
{Special sense organs/appendage}					
eye		<10>	<10>	< 6>	<12>
	leukemic cell infiltration	1	0	0	0
Harder gl		<10>	<10>	< 6>	<12>
	leukemic cell infiltration	1	1	0	0
{Musculoskeletal system}					
muscle		<10>	<10>	< 6>	<12>
	leukemic cell infiltration	1	0	0	0
{Body cavities}					
pleura		<10>	<10>	< 6>	<12>
	metastasis:bone tumor	0	0	0	1
< a > a : Number of animals examined at the site b b : Number of animals with lesion					

## APPENDIX N 3

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR : SUMMARY

RAT : MALE : SACRIFICED ANIMALS

(2-YEAR STUDY)



STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : MALE

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
 SACRIFICED ANIMALS (105W)

PAGE : 1

Group Name No. of Animals on Study		Control 40	600ppm 40	1200ppm 44	2400ppm 38
Organ	Findings				
{Respiratory system}					
trachea	metastasis:thyroid tumor	<40> 0	<40> 0	<44> 0	<38> 1
lung	leukemic cell infiltration	<40> 1	<40> 1	<44> 3	<38> 1
	metastasis:thyroid tumor	1	0	0	0
	metastasis:bone tumor	1	0	0	0
{Hematopoietic system}					
lymph node	leukemic cell infiltration	<40> 1	<40> 0	<44> 0	<38> 0
	metastasis:bone tumor	1	0	0	0
{Digestive system}					
liver	leukemic cell infiltration	<40> 1	<40> 1	<44> 3	<38> 1
{Nervous system}					
brain	metastasis:pituitary tumor	<40> 1	<40> 0	<44> 0	<38> 0

< a > a : Number of animals examined at the site  
 b b : Number of animals with lesion

## APPENDIX N 4

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR : SUMMARY

RAT : FEMALE: ALL ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 5

		Group Name	Control	600ppm	1200ppm	2400ppm
		No. of Animals on Study	50	50	50	50
Organ	Findings					
{Respiratory system}						
lung	leukemic cell infiltration		<50> 4	<50> 5	<50> 3	<50> 6
	metastasis:thyroid tumor		1	1	0	0
{Hematopoietic system}						
bone marrow	leukemic cell infiltration		<50> 1	<50> 0	<50> 3	<50> 1
	metastasis:thyroid tumor		1	0	0	0
lymph node	leukemic cell infiltration		<50> 2	<50> 0	<50> 0	<50> 4
	metastasis:thyroid tumor		1	0	0	0
thymus	leukemic cell infiltration		<50> 0	<50> 0	<50> 0	<50> 2
{Circulatory system}						
heart	leukemic cell infiltration		<50> 1	<50> 2	<50> 0	<50> 3
{Digestive system}						
stomach	leukemic cell infiltration		<50> 0	<50> 0	<50> 0	<50> 2
	metastasis:subcutis tumor		0	1	0	0
liver	leukemic cell infiltration		<50> 5	<50> 5	<50> 3	<50> 6
	metastasis:subcutis tumor		0	1	0	0
< a >	a : Number of animals examined at the site					
b	b : Number of animals with lesion					

STUDY NO. : 0390  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 6

		Group Name	Control	600ppm	1200ppm	2400ppm
		No. of Animals on Study	50	50	50	50
Organ	Findings					
{Digestive system}						
pancreas	leukemic cell infiltration		<50> 1	<50> 0	<50> 0	<50> 1
{Urinary system}						
kidney	leukemic cell infiltration		<50> 1	<50> 0	<50> 0	<50> 3
urin bladd	leukemic cell infiltration		<50> 0	<50> 0	<50> 0	<50> 2
{Endocrine system}						
pituitary	leukemic cell infiltration		<50> 0	<50> 0	<50> 0	<50> 2
adrenal	leukemic cell infiltration		<50> 1	<50> 1	<50> 1	<50> 3
{Reproductive system}						
ovary	leukemic cell infiltration		<50> 2	<50> 0	<50> 0	<50> 3
{Nervous system}						
brain	leukemic cell infiltration		<50> 0	<50> 1	<50> 0	<50> 2
	metastasis:thyroid tumor		0	0	0	1
	metastasis:pituitary tumor		2	1	0	0
< a >	a : Number of animals examined at the site					
b	b : Number of animals with lesion					

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 7

		Group Name	Control	600ppm	1200ppm	2400ppm
Organ	Findings	No. of Animals on Study	50	50	50	50
{Nervous system}						
spinal cord	leukemic cell infiltration		<50> 0	<50> 1	<50> 0	<50> 1
< a > a : Number of animals examined at the site						
b b : Number of animals with lesion						

(JPT150)

BAIS4

## APPENDIX N 5

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR : SUMMARY

RAT : FEMALE : DEAD AND MORIBUND ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 4

Organ	Findings	Group Name No. of Animals on Study	Control 8	600ppm 6	1200ppm 3	2400ppm 14
{Respiratory system}						
lung	leukemic cell infiltration		< 8> 3	< 6> 1	< 3> 1	<14> 5
{Hematopoietic system}						
bone marrow	leukemic cell infiltration		< 8> 1	< 6> 0	< 3> 1	<14> 1
lymph node	leukemic cell infiltration		< 8> 2	< 6> 0	< 3> 0	<14> 4
thymus	leukemic cell infiltration		< 8> 0	< 6> 0	< 3> 0	<14> 2
{Circulatory system}						
heart	leukemic cell infiltration		< 8> 1	< 6> 1	< 3> 0	<14> 3
{Digestive system}						
stomach	leukemic cell infiltration		< 8> 0	< 6> 0	< 3> 0	<14> 2
liver	leukemic cell infiltration		< 8> 3	< 6> 1	< 3> 1	<14> 5
	metastasis:subcutis tumor		0	1	0	0
pancreas	leukemic cell infiltration		< 8> 1	< 6> 0	< 3> 0	<14> 1
{Urinary system}						
kidney	leukemic cell infiltration		< 8> 1	< 6> 0	< 3> 0	<14> 3

< a > a : Number of animals examined at the site  
 b b : Number of animals with lesion

STUDY NO. : 0399  
 ANIMAL : RAT F344/DuCrj  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 5

Organ	Findings	Group Name No. of Animals on Study	Control 8	600ppm 6	1200ppm 3	2400ppm 14
{Urinary system}						
urin bladd	leukemic cell infiltration		< 8> 0	< 6> 0	< 3> 0	<14> 2
{Endocrine system}						
pituitary	leukemic cell infiltration		< 8> 0	< 6> 0	< 3> 0	<14> 2
adrenal	leukemic cell infiltration		< 8> 1	< 6> 0	< 3> 0	<14> 3
{Reproductive system}						
ovary	leukemic cell infiltration		< 8> 2	< 6> 0	< 3> 0	<14> 3
{Nervous system}						
brain	leukemic cell infiltration		< 8> 0	< 6> 1	< 3> 0	<14> 2
spinal cord	leukemic cell infiltration		< 8> 0	< 6> 1	< 3> 0	<14> 1
< a >	a : Number of animals examined at the site					
b	b : Number of animals with lesion					



## APPENDIX N 6

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR : SUMMARY

RAT : FEMALE : SACRIFICED ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 2

Organ	Findings	Group Name No. of Animals on Study	Control 42	600ppm 44	1200ppm 47	2400ppm 36
{Respiratory system}						
lung	leukemic cell infiltration		<42> 1	<44> 4	<47> 2	<36> 1
	metastasis:thyroid tumor		1	1	0	0
{Hematopoietic system}						
bone marrow	leukemic cell infiltration		<42> 0	<44> 0	<47> 2	<36> 0
lymph node	metastasis:thyroid tumor		<42> 1	<44> 0	<47> 0	<36> 0
{Circulatory system}						
heart	leukemic cell infiltration		<42> 0	<44> 1	<47> 0	<36> 0
{Digestive system}						
liver	leukemic cell infiltration		<42> 2	<44> 4	<47> 2	<36> 1
{Endocrine system}						
adrenal	leukemic cell infiltration		<42> 0	<44> 1	<47> 1	<36> 0
{Nervous system}						
brain	metastasis:thyroid tumor		<42> 0	<44> 0	<47> 0	<36> 1

< a > a : Number of animals examined at the site  
b b : Number of animals with lesion

STUDY NO. : 0399  
ANIMAL : RAT F344/DuCrj  
REPORT TYPE : A1  
SEX : FEMALE

HISTOPATHOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 3

		Group Name	Control	600ppm	1200ppm	2400ppm
Organ	Findings	No. of Animals on Study	42	44	47	36
{Nervous system}						
brain	metastasis:pituitary tumor		<42> 2	<44> 1	<47> 0	<36> 0
< a > a : Number of animals examined at the site						
b b : Number of animals with lesion						

(JPT150)

BAIS4

## APPENDIX O 1

### IDENTITY AND IMPURITY OF CYCLOHEXENE IN THE 2-YEAR INHALATION STUDY

## IDENTITY AND IMPURITY OF CYCLOHEXENE IN THE 2-YEAR INHALATION STUDY

Test Substance : Cyclohexene (Wako Pure Chemical Industries, Ltd.)

