１－クロロ－２,４－ジニトロベンゼンのラット及びマウスを用いた
経口投与によるがん原性試験（混餌試験）報告書

APPENDIX

(A1-1~A9-3)
2Week　STUDY　NO.　0081 ; 0082

APPENDIXES

APPENDIXES (CONTINUED)

APPENDIXES (CONTINUED)

APPENDIX A 1-1

CLINICAL OBSERVATION : SUMMARY, RAT : MALE

(2Week STUDY)

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1 2

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : MALE

Clinical sign	Group Name	Administration Week-day 0-0 1	1-1 1	1-2 1	1-3 1	1-4 1	1-5 1	1-6 1	1-7 1	2-1 1	2-2 1	2-3 1	2-4 1	2-5 1	2-6 1
DEATH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	3	7	8	9	-	-	-	-
MORIBUND SACRIFICE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	0	1	1	1	-	-	-	-
LOCOMOTOR MOVEMENT DECR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	0	3	1	0	-	-	-	-
PRONE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	0	1	0	0	-	-	-	-
HUNCHBACK POSITION	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	2	10	7	3	1	0	-	-	-	-

Clinical sign	Group Name	Administration Week-day 2-7 1
DEATH	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
MORIBUND SACRIFICE	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
LOCOMOTOR MOVEMENT DECR	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
PRONE	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
HUNCHBACK POSITION	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-

Clinical sign	Group Name	Administration Week-day 0-0 1	1-1 1	1-2 1	1-3 1	1-4 1	1-5 1	1-6 1	1-7 1	2-1 1	2-2 1	2-3 1	2-4 1	2-5 1	2-6 1
WASTING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	10	7	3	1	0	-	-	-	-
PILOERECTION	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	1	1	0	0	0	0	0	0	2	5	4	1
	10000 ppm	0	0	0	10	9	10	7	3	1	0	-	-	-	-
SOILED PERI GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	1	1	1	1	1	0	-	-	-	-
GUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	1	1	1	2	0	0	0	0
	10000 ppm	0	0	0	0	0	0	0	0	0	0	-	-	-	-
NOSE HEMORRHAGIC DISCHA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	1	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	0	0	0	0	-	-	-	-

Clinical sign	Group Name	Administration Week-day 2-7 1
WASTING	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
PILOERECTION	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	1
	10000 ppm	-
SOILED PERI GENITALIA	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
GUM	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
NOSE HEMORRHAGIC DISCHA	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1 2

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : MALE

Clinical sign	Group Name	Administration Week-day 0-0 1	1-1 1	1-2 1	1-3 1	1-4 1	1-5 1	1-6 1	1-7 1	2-1 1	2-2 1	2-3 1	2-4 1	2-5 1	2-6 1
ANEMIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	0	2	0	0	-	-	-	-
IRREGULAR BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	0	1	0	0	-	-	-	-
BRADYPNEA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	0	1	0	0	-	-	-	-
DIARRHEA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	1	0	0	0	0	0	-	-	-	-
LOOSE STOOL	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	1	2	7	2	2	0	0	0	-	-	-	-

Clinical sign	Group Name	Administration Week-day 2-7 1
ANEMIA	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
IRREGULAR BREATHING	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
BRADYPNEA	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
DIARRHEA	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
LOOSE STOOL	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1 2

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : MALE

Clinical sign	Group Name	Administration Week-day 0-0	1-1	1-2	1-3	1-4	1-5	1-6	1-7	2-1	2-2	2-3	2-4	2-5	2-6
		1	1	1	1	1	1	1	1	1	1	1	1	1	1
SUBNORMAL TEMP	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	2	3	1	0	-	-	-	-
SALIVATION	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	1	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	0	0	0	0	-	-	-	-

Clinical sign	Group Name	Administration Week-day 2-7 1
SUBNORMAL TEMP	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
SALIVATION	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1 2

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : FEMALE

Clinical sign	Group Name	Administration Week-day 0-0 1	1-1 1	1-2 1	1-3 1	1-4 1	1-5 1	1-6 1	1-7 1	2-1 1	2-2 1	2-3 1	2-4 1	2-5 1	2-6 1
DEATH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	2	6	8	-	-	-	-	-
MORIBUND SACRIFICE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	0	2	2	-	-	-	-	-
LOCOMOTOR MOVEMENT DECR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	2	4	0	-	-	-	-	-
PRONE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	0	2	0	-	-	-	-	-
HUNCHBACK POSITION	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	6	10	8	4	0	-	-	-	-	-

APPENDIX A 1-2

CLINICAL OBSERVATION : SUMMARY, RAT : FEMALE

(2Week STUDY)

Clinical sign	Group Name	Administration Week-day 2-7 1
DEATH	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
MORIBUND SACRIFICE	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
LOCOMOTOR MOVEMENT DECR	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
PRONE	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
HUNCHBACK POSITION	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1 2