A. Lot No. : ACJ6186

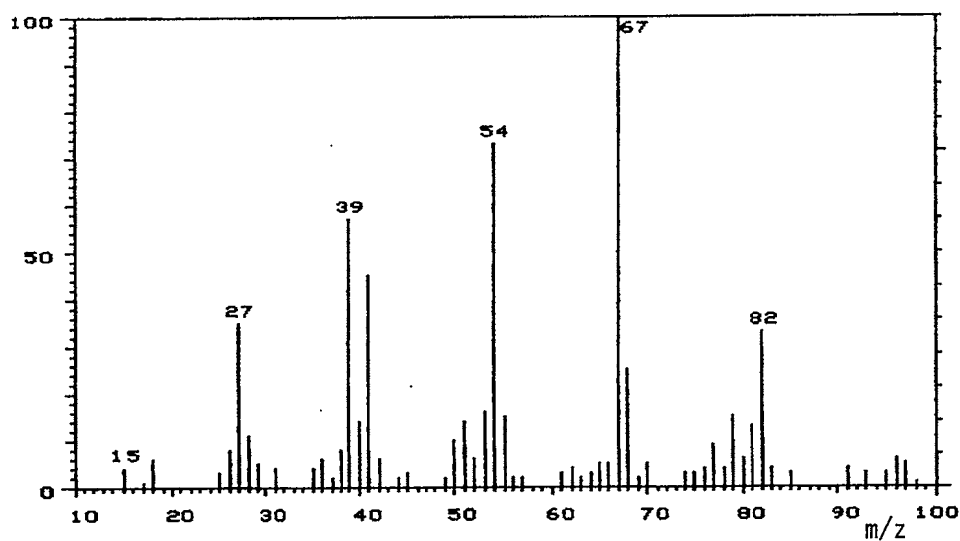
## 1. Spectral Data

Mass Spectrometry

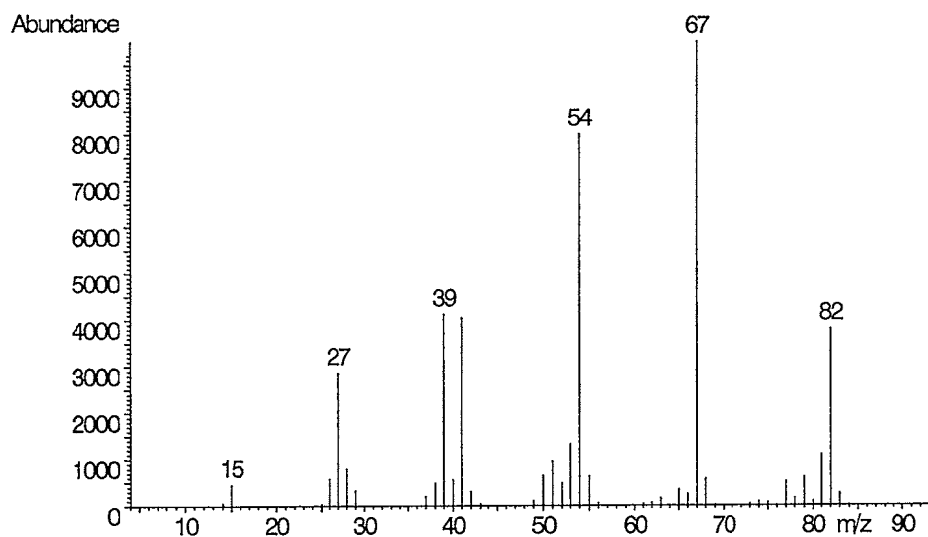
Instrument : Hitachi M-80B Mass Spectrometer

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.

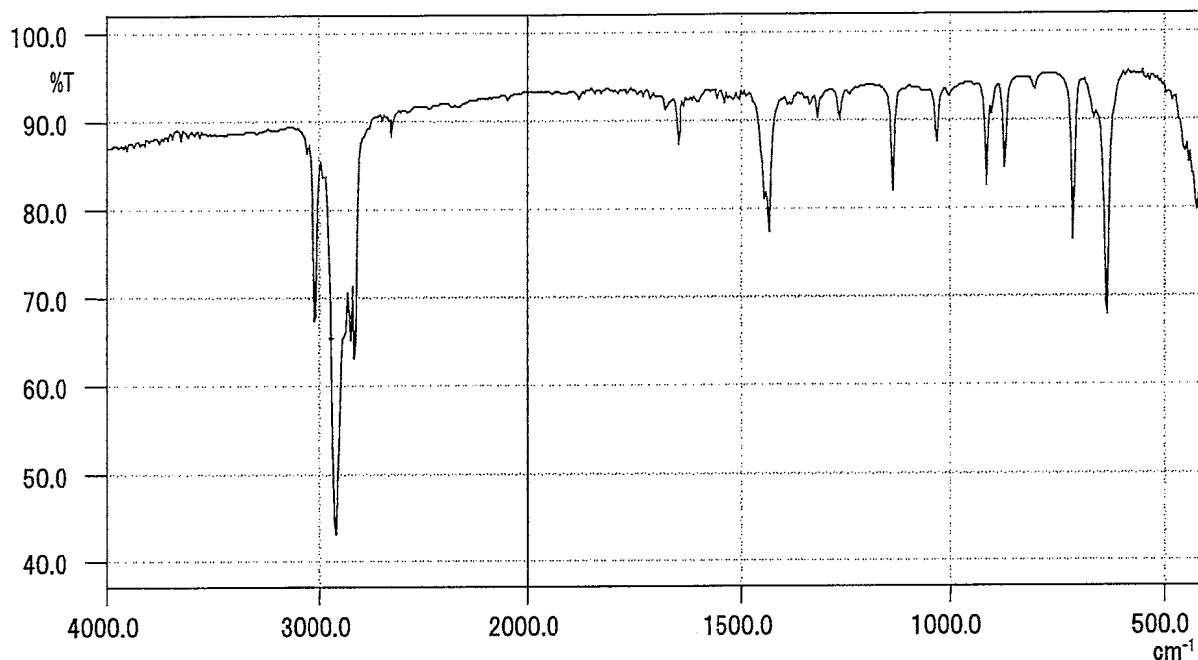
(\*McLafferty FW, ed. 1994. Wiley Registry of Mass Spectral Data. 6th ed.  
New York, NY: John Wiley and Sons.)

Infrared Spectrometry

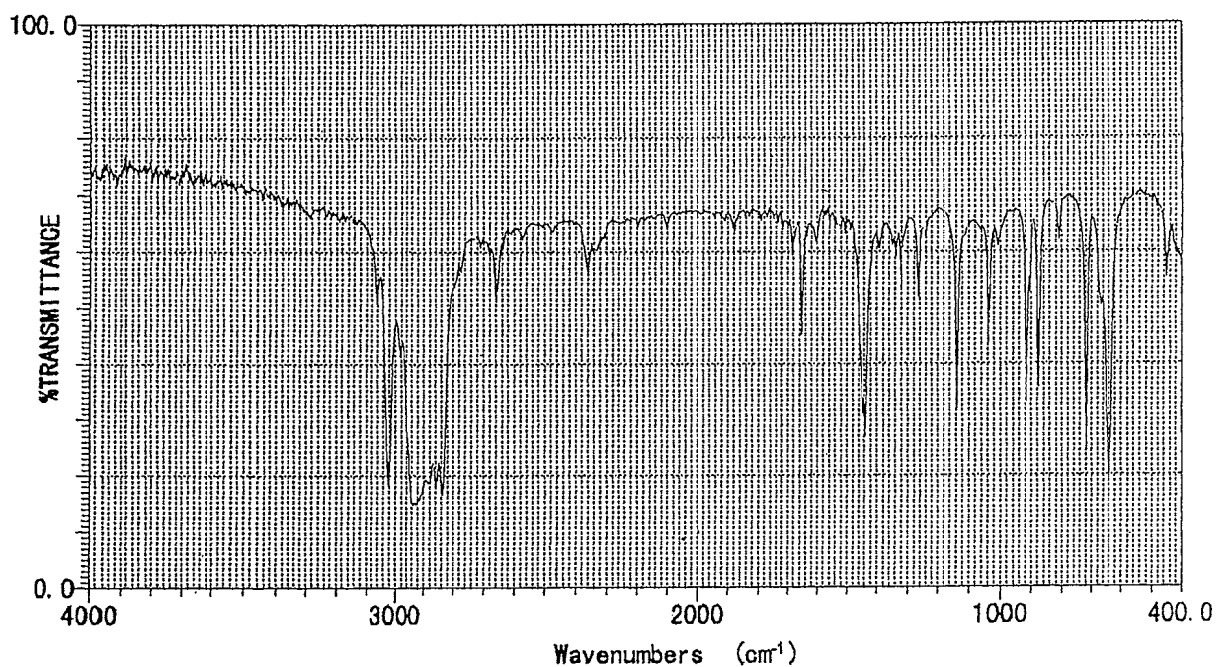
Instrument : Shimadzu FTIR-8200PC Infrared Spectrometer

Cell : KBr Liquid Cell

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



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. Impurity

Instrument : Hewlett Packard 5890A Gas Chromatograph  
Column : Methyl Silicone (0.53 mm  $\phi$   $\times$  60 m)  
Column Temperature: 60° C  
Flow Rate : 15 mL/min  
Detector : FID (Flame Ionization Detector)  
Injection Volume : 1  $\mu$ L

Sample Name	Peak No.	Area (%)	Peak Name
Test Substance	1	0.147	1,3-Cyclohexadiene
	2	99.787	Cyclohexene
	3	0.066	1,4-Cyclohexadiene

Result: Gas chromatography indicated one major peak (peak No. 2) and two impurities. There were identified by comparing GC-MS with that of 1,3-cyclohexadiene(peak No. 1) and 1,4-cyclohexadiene(peak No. 3) in the cyclohexene. The amounts in the test substance were 0.147%(The quantity value by the standard sample was 0.130%.) and 0.066% (The quantity value by the standard sample was 0.055%.) with a gas chromatograph.

3. Conclusion: The test substance was identified as cyclohexene by mass spectrum and infrared spectrum. Gas chromatography indicated one major peak (cyclohexene) and two impurities. These impurities were 1,3-cyclohexadiene and 1,4-cyclohexadiene in the test substance.

B. Lot No. : KSJ6321

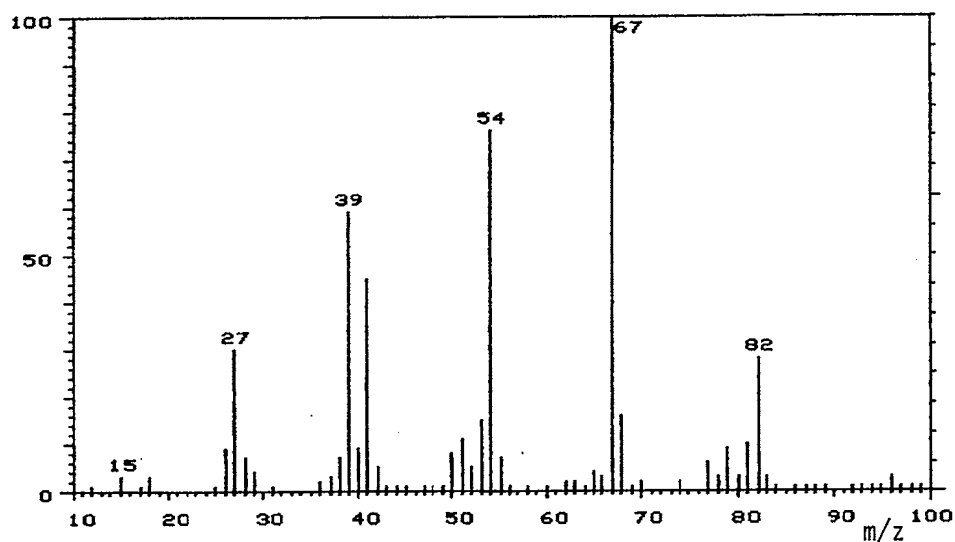
# 1. Spectral Data

## Mass Spectrometry

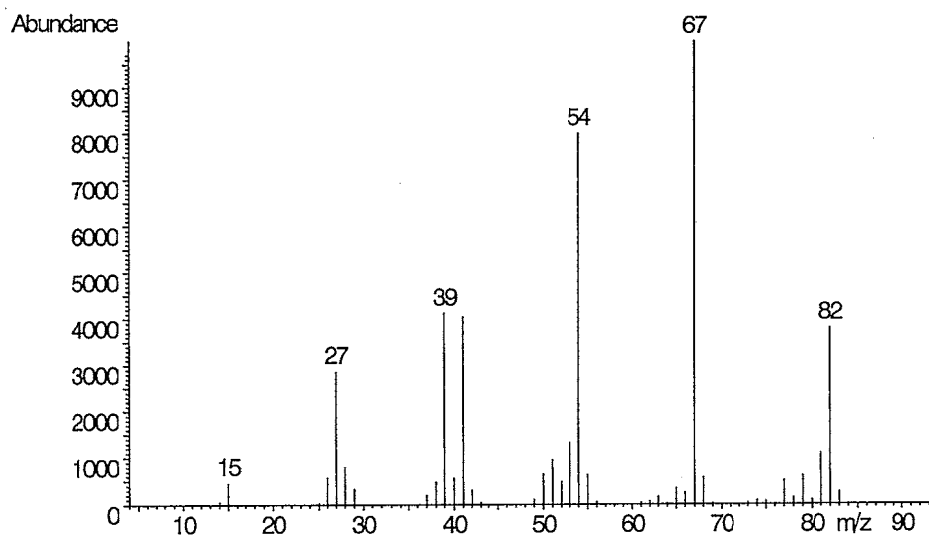
Instrument : Hitachi M-80B Mass Spectrometer

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.)