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : FEMALE

Clinical sign	Group Name	Administration Week-day 0-0 1	1-1 1	1-2 1	1-3 1	1-4 1	1-5 1	1-6 1	1-7 1	2-1 1	2-2 1	2-3 1	2-4 1	2-5 1	2-6 1
WASTING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	10	8	4	0	-	-	-	-	-
COLORED	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	1	2
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	2500 ppm	0	0	0	0	0	4	4	7	8	6	6	7	9	9
	10000 ppm	0	0	0	0	0	0	1	0	0	-	-	-	-	-
PILOERECTION	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	1	2	2	1	0	0
	10000 ppm	0	0	0	9	10	10	8	4	0	-	-	-	-	-
LOSS OF HAIR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	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
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	1	1	0	0	0	1	1	1	1	1	1	1
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	1	1	1
	2500 ppm	0	1	5	5	3	2	4	4	3	2	2	3	5	4
	10000 ppm	0	0	0	0	0	1	1	1	0	-	-	-	-	-

Clinical sign	Group Name	Administration Week-day 2-7 1
WASTING	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
COLORED	Control	0
	40 ppm	0
	156 ppm	1
	625 ppm	1
	2500 ppm	10
	10000 ppm	-
PILOERECTION	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	3
	10000 ppm	-
LOSS OF HAIR	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	1
	2500 ppm	0
	10000 ppm	-
SOILED PERI GENITALIA	Control	0
	40 ppm	0
	156 ppm	2
	625 ppm	1
	2500 ppm	7
	10000 ppm	-

Clinical sign	Group Name	Administration Week-day 0-0	1-1	1-2	1-3	1-4	1-5	1-6	1-7	2-1	2-2	2-3	2-4	2-5	2-6
		1	1	1	1	1	1	1	1	1	1	1	1	1	1
GUM	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	1	1	1
	10000 ppm	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
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	2	3	0	-	-	-	-	-
IRREGULAR BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	0	2	0	-	-	-	-	-
BRADYPNEA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	0	3	0	-	-	-	-	-
SHALLOW BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	0	1	0	-	-	-	-	-

Clinical sign	Group Name	Administration Week-day 2-7 1
GUM	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	1
	10000 ppm	-
ANEMIA	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
IRREGULAR BREATHING	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
BRADYPNEA	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
SHALLOW BREATHING	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1 2

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : FEMALE

Clinical sign	Group Name	Administration Week-day 0-0 1	1-1 1	1-2 1	1-3 1	1-4 1	1-5 1	1-6 1	1-7 1	2-1 1	2-2 1	2-3 1	2-4 1	2-5 1	2-6 1
LOOSE STOOL	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	1	4	1	1	1	0	-	-	-	-	-
SUBNORMAL TEMP	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	156 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	625 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2500 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10000 ppm	0	0	0	0	0	0	2	4	0	-	-	-	-	-

Clinical sign	Group Name	Administration Week-day 2-7 1
LOOSE STOOL	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-
SUBNORMAL TEMP	Control	0
	40 ppm	0
	156 ppm	0
	625 ppm	0
	2500 ppm	0
	10000 ppm	-

APPENDIX A 1-3

CLINICAL OBSERVATION : SUMMARY, MOSUE : MALE

(2Week STUDY)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1 2

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : MALE

Clinical sign	Group Name	Administration Week-day 0-0 1	1-1 1	1-2 1	1-3 1	1-4 1	1-5 1	1-6 1	1-7 1	2-1 1	2-2 1	2-3 1	2-4 1	2-5 1	2-6 1
DEATH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	1	2	4	5	5	8	8	8	8	9
	18000 ppm	0	0	0	2	8	9	-	-	-	-	-	-	-	-
MORIBUND SACRIFICE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	18000 ppm	0	0	0	0	0	1	-	-	-	-	-	-	-	-
LOCOMOTOR MOVEMENT DECR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	1	2	2	4	4	1	0	1	1	0
	18000 ppm	0	0	0	0	1	1	-	-	-	-	-	-	-	-
PRONE	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	18000 ppm	0	0	0	0	0	1	-	-	-	-	-	-	-	-
LATERAL	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	18000 ppm	0	0	0	0	0	1	-	-	-	-	-	-	-	-

Clinical sign	Group Name	Administration Week-day 2-7 1
DEATH	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	9
	18000 ppm	-
MORIBUND SACRIFICE	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	0
	18000 ppm	-
LOCOMOTOR MOVEMENT DECR	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	0
	18000 ppm	-
PRONE	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	0
	18000 ppm	-
LATERAL	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	0
	18000 ppm	-