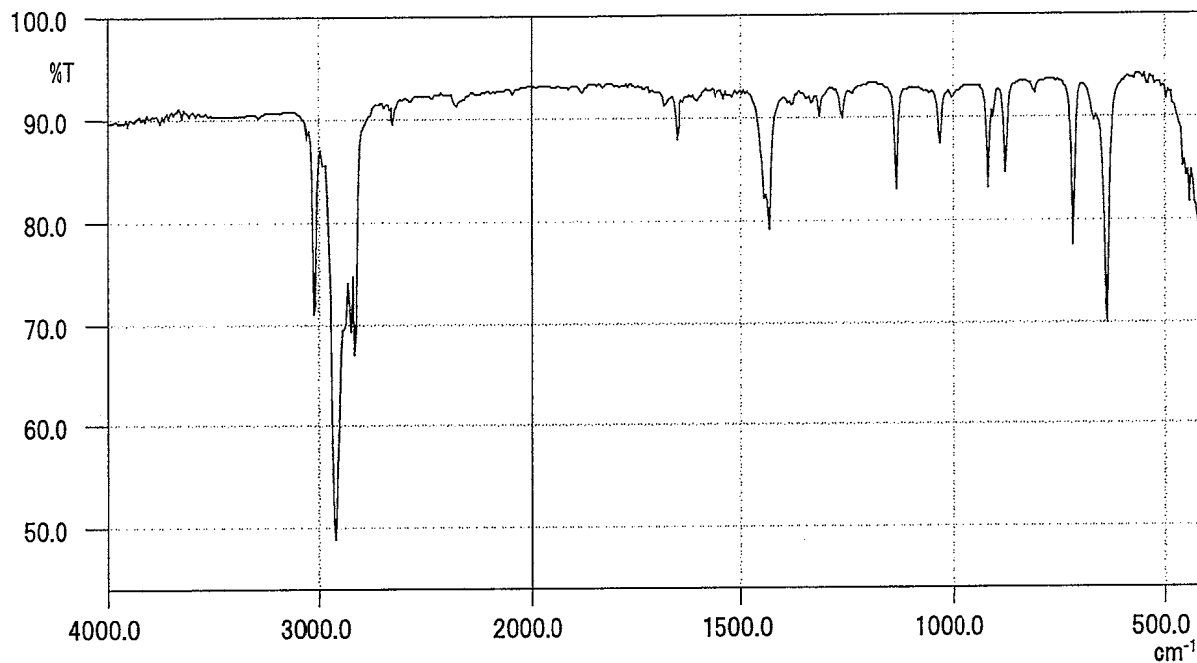


Infrared Spectrometry

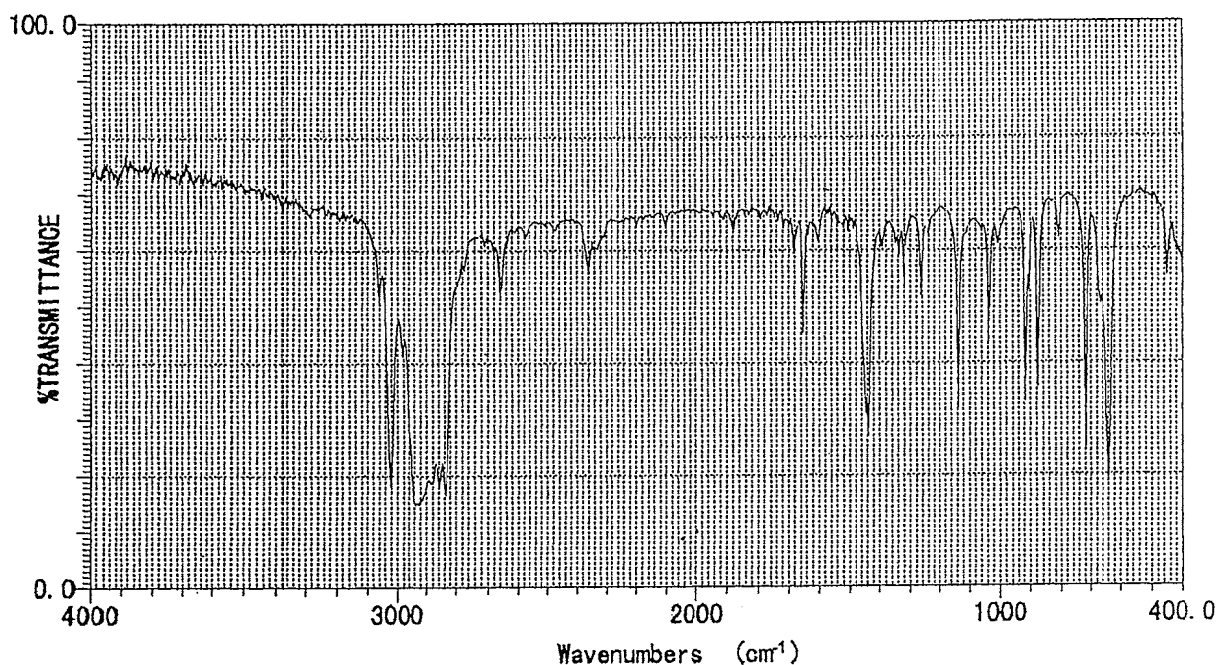
Instrument : Shimadzu FTIR-8200PC Infrared Spectrometer

Cell : KBr Liquid Cell

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



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. Impurity

Instrument : Hewlett Packard 5890A Gas Chromatograph  
Column : Methyl Silicone (0.53 mm $\phi$   $\times$  60 m)  
Column Temperature: 60° C  
Flow Rate : 15 mL/min  
Detector : FID (Flame Ionization Detector)  
Injection Volume : 1  $\mu$ L

Sample Name	Peak No.	Area (%)	Peak Name
Test Substance	1	0.039	1,3-Cyclohexadiene
	2	99.899	Cyclohexene
	3	0.062	1,4-Cyclohexadiene

Result: Gas chromatography indicated one major peak (peak No. 2) and two impurities. There were identified by comparing GC-MS with that of 1,3-cyclohexadiene(peak No. 1) and 1,4-cyclohexadiene(peak No. 3) in the cyclohexene. The amounts in the test substance were 0.039%(The quantity value by the standard sample was 0.035%.) and 0.062% (The quantity value by the standard sample was 0.052%.) with a gas chromatograph.

3. Conclusion: The test substance was identified as cyclohexene by mass spectrum and infrared spectrum. Gas chromatography indicated one major peak (cyclohexene) and two impurities. These impurities were 1,3-cyclohexadiene and 1,4-cyclohexadiene in the test substance.

C. Lot No. : ELN4601

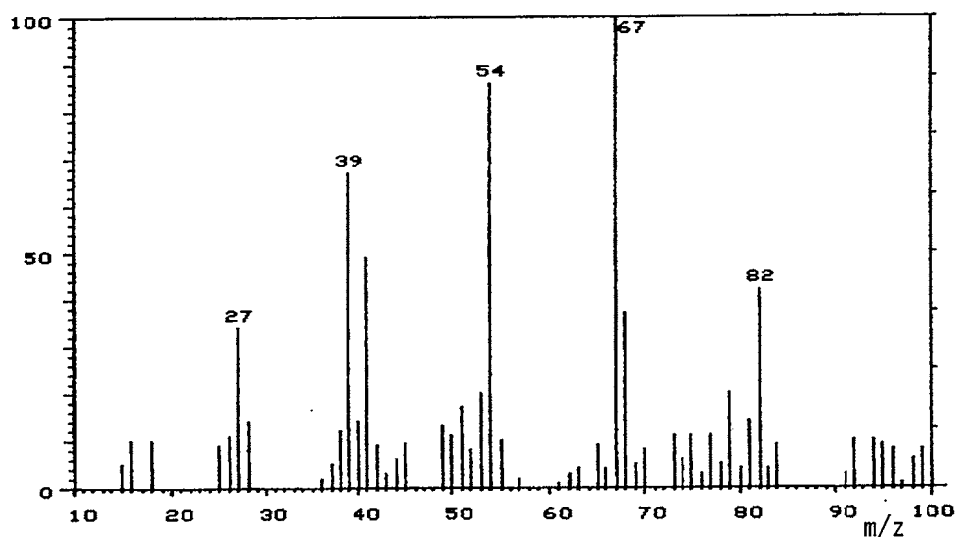
## 1. Spectral Data

### Mass Spectrometry

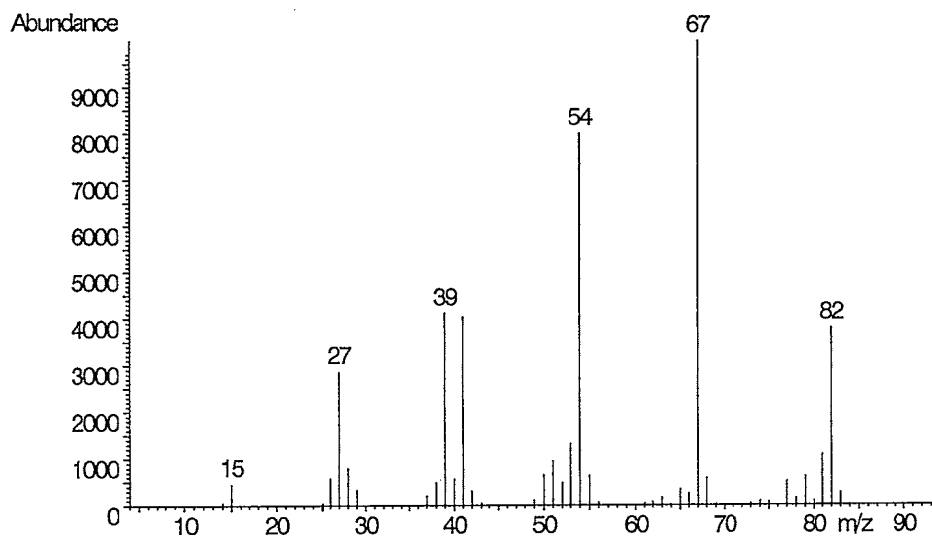
Instrument : Hitachi M-80B Mass Spectrometer

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.

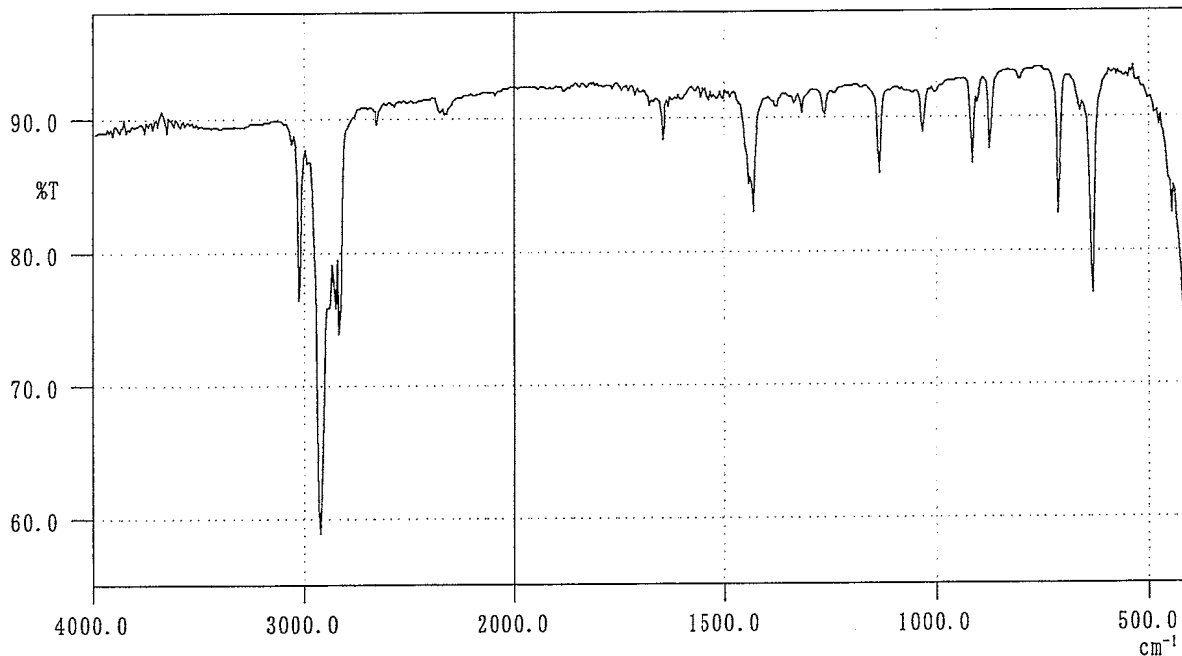
(\*McLafferty FW, ed. 1994. Wiley Registry of Mass Spectral Data. 6th ed. New York, NY:John Wiley and Sons.)