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1 2

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : MALE

Clinical sign	Group Name	Administration Week-day 0-0 1	1-1 1	1-2 1	1-3 1	1-4 1	1-5 1	1-6 1	1-7 1	2-1 1	2-2 1	2-3 1	2-4 1	2-5 1	2-6 1
HUNCHBACK POSITION	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	3	2	7	6	5	5	2	2	2	2	1
	18000 ppm	0	0	0	4	2	1	-	-	-	-	-	-	-	-
TREMOR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	0	1	1	1	1	0	0	0	0	0
	18000 ppm	0	0	0	0	0	0	-	-	-	-	-	-	-	-
SOILED	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	1	5	5	4	4	1	1	1	2	1
	18000 ppm	0	0	0	0	1	1	-	-	-	-	-	-	-	-
PILOERECTION	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	3	6	5	8	6	5	5	2	2	2	2	1
	18000 ppm	0	0	5	7	2	1	-	-	-	-	-	-	-	-
LOSS OF HAIR	Control	0	1	1	1	1	1	1	1	1	1	1	1	1	2
	222 ppm	0	1	1	1	1	1	1	1	1	1	1	1	1	1
	667 ppm	0	2	2	2	2	2	3	3	3	3	3	3	3	3
	2000 ppm	0	0	0	0	0	0	0	0	0	2	2	2	2	2
	6000 ppm	0	1	1	1	1	1	1	1	1	0	0	0	0	0
	18000 ppm	0	2	2	2	0	0	-	-	-	-	-	-	-	-

Clinical sign	Group Name	Administration Week-day 2-7 1
HUNCHBACK POSITION	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	1
	18000 ppm	-
TREMOR	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	0
	18000 ppm	-
SOILED	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	1
	18000 ppm	-
PILOERECTION	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	1
	18000 ppm	-
LOSS OF HAIR	Control	3
	222 ppm	1
	667 ppm	3
	2000 ppm	3
	6000 ppm	0
	18000 ppm	-

Clinical sign	Group Name	Administration Week-day 0-0 1	1-1 1	1-2 1	1-3 1	1-4 1	1-5 1	1-6 1	1-7 1	2-1 1	2-2 1	2-3 1	2-4 1	2-5 1	2-6 1
SOILED PERI GENITALIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	0	0	0	1	1	0	0	0	1	1
	18000 ppm	0	0	0	0	0	0	-	-	-	-	-	-	-	-
ANEMIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	0	0	0	0	5	2	2	2	2	1
	18000 ppm	0	0	0	1	0	0	-	-	-	-	-	-	-	-
IRREGULAR BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	1	0	2	2	2	0	0	0	0	0
	18000 ppm	0	0	0	1	0	1	-	-	-	-	-	-	-	-
BRADYPNEA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	0	0	0	0	3	0	0	1	1	0
	18000 ppm	0	0	0	0	0	1	-	-	-	-	-	-	-	-
DEEP BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	18000 ppm	0	0	0	0	0	1	-	-	-	-	-	-	-	-

Clinical sign	Group Name	Administration Week-day 2-7 1
SOILED PERI GENITALIA	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	1
	18000 ppm	-
ANEMIA	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	1
	18000 ppm	-
IRREGULAR BREATHING	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	0
	18000 ppm	-
BRADYPNEA	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	0
	18000 ppm	-
DEEP BREATHING	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	0
	18000 ppm	-

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1 2

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : MALE

Clinical sign	Group Name	Administration Week-day 0-0 1	1-1 1	1-2 1	1-3 1	1-4 1	1-5 1	1-6 1	1-7 1	2-1 1	2-2 1	2-3 1	2-4 1	2-5 1	2-6 1
SUBNORMAL TEMP	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	1	1	2	2	2	0	0	0	1	0
	18000 ppm	0	0	0	0	0	1	-	-	-	-	-	-	-	-

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1 2

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : MALE

Clinical sign	Group Name	Administration Week-day 2-7 1
SUBNORMAL TEMP	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	0
	18000 ppm	-

APPENDIX A 1-4

CLINICAL OBSERVATION : SUMMARY, MOSUE: FEMALE

(2Week STUDY)

Clinical sign	Group Name	Administration Week-day 0-0 1	1-1 1	1-2 1	1-3 1	1-4 1	1-5 1	1-6 1	1-7 1	2-1 1	2-2 1	2-3 1	2-4 1	2-5 1	2-6 1
DEATH	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	0	1	1	3	4	4	6	7	7	8
	18000 ppm	0	0	0	0	6	9	10	-	-	-	-	-	-	-
LOCOMOTOR MOVEMENT DECR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	0	0	3	1	0	3	1	0	0	0
	18000 ppm	0	0	0	0	2	1	0	-	-	-	-	-	-	-
HUNCHBACK POSITION	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	1	6	8	7	6	6	4	3	3	2
	18000 ppm	0	0	0	8	4	1	0	-	-	-	-	-	-	-
TREMOR	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	18000 ppm	0	0	1	0	0	0	0	-	-	-	-	-	-	-
SOILED	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	0	0	3	2	1	5	3	1	1	0
	18000 ppm	0	0	0	0	1	0	0	-	-	-	-	-	-	-

Clinical sign	Group Name	Administration Week-day 2-7 1
DEATH	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	8
	18000 ppm	-
LOCOMOTOR MOVEMENT DECR	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	0
	18000 ppm	-
HUNCHBACK POSITION	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	2
	18000 ppm	-
TREMOR	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	0
	18000 ppm	-
SOILED	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	0
	18000 ppm	-

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1 2

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : FEMALE

Clinical sign	Group Name	Administration Week-day 0-0 1	1-1 1	1-2 1	1-3 1	1-4 1	1-5 1	1-6 1	1-7 1	2-1 1	2-2 1	2-3 1	2-4 1	2-5 1	2-6 1
PILOERECTION	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	1	1	1	1	1	1	1	1	1	1	1	1
	6000 ppm	0	0	1	3	3	5	8	7	6	6	4	3	3	2
	18000 ppm	0	0	8	10	4	1	0	-	-	-	-	-	-	-
LOSS OF HAIR	Control	0	1	1	1	1	1	1	1	2	2	2	2	2	2
	222 ppm	0	0	0	0	2	2	2	3	3	3	3	4	4	4
	667 ppm	0	2	2	2	2	2	3	3	3	3	3	3	3	3
	2000 ppm	0	1	1	1	1	1	1	1	1	1	1	1	1	1
	6000 ppm	0	1	1	1	1	1	1	1	1	1	1	1	1	0
	18000 ppm	0	1	1	1	0	0	0	-	-	-	-	-	-	-
ANEMIA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	0	0	0	0	4	4	3	2	2	1
	18000 ppm	0	0	0	0	0	0	0	-	-	-	-	-	-	-
IRREGULAR BREATHING	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	0	0	2	2	1	2	1	0	1	0
	18000 ppm	0	0	0	0	0	0	0	-	-	-	-	-	-	-
BRADYPNEA	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	0	0	0	1	0	1	1	0	0	0
	18000 ppm	0	0	0	0	0	0	0	-	-	-	-	-	-	-

Clinical sign	Group Name	Administration Week-day 2-7 1
PILOERECTION	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	1
	6000 ppm	2
	18000 ppm	-
LOSS OF HAIR	Control	3
	222 ppm	3
	667 ppm	3
	2000 ppm	1
	6000 ppm	0
	18000 ppm	-
ANEMIA	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	1
	18000 ppm	-
IRREGULAR BREATHING	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	0
	18000 ppm	-
BRADYPNEA	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	0
	18000 ppm	-

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1 2

CLINICAL OBSERVATION (SUMMARY)
ALL ANIMALS

SEX : FEMALE

Clinical sign	Group Name	Administration Week-day 0-0	1-1	1-2	1-3	1-4	1-5	1-6	1-7	2-1	2-2	2-3	2-4	2-5	2-6
		1	1	1	1	1	1	1	1	1	1	1	1	1	1
SUBNORMAL TEMP	Control	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	222 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	667 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2000 ppm	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6000 ppm	0	0	0	0	0	0	3	1	1	1	0	0	1	0
	18000 ppm	0	0	0	0	2	0	0	-	-	-	-	-	-	-

Clinical sign	Group Name	Administration Week-day 2-7 1
SUBNORMAL TEMP	Control	0
	222 ppm	0
	667 ppm	0
	2000 ppm	0
	6000 ppm	0
	18000 ppm	-

APPENDIX A 2-1

BODY WEIGHT CHANGES :SUMMARY, RAT : MALE

(2Week STUDY)

STUDY NO. : 0081
ANIMAL : RAT F344
UNIT : g
REPORT TYPE : A1 2
SEX : MALE

BODY WEIGHT CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day 0-0	1-1	1-2	1-4	1-7	2-4	2-7
Control	128± 5	133± 5	136± 5	144± 6	157± 6	175± 8	189± 9
40 ppm	128± 4	132± 5	135± 4	142± 5	156± 6	175± 8	190± 8
156 ppm	128± 4	132± 4	135± 5	143± 5	155± 5	173± 6	188± 7
625 ppm	128± 4	131± 4	134± 4	142± 5	156± 5	174± 6	188± 6
2500 ppm	128± 4	119± 4**	117± 5**	124± 8**	136± 7**	154± 7**	166± 7**
10000 ppm	128± 5	113± 4**	104± 4**	89± 4**	73± 3**	-	-

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

APPENDIX A 2-2

BODY WEIGHT CHANGES : SUMMARY, RAT : FEMALE

(2Week STUDY)

STUDY NO. : 0081
ANIMAL : RAT F344
UNIT : g
REPORT TYPE : A1 2
SEX : FEMALE

BODY WEIGHT CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day 0-0	1-1	1-2	1-4	1-7	2-4	2-7
Control	106± 3	110± 4	112± 3	117± 4	123± 3	133± 5	140± 6
40 ppm	106± 3	109± 3	112± 4	117± 4	123± 4	133± 5	139± 5
156 ppm	106± 3	109± 4	110± 5	115± 5	122± 5	131± 6	138± 5
625 ppm	106± 3	108± 4	110± 4	114± 4	122± 4	131± 4	138± 5
2500 ppm	106± 3	98± 3**	98± 4**	106± 4**	114± 5**	125± 4**	131± 5**
10000 ppm	106± 3	94± 3**	87± 3**	76± 4**	62± 2**	-	-