Infrared Spectrometry

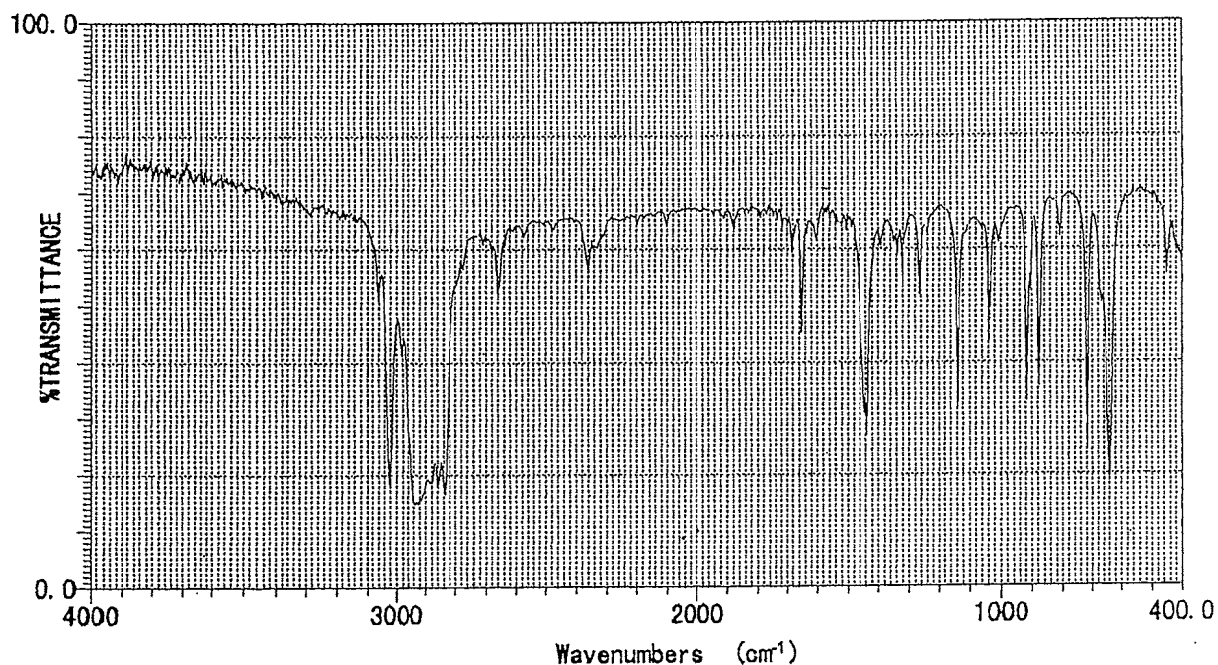
Instrument : Shimadzu FTIR-8200PC Infrared Spectrometer

Cell : KBr Liquid Cell

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



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. Impurity

Instrument : Hewlett Packard 5890A Gas Chromatograph  
Column : Methyl Silicone (0.53 mm  $\phi$   $\times$  60 m)  
Column Temperature: 60° C  
Flow Rate : 15 mL/min  
Detector : FID (Flame Ionization Detector)  
Injection Volume : 1  $\mu$ L

Sample Name	Peak No.	Area (%)	Peak Name
Test Substance	1	0.150	1,3-Cyclohexadiene
	2	99.784	Cyclohexene
	3	0.066	1,4-Cyclohexadiene

Result: Gas chromatography indicated one major peak (peak No. 2) and two impurities. There were identified by comparing GC-MS with that of 1,3-cyclohexadiene (peak No. 1) and 1,4-cyclohexadiene (peak No. 3) in the cyclohexene. The amounts in the test substance were 0.150% (The quantity value by the standard sample was 0.137%.) and 0.066% (The quantity value by the standard sample was 0.055%.) with a gas chromatograph.

3. Conclusion: The test substance was identified as cyclohexene by mass spectrum and infrared spectrum. Gas chromatography indicated one major peak (cyclohexene) and two impurities. These impurities were 1,3-cyclohexadiene and 1,4-cyclohexadiene in the test substance.

D. Lot No. : ELG7745

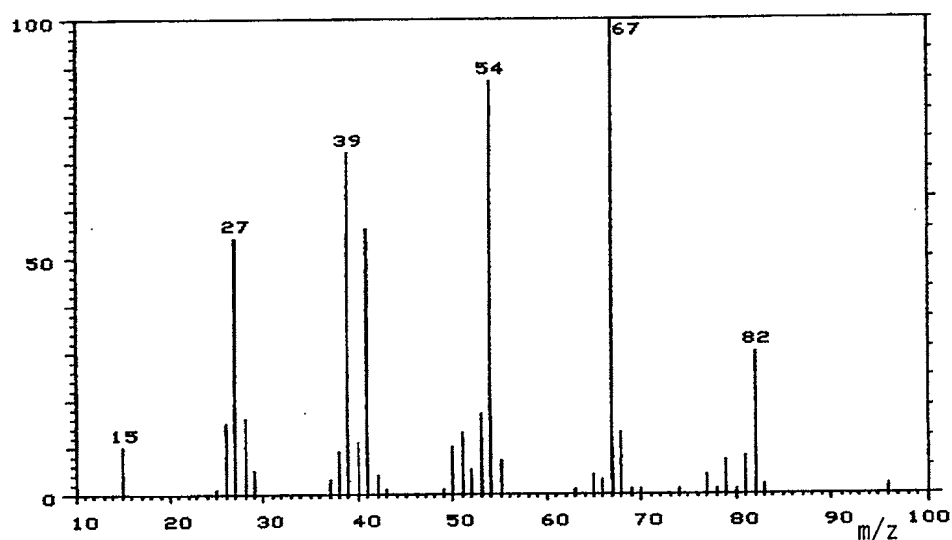
# 1. Spectral Data

## Mass Spectrometry

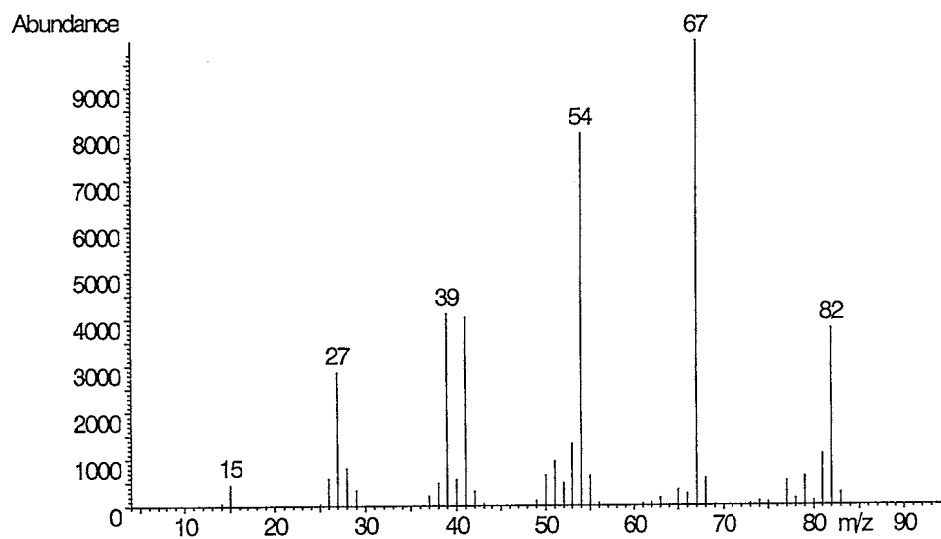
Instrument : Hitachi M-80B Mass Spectrometer

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.

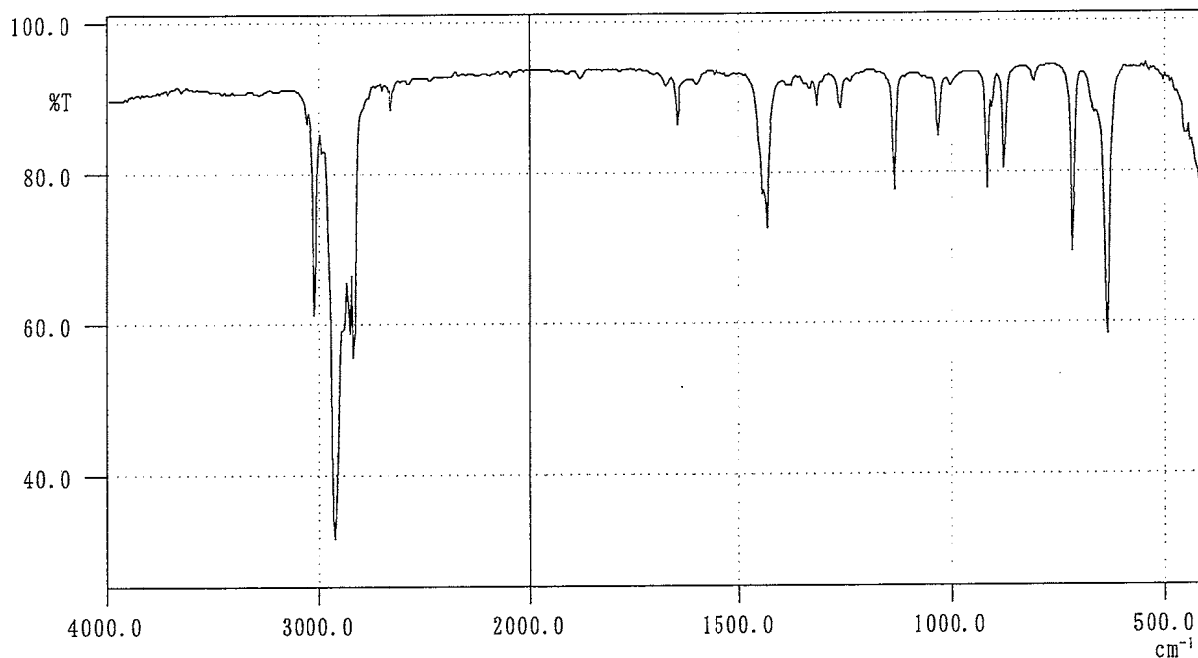
(\*McLafferty FW, ed. 1994. Wiley Registry of Mass Spectral Data. 6th ed.  
New York, NY:John Wiley and Sons.)

Infrared Spectrometry

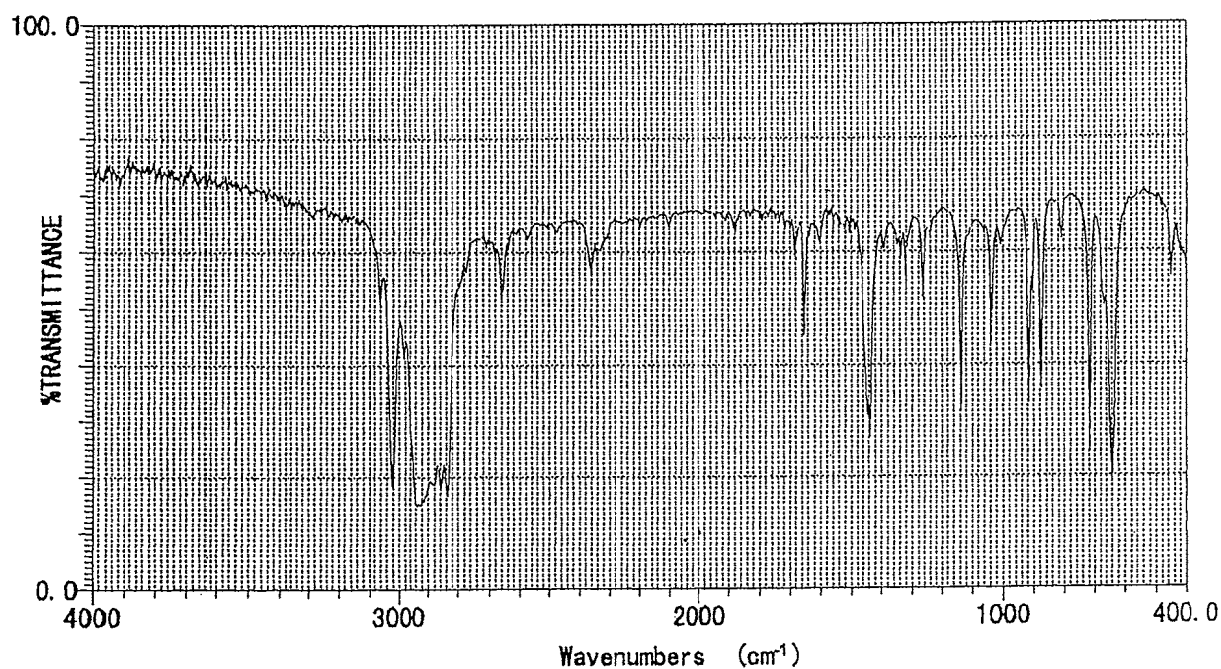
Instrument : Shimadzu FTIR-8200PC Infrared Spectrometer

Cell : KBr Liquid Cell

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



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. Impurity

Instrument : Hewlett Packard 5890A Gas Chromatograph  
Column : Methyl Silicone (0.53 mm $\phi$   $\times$  60 m)  
Column Temperature: 60° C  
Flow Rate : 15 mL/min  
Detector : FID (Flame Ionization Detector)  
Injection Volume : 1  $\mu$ L

Sample Name	Peak No.	Area (%)	Peak Name
Test Substance	1	0.148	1,3-Cyclohexadiene
	2	99.787	Cyclohexene
	3	0.065	1,4-Cyclohexadiene

Result: Gas chromatography indicated one major peak (peak No. 2) and two impurities. There were identified by comparing GC-MS with that of 1,3-cyclohexadiene(peak No. 1) and 1,4-cyclohexadiene(peak No. 3) in the cyclohexene. The amounts in the test substance were 0.148%(The quantity value by the standard sample was 0.134%.) and 0.065% (The quantity value by the standard sample was 0.055%.) with a gas chromatograph.

3. Conclusion: The test substance was identified as cyclohexene by mass spectrum and infrared spectrum. Gas chromatography indicated one major peak (cyclohexene) and two impurities. These impurities were 1,3-cyclohexadiene and 1,4-cyclohexadiene in the test substance.