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

APPENDIX A 2-3

BODY WEIGHT CHANGES :SUMMARY, MOSUE : MALE

(2Week STUDY)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
UNIT : g
REPORT TYPE : A1 2
SEX : MALE

BODY WEIGHT CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day 0-0	1-1	1-2	1-4	1-7	2-4	2-7
Control	19.8± 1.0	22.9± 0.6	23.0± 0.7	23.6± 1.1	23.8± 1.3	24.4± 0.8	24.3± 1.0
222 ppm	19.8± 1.0	22.6± 1.1	22.9± 1.2	23.1± 1.3	23.4± 1.5	24.3± 1.5	23.4± 1.8
667 ppm	19.8± 1.0	22.2± 0.9	22.6± 0.9	23.1± 1.1	22.9± 1.3	23.8± 1.2	23.6± 1.2
2000 ppm	19.8± 1.0	19.5± 1.2**	19.5± 1.5**	21.1± 1.5**	22.7± 1.0	23.3± 1.0	22.9± 1.2
6000 ppm	19.8± 1.1	17.5± 0.9**	16.5± 1.2**	15.1± 1.0**	13.7± 1.0**	14.0± 0.6 ?	13.7± 0.0 ?
18000 ppm	19.8± 1.1	17.1± 0.8**	15.8± 0.7**	14.2± 0.4**	-	-	-

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

? : Significant test is not applied,because No. of data in this group is less than 3.

APPENDIX A 2-4

BODY WEIGHT CHANGES : SUMMARY, MOSUE: FEMALE

(2Week STUDY)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
UNIT : g
REPORT TYPE : A1 2
SEX : FEMALE

BODY WEIGHT CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day 0-0	1-1	1-2	1-4	1-7	2-4	2-7
Control	17.5± 1.0	18.5± 1.3	18.5± 1.3	18.6± 1.1	18.3± 1.2	18.7± 1.0	18.8± 1.3
222 ppm	17.5± 1.0	18.5± 1.2	18.6± 1.1	18.5± 1.3	18.7± 1.1	19.2± 1.3	19.1± 1.2
667 ppm	17.5± 1.0	19.1± 0.9	19.5± 1.0	19.9± 1.0*	19.7± 1.1*	19.8± 1.0	19.8± 1.0
2000 ppm	17.5± 0.9	16.9± 0.8**	17.3± 1.0*	19.0± 0.9	19.4± 0.8	19.4± 0.7	19.6± 0.6
6000 ppm	17.5± 1.0	15.5± 0.8**	14.7± 0.9**	13.5± 1.1**	12.1± 1.4**	12.4± 1.8**	13.9± 2.2 ?
18000 ppm	17.5± 1.0	15.1± 0.7**	13.7± 0.6**	11.7± 0.7**	-	-	-

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

? : Significant test is not applied,because No. of data in this group is less than 3.

APPENDIX A 3-1

FOOD CONSUMPTION CHANGES : SUMMARY, RAT : MALE

(2Week STUDY)

STUDY NO. : 0081
ANIMAL : RAT F344
UNIT : g
REPORT TYPE : A1 2
SEX : MALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day(effective) 1-7(7)	2-7(7)
Control	13.0± 0.9	14.1± 0.9
40 ppm	12.7± 0.4	14.3± 0.8
156 ppm	12.5± 0.6	14.1± 0.7
625 ppm	12.4± 0.5	14.1± 0.5
2500 ppm	9.8± 1.1**	13.7± 2.7
10000 ppm	5.8± 4.4**	-

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

APPENDIX A 3-2

FOOD CONSUMPTION CHANGES : SUMMARY, RAT : FEMALE

(2Week STUDY)

STUDY NO. : 0081
ANIMAL : RAT F344
UNIT : g
REPORT TYPE : A1 2
SEX : FEMALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day(effective) 1-7(7)	2-7(7)
Control	10.6± 0.5	11.3± 0.7
40 ppm	11.0± 0.5	11.5± 0.7
156 ppm	10.5± 0.5	11.0± 0.5
625 ppm	10.1± 0.3	11.1± 0.4
2500 ppm	9.7± 2.2	10.7± 0.5
10000 ppm	9.1± 5.9	-

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

APPENDIX A 3-3

FOOD CONSUMPTION CHANGES : SUMMARY, MOSUE : MALE

(2Week STUDY)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
UNIT : g
REPORT TYPE : A1 2
SEX : MALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day(effective) 1-7(7)	2-7(7)
Control	4.5± 0.6	3.7± 0.4
222 ppm	4.3± 0.7	3.6± 0.4
667 ppm	4.3± 0.6	3.5± 0.2
2000 ppm	4.4± 0.7	3.7± 0.4
6000 ppm	1.5± 0.2**	2.5± 0.0 ?
18000 ppm	-	-

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

? : Significant test is not applied,because No. of data in this group is less than 3.

APPENDIX A 3-4

FOOD CONSUMPTION CHANGES : SUMMARY, MOSUE : FEMALE

(2Week STUDY)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
UNIT : g
REPORT TYPE : A1 2
SEX : FEMALE

FOOD CONSUMPTION CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration week-day(effective) 1-7(7)	2-7(7)
Control	3.2± 0.4	3.1± 0.4
222 ppm	3.3± 0.3	3.2± 0.3
667 ppm	3.9± 0.7	3.5± 0.8
2000 ppm	4.5± 0.9**	3.2± 0.4
6000 ppm	1.7± 0.5	2.6± 0.1 ?
18000 ppm	-	-

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

? : Significant test is not applied,because No. of data in this group is less than 3.

APPENDIX A 4-1

CHEMICAL INTAKE CHANGES: SUMMARY, RAT : MALE

(2Week STUDY)

STUDY NO. : 0081
ANIMAL : RAT F344
UNIT : mg/kg/day
REPORT TYPE : A1 2
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 1	2
Control	0.000± 0.000	0.000± 0.000
40 ppm	3.254± 0.110	3.020± 0.113
156 ppm	12.634± 0.230	11.680± 0.418
625 ppm	49.893± 1.263	47.025± 1.003
2500 ppm	175.875± 23.692	206.127± 45.944
10000 ppm	792.780±611.120	-

APPENDIX A 4-2

CHEMICAL INTAKE CHANGES: SUMMARY, RAT : FEMALE

(2Week STUDY)

STUDY NO. : 0081
ANIMAL : RAT F344
UNIT : mg/kg/day
REPORT TYPE : A1 2
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 1	2
Control	0.000± 0.000	0.000± 0.000
40 ppm	3.552± 0.086	3.295± 0.148
156 ppm	13.366± 0.406	12.476± 0.374
625 ppm	51.948± 1.559	50.152± 1.454
2500 ppm	214.657± 52.810	205.426± 6.121
10000 ppm	1474.242±976.164	-

APPENDIX A 4-3

CHEMICAL INTAKE CHANGES: SUMMARY, MOUSE: MALE

(2Week STUDY)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
UNIT : mg/kg/day
REPORT TYPE : A1 2
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 1	2
Control	0.000± 0.000	0.000± 0.000
222 ppm	41.155± 5.006	34.611± 3.478
667 ppm	125.601± 9.996	98.881± 6.344
2000 ppm	387.041± 55.655	321.045± 28.873
6000 ppm	667.074±129.643	1094.891± 0.000
18000 ppm	-	-

APPENDIX A 4-4

CHEMICAL INTAKE CHANGES: SUMMARY, MOUSE: FEMALE

(2Week STUDY)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
UNIT : mg／kg／d a y
REPORT TYPE : A1 2
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 1	2
Control	0.000± 0.000	0.000± 0.000
222 ppm	39.627± 2.933	37.545± 2.155
667 ppm	132.454± 17.468	117.772± 27.403
2000 ppm	464.843± 91.570	326.005± 36.807
6000 ppm	861.362±280.566	1145.550±242.571
18000 ppm	-	-

APPENDIX A 5-1

HEMATOLOGY : SUMMARY, RAT : MALE

(2Week STUDY)

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

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

Group Name	NO. of Animals	RED BLOOD CELL $10^6/\mu\ell$	HEMOGLOBIN g/dℓ	HEMATOCRIT %	MCV f ℓ	MCH p g	MCHC g/dℓ	PLATELET $10^3/\mu\ell$
Control	10	7.92± 0.19	15.6± 0.3	42.4± 1.1	53.5± 0.6	19.8± 0.4	36.9± 1.0	1033± 49
40 ppm	10	7.86± 0.16	15.7± 0.3	42.3± 1.0	53.9± 0.4	20.0± 0.4	37.0± 0.8	1040± 53
156 ppm	10	7.81± 0.12	15.5± 0.4	41.9± 0.6	53.6± 0.4	19.9± 0.4	37.0± 0.8	1038± 31
625 ppm	10	7.75± 0.12	15.4± 0.1	41.5± 0.8	53.6± 0.4	19.9± 0.3	37.0± 0.7	1023± 42
2500 ppm	10	7.92± 0.15	15.5± 0.2	41.9± 1.0	52.9± 0.9	19.6± 0.3	37.0± 0.8	974± 51*
10000 ppm	0	-	-	-	-	-	-	-

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

(HCL070)