E. Lot No. : DWM4754

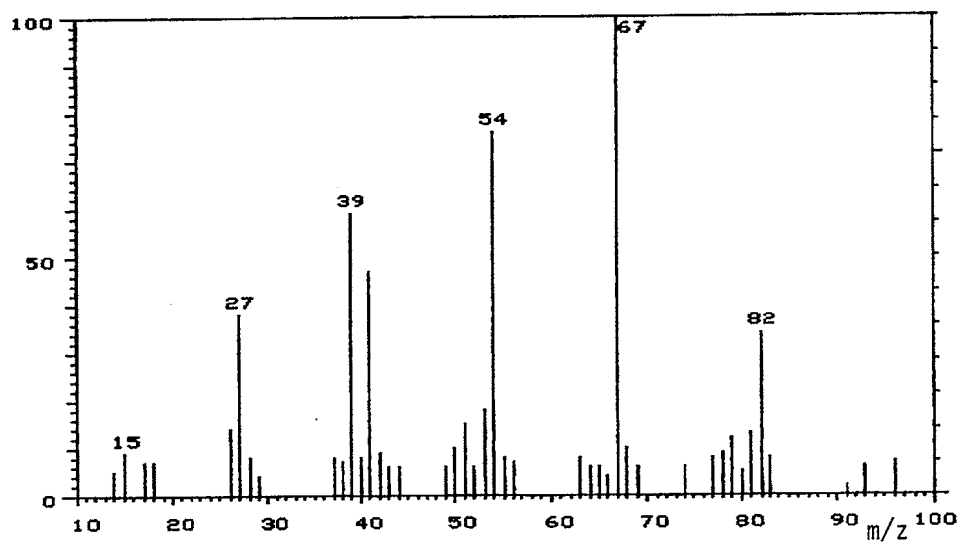
1. Spectral Data

Mass Spectrometry

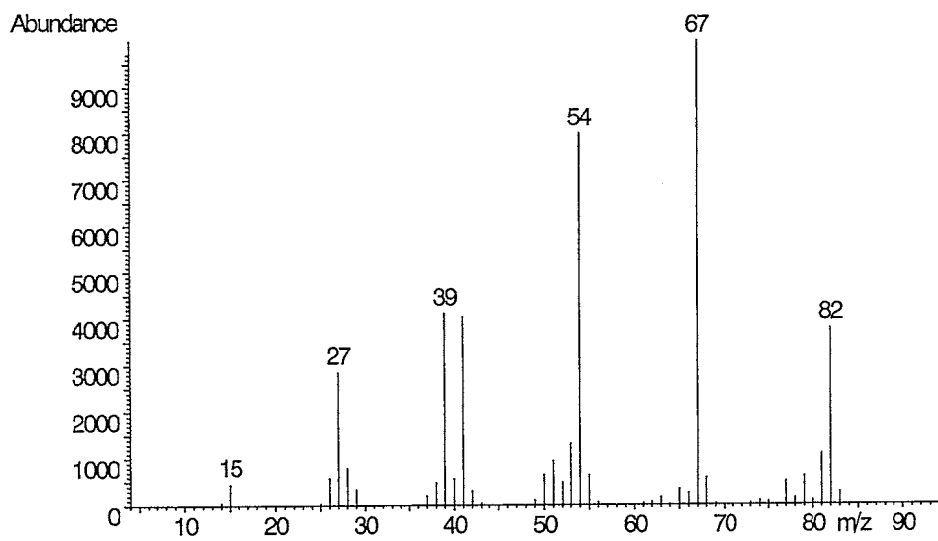
Instrument : Hitachi M-80B Mass Spectrometer

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.

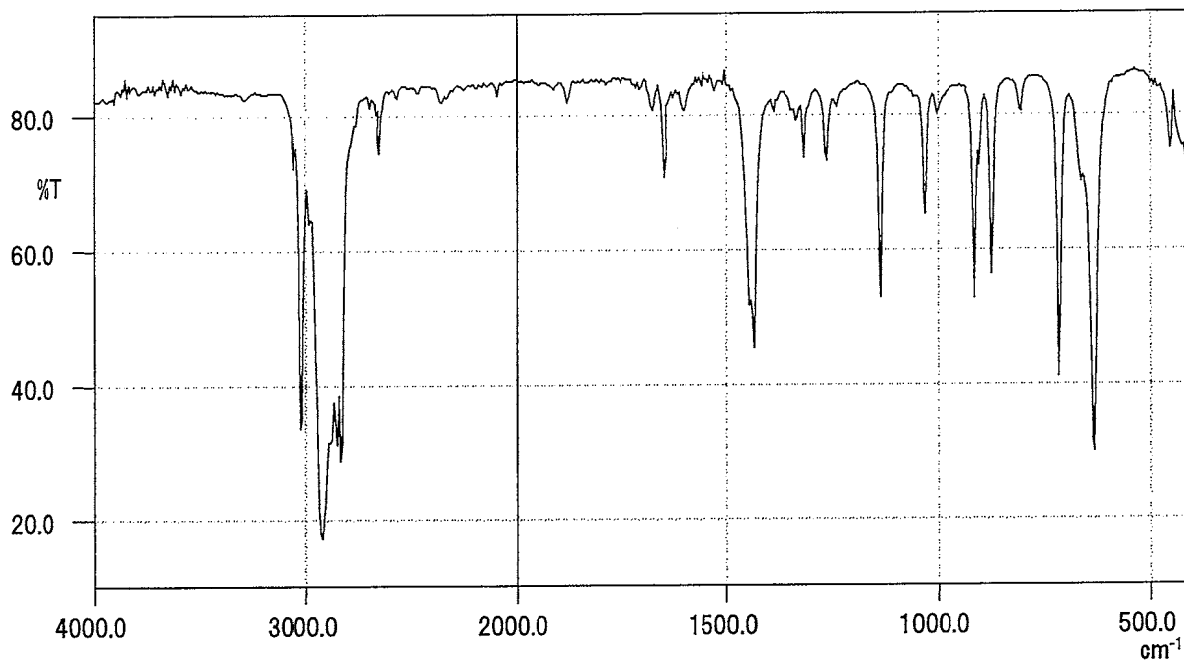
(\*McLafferty FW, ed. 1994. Wiley Registry of Mass Spectral Data. 6th ed.  
New York, NY:John Wiley and Sons.)

Infrared Spectrometry

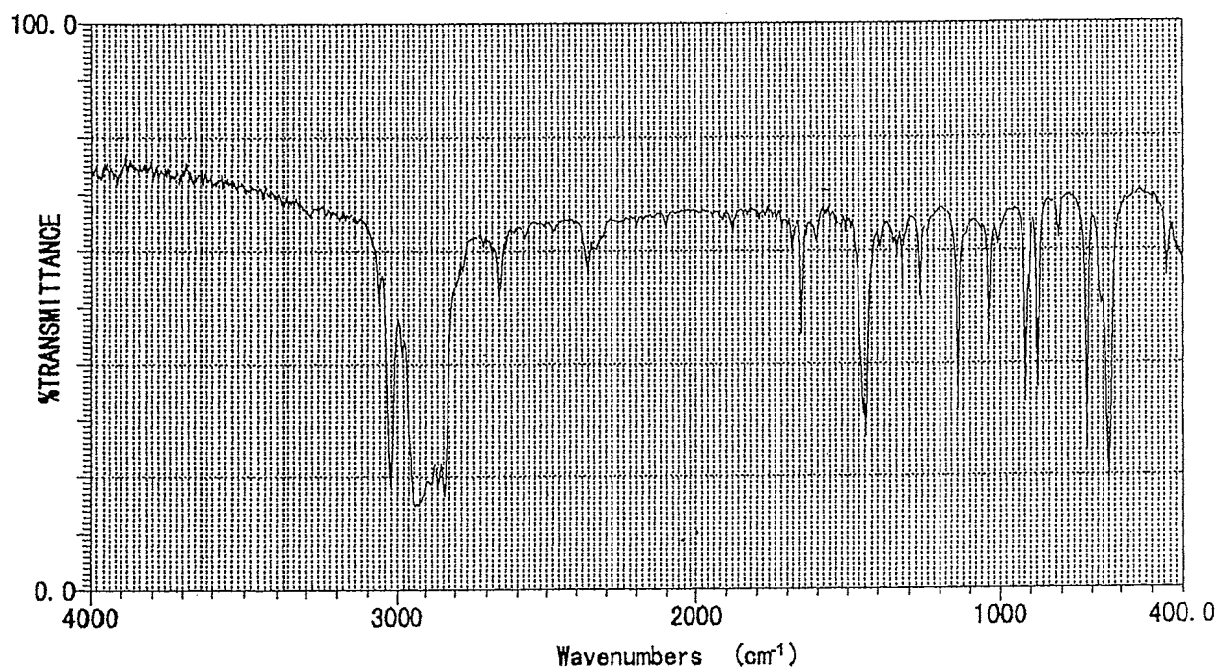
Instrument : Shimadzu FTIR-8200PC Infrared Spectrometer

Cell : KBr Liquid Cell

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



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. Impurity

Instrument : Hewlett Packard 5890A Gas Chromatograph  
Column : Methyl Silicone (0.53 mm  $\phi$   $\times$  60 m)  
Column Temperature: 60° C  
Flow Rate : 15 mL/min  
Detector : FID (Flame Ionization Detector)  
Injection Volume : 1  $\mu$ L

Sample Name	Peak No.	Area (%)	Peak Name
Test Substance	1	0.091	1,3-Cyclohexadiene
	2	99.840	Cyclohexene
	3	0.069	1,4-Cyclohexadiene

Result: Gas chromatography indicated one major peak (peak No. 2) and two impurities. There were identified by comparing GC-MS with that of 1,3-cyclohexadiene(peak No. 1) and 1,4-cyclohexadiene(peak No. 3) in the cyclohexene. The amounts in the test substance were 0.091%(The quantity value by the standard sample was 0.055%.) and 0.069% (The quantity value by the standard sample was 0.040%.) with a gas chromatograph.

3. Conclusion: The test substance was identified as cyclohexene by mass spectrum and infrared spectrum. Gas chromatography indicated one major peak (cyclohexene) and two impurities. These impurities were 1,3-cyclohexadiene and 1,4-cyclohexadiene in the test substance.

## APPENDIX O 2

### STABILITY OF CYCLOHEXENE IN THE 2-YEAR INHALATION STUDY

## STABILITY OF CYCLOHEXENE IN THE 2-YEAR INHALATION STUDY

Test Substance : Cyclohexene (Wako Pure Chemical Industries, Ltd.)

A. Lot No. : ACJ6186

1. Sample : This lot was used from 1999.9.20 to 1999.11.25. 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: 60° 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 (%)
1999.09.14	1	6.703	0.147
	2	7.912	99.787
	3	8.692	0.066
1999.11.29	1	6.689	0.189
	2	7.899	99.737
	3	8.675	0.074

Result: Gas chromatography indicated one major peak (peak No. 2) and two impurities (peak No. 1, 3 < 0.5% of total area) analyzed on 1999.9.14 and one major peak (peak No. 2) and two impurities (peak No. 1, 3 < 0.5% of total area) analyzed on 1999.11.29. No new trace impurity peak in the test substance analyzed on 1999.11.29 was detected.