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

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

Group Name	NO. of Animals	WBC $10^3/\mu\ell$		Differential WBC (%) N-BAND		N-SEG		EOSINO		BASO		MONO		LYMPHO		OTHER	
Control	10	5.28±	1.74	0±	0	10±	2	0±	0	0±	0	2±	2	89±	3	0±	0
40 ppm	10	5.16±	1.49	0±	0	11±	3	0±	0	0±	0	3±	2	85±	4	0±	0
156 ppm	10	5.03±	1.18	0±	0	10±	4	0±	0	0±	0	3±	1	87±	5	0±	0
625 ppm	10	5.14±	2.03	0±	0	10±	3	0±	1	0±	0	4±	2	86±	4	0±	0
2500 ppm	10	6.02±	1.74	0±	0	13±	4	0±	1	0±	0	3±	2	83±	4*	0±	0
10000 ppm	0	-		-		-		-		-		-		-		-	

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

APPENDIX A 5-2

HEMATOLOGY : SUMMARY, RAT : FEMALE

(2Week STUDY)

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

Group Name	NO. of Animals	RED BLOOD CELL $10^6/\mu\ell$	HEMOGLOBIN g/dℓ	HEMATOCRIT %	MCV f ℓ	MCH p g	MCHC g/dℓ	PLATELET $10^3/\mu\ell$
Control	10	8.14± 0.20	16.6± 0.4	43.6± 1.1	53.5± 0.3	20.4± 0.2	38.1± 0.4	958± 64
40 ppm	10	8.06± 0.15	16.4± 0.3	43.0± 0.8	53.3± 0.5	20.4± 0.3	38.2± 0.3	950± 36
156 ppm	10	8.17± 0.19	16.6± 0.3	43.6± 1.0	53.3± 0.3	20.4± 0.2	38.2± 0.4	949± 48
625 ppm	10	8.12± 0.19	16.4± 0.5	43.1± 1.3	53.0± 0.8	20.2± 0.3	38.2± 0.3	940± 45
2500 ppm	10	7.86± 0.18**	15.5± 0.3**	41.0± 0.8**	52.2± 0.3**	19.8± 0.2**	37.9± 0.4	933± 70
10000 ppm	0	-	-	-	-	-	-	-

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

(HCL070)

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

Group Name	NO. of Animals	WBC $10^3/\mu\ell$	Differential WBC (%) N-BAND	N-SEG	EOSINO	BASO	MONO	LYMPHO	OTHER
Control	10	4.88± 0.85	0± 0	11± 3	1± 1	0± 0	3± 1	86± 4	0± 0
40 ppm	10	5.69± 1.56	0± 0	10± 4	1± 1	0± 0	3± 1	87± 4	0± 0
156 ppm	10	4.82± 1.13	0± 0	10± 3	1± 1	0± 0	3± 2	87± 4	0± 0
625 ppm	10	5.06± 2.08	0± 0	11± 5	0± 1	0± 0	3± 1	85± 5	0± 0
2500 ppm	10	6.04± 2.03	0± 0	11± 3	1± 1	0± 0	3± 1	85± 3	0± 0
10000 ppm	0	-	-	-	-	-	-	-	-

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

APPENDIX A 5-3

HEMATOLOGY : SUMMARY, MOSUE : MALE

(2Week STUDY)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

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

Group Name	NO. of Animals	RED BLOOD CELL $10^6/\mu\ell$	HEMOGLOBIN g/dℓ	HEMATOCRIT %	MCV f ℓ	MCH p g	MCHC g/dℓ	PLATELET $10^3/\mu\ell$
Control	9	11.12± 0.32	16.6± 0.4	49.5± 1.3	44.4± 0.3	14.9± 0.1	33.5± 0.2	1519± 131
222 ppm	10	11.16± 0.35	16.7± 0.5	49.9± 1.2	44.7± 0.6	15.0± 0.2	33.5± 0.3	1507± 104
667 ppm	10	10.98± 0.27	16.4± 0.4	48.8± 1.2	44.4± 0.5	14.9± 0.3	33.6± 0.4	1433± 119
2000 ppm	10	9.98± 0.71**	16.4± 0.7	45.8± 2.6*	45.9± 1.2*	16.5± 0.8**	35.9± 1.4**	1430± 105
6000 ppm	1	5.69± 0.00 ?	11.3± 0.0 ?	30.9± 0.0 ?	54.3± 0.0 ?	19.9± 0.0 ?	36.7± 0.0 ?	1976± 0 ?
18000 ppm	0	-	-	-	-	-	-	-

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

? : Significant test is not applied,because No. of data in this group is less than 3.