3. Conclusion: The test substance was stable for about 2 months in a dark place at room temperature.

B. Lot No. : KSJ6321

1. Sample : This lot was used from 1999.11.26 to 2000.6.16. 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: 60° 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 (%)
1999.11.25	1	6.710	0.039
	2	7.881	99.899
	3	8.658	0.062
2000.06.20	1	6.721	0.039
	2	7.894	99.899
	3	8.671	0.062

Result: Gas chromatography indicated one major peak (peak No. 2) and two impurities (peak No. 1, 3 < 0.5% of total area) analyzed on 1999.11.25 and one major peak (peak No. 2) and two impurities (peak No. 1, 3 < 0.5% of total area) analyzed on 2000.6.20. No new trace impurity peak in the test substance analyzed on 2000.6.20 was detected.

3. Conclusion: The test substance was stable for about 7 months in a dark place at room temperature.

C. Lot No. : ELN4601

1. Sample : This lot was used from 2000.6.19 to 2000.12.26. 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: 60° 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 (%)
2000.06.19	1	6.684	0.150
	2	7.895	99.784
	3	8.672	0.066
2001.01.04	1	6.684	0.149
	2	7.893	99.786
	3	8.670	0.065

Result: Gas chromatography indicated one major peak (peak No. 2) and two impurities (peak No. 1, 3 < 0.5% of total area) analyzed on 2000.6.19 and one major peak (peak No. 2) and two impurities (peak No. 1, 3 < 0.5% of total area) analyzed on 2001.1.4. No new trace impurity peak in the test substance analyzed on 2001.1.4 was detected.

3. Conclusion: The test substance was stable for about 6 months in a dark place at room temperature.

D. Lot No. : ELG7745

1. Sample : This lot was used from 2000.12.27 to 2001.6.28. 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: 60° 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 (%)
2000.12.25	1	6.683	0.148
	2	7.891	99.787
	3	8.667	0.065
2001.07.02	1	6.744	0.083
	2	7.914	99.854
	3	8.688	0.063

Result: Gas chromatography indicated one major peak (peak No. 2) and two impurities (peak No. 1, 3 < 0.5% of total area) analyzed on 2000.12.25 and one major peak (peak No. 2) and two impurities (peak No. 1, 3 < 0.5% of total area) analyzed on 2001.7.2. No new trace impurity peak in the test substance analyzed on 2001.7.2 was detected.

3. Conclusion: The test substance was stable for about 6 months in a dark place at room temperature.



E. Lot No. : DWM4754

1. Sample : This lot was used from 2001.6.29 to 2001.9.14. 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: 60° 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 (%)
2001.06.27	1	6.745	0.091
	2	7.912	99.840
	3	8.688	0.069
2001.12.26	1	6.861	0.077
	2	8.053	99.839
	3	8.833	0.084

Result: Gas chromatography indicated one major peak (peak No. 2) and two impurities (peak No. 1, 3 < 0.5% of total area) analyzed on 2001.6.27 and one major peak (peak No. 2) and two impurities (peak No. 1, 3 < 0.5% of total area) analyzed on 2001.12.26. No new trace impurity peak in the test substance analyzed on 2001.12.26 was detected.

3. Conclusion: The test substance was stable for about 6 months in a dark place at room temperature.

APPENDIX P 1

CONCENTRATION OF CYCLOHEXENE IN THE INHALATION CHAMBER  
OF THE 2-YEAR INHALATION STUDY

CONCENTRATION OF CYCLOHEXENE IN THE INHALATION CHAMBER  
OF THE 2-YEAR INHALATION STUDY

Group Name	Concentration (ppm)		
	Mean	±	S.D.
0ppm	0.0	±	0.0
600ppm	596.9	±	4.0
1200ppm	1200.4	±	7.7
2400ppm	2397.9	±	16.2

## APPENDIX P 2

### ENVIRONMENTAL CONDITIONS OF INHALATION CHAMBER IN THE 2-YEAR INHALATION STUDY OF CYCLOHEXENE

ENVIRONMENTAL CONDITIONS OF INHALATION CHAMBER  
IN THE 2-YEAR INHALATION STUDY OF CYCLOHEXENE

Group Name	Temperature(°C)			Humidity(%)			Ventilation Rate (L/min)			Air Changes (time/h)	
	Mean	±	S.D.	Mean	±	S.D.	Mean	±	S.D.	Mean	
0ppm	22.8	±	0.5	55.7	±	1.2	1524.7	±	11.4	12.0	
600ppm	22.7	±	0.4	54.8	±	1.1	1536.3	±	10.3	12.0	
1200ppm	22.8	±	0.5	55.2	±	1.1	1517.8	±	8.7	12.0	
2400ppm	22.8	±	0.4	53.5	±	1.1	1536.2	±	10.9	12.0	

## APPENDIX Q

METHODS, UNITS AND DECIMAL PLACE FOR HEMATOLOGY  
AND BIOCHEMISTRY IN THE 2-YEAR INHALATION STUDY OF CYCLOHEXENE

# METHODS, UNITS AND DECIMAL PLACE FOR HEMATOLOGY AND BIOCHEMISTRY IN THE 2-YEAR INHALATION STUDY OF CYCLOHEXENE

Item	Method	Unit	Decimal place
<b>Hematology</b>			
Red blood cell (RBC)	Light scattering method <sup>1)</sup>	$\times 10^6/\mu\text{L}$	2
Hemoglobin(Hgb)	Cyanmethemoglobin method <sup>1)</sup>	g/dL	1
Hematocrit(Hct)	Calculated as $\text{RBC} \times \text{MCV} / 10$ <sup>1)</sup>	%	1
Mean corpuscular volume(MCV)	Light scattering method <sup>1)</sup>	fL	1
Mean corpuscular hemoglobin(MCH)	Calculated as $\text{Hgb} / \text{RBC} \times 10$ <sup>1)</sup>	pg	1
Mean corpuscular hemoglobin concentration (MCHC)	Calculated as $\text{Hgb} / \text{Hct} \times 100$ <sup>1)</sup>	g/dL	1
Platelet	Light scattering method <sup>1)</sup>	$\times 10^3/\mu\text{L}$	0
White blood cell(WBC)	Light scattering method <sup>1)</sup>	$\times 10^3/\mu\text{L}$	2
Differential WBC	Pattern recognition method <sup>2)</sup> (Wright staining)	%	0
<b>Biochemistry</b>			
Total protein(TP)	Biuret method <sup>3)</sup>	g/dL	1
Albumin (Alb)	BCG method <sup>3)</sup>	g/dL	1
A/G ratio	Calculated as $\text{Alb} / (\text{TP} - \text{Alb})$ <sup>3)</sup>	—	1
T-bilirubin	Alkaline azobilirubin method <sup>3)</sup>	mg/dL	2
Glucose	GlcK·G-6-PDH method <sup>3)</sup>	mg/dL	0
T-cholesterol	CE·COD·POD method <sup>3)</sup>	mg/dL	0
Triglyceride	LPL·GK·GPO·POD method <sup>3)</sup>	mg/dL	0
Phospholipid	PLD·ChOD·POD method <sup>3)</sup>	mg/dL	0
Glutamic oxaloacetic transaminase (GOT)	JSCC method <sup>3)</sup>	IU/L	0
Glutamic pyruvic transaminase (GPT)	JSCC method <sup>3)</sup>	IU/L	0
Lactate dehydrogenase (LDH)	SFBC method <sup>3)</sup>	IU/L	0
Alkaline phosphatase (ALP)	GSCC method <sup>3)</sup>	IU/L	0
$\gamma$ -Glutamyl transpeptidase ( $\gamma$ -GTP)	L- $\gamma$ -Glutamyl-p-nitroanilide method <sup>3)</sup>	IU/L	0
Creatine phosphokinase (CPK)	JSCC method <sup>3)</sup>	IU/L	0
Urea nitrogen	Urease·GLDH method <sup>3)</sup>	mg/dL	1
Creatinine	Jaffe method <sup>3)</sup>	mg/dL	1
Sodium	Ion selective electrode method <sup>3)</sup>	mEq/L	0
Potassium	Ion selective electrode method <sup>3)</sup>	mEq/L	1
Chloride	Ion selective electrode method <sup>3)</sup>	mEq/L	0
Calcium	OCPC method <sup>3)</sup>	mg/dL	1
Inorganic phosphorus	PNP·XOD·POD method <sup>3)</sup>	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 7070 : Hitachi,Ltd.)