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

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

Group Name	NO. of Animals	WBC $10^3/\mu\ell$		Differential WBC (%) N-BAND		N-SEG		EOSINO		BASO		MONO		LYMPHO		OTHER	
Control	9	3.87±	1.47	1±	1	12±	3	0±	1	0±	0	2±	2	85±	3	0±	0
222 ppm	10	2.35±	0.89*	0±	1	16±	4	1±	1	0±	0	1±	1	82±	5	0±	1
667 ppm	10	3.81±	1.19	0±	0	14±	4	1±	1	0±	0	3±	2	82±	5	0±	0
2000 ppm	10	3.00±	1.41	0±	0	16±	3	0±	0	0±	0	1±	1	82±	3	0±	0
6000 ppm	1	17.00±	0.00 ?	0±	0 ?	75±	0 ?	0±	0 ?	0±	0 ?	2±	0 ?	23±	0 ?	0±	0 ?
18000 ppm	0	-		-		-		-		-		-		-		-	

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

? : Significant test is not applied,because No. of data in this group is less than 3.

APPENDIX A 5-4

HEMATOLOGY : SUMMARY, MOSUE : FEMALE

(2Week STUDY)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

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

Group Name	NO. of Animals	RED BLOOD CELL $10^6/\mu\ell$	HEMOGLOBIN g/dℓ	HEMATOCRIT %	MCV f ℓ	MCH p g	MCHC g/dℓ	PLATELET $10^3/\mu\ell$
Control	10	10.69± 0.23	16.1± 0.3	47.3± 1.2	44.2± 0.4	15.1± 0.2	34.0± 0.3	1252± 90
222 ppm	9	10.67± 0.16	16.0± 0.3	47.4± 1.1	44.4± 0.5	15.0± 0.2	33.8± 0.3	1068± 187*
667 ppm	10	10.53± 0.23	15.8± 0.4	46.6± 1.1	44.1± 0.5	15.0± 0.2	34.0± 0.5	1275± 123
2000 ppm	10	8.89± 0.29**	15.3± 0.4**	42.6± 1.3**	47.8± 0.6**	17.2± 0.3**	35.9± 0.6**	1120± 110
6000 ppm	2	8.32± 0.88 ?	15.0± 1.1 ?	40.5± 0.0 ?	48.9± 5.2 ?	18.1± 0.5 ?	37.0± 2.8 ?	1320± 203 ?
18000 ppm	0	-	-	-	-	-	-	-

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

? : Significant test is not applied,because No. of data in this group is less than 3.

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

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

Group Name	NO. of Animals	WBC $10^3/\mu\ell$	Differential WBC (%) N-BAND	N-SEG	EOSINO	BASO	MONO	LYMPHO	OTHER
Control	10	3.50± 1.21	0± 0	11± 4	0± 1	0± 0	3± 2	86± 5	0± 0
222 ppm	9	3.08± 0.70	0± 1	10± 4	1± 1	0± 0	1± 1	87± 4	0± 0
667 ppm	10	3.91± 1.06	0± 1	14± 3	1± 1	0± 0	2± 1	83± 3	0± 0
2000 ppm	10	3.81± 0.82	0± 1	10± 4	0± 1	0± 0	4± 2	86± 6	0± 0
6000 ppm	2	3.80± 1.84 ?	1± 1 ?	30± 18 ?	0± 0 ?	0± 0 ?	4± 4 ?	67± 15 ?	0± 0 ?
18000 ppm	0	-	-	-	-	-	-	-	-

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

? : Significant test is not applied,because No. of data in this group is less than 3.

APPENDIX A 6-1

BIOCHEMISTRY : SUMMARY, RAT : MALE

(2Week STUDY)

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	TOTAL PROTEIN g/dℓ		ALBUMIN g/dℓ		T-BILIRUBIN mg/dℓ		GLUCOSE mg/dℓ		T-CHOLESTEROL mg/dℓ		GOT IU/ℓ		GPT IU/ℓ	
Control	10	5.8±	0.1	3.4±	0.1	0.19±	0.08	197±	9	59±	2	53±	3	16±	1
40 ppm	10	5.9±	0.2	3.4±	0.1	0.17±	0.03	197±	8	60±	2	52±	5	16±	2
156 ppm	10	5.8±	0.1	3.4±	0.0	0.17±	0.04	199±	12	61±	2	50±	2	14±	1*
625 ppm	10	5.8±	0.1	3.4±	0.1	0.15±	0.03	195±	9	63±	3**	51±	1	13±	1**
2500 ppm	10	5.7±	0.1	3.4±	0.1	0.17±	0.04	193±	10	72±	4**	52±	3	11±	1**
10000 ppm	0	-		-		-		-		-		-		-	

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

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	LDH IU/ℓ		CPK IU/ℓ		UREA NITROGEN mg/dℓ		CREATININE mg/dℓ		SODIUM mEq/ℓ		POTASSIUM mEq/ℓ		CHLORIDE mEq/ℓ	
Control	10	137±	28	139±	65	15.1±	1.2	0.4±	0.0	140±	1	4.0±	0.2	105±	1
40 ppm	10	146±	44	125±	17	14.7±	1.3	0.4±	0.0	140±	2	4.1±	0.3	104±	1
156 ppm	10	136±	24	124±	16	14.4±	1.6	0.4±	0.1	140±	1	4.0±	0.2	105±	1
625 ppm	10	135±	24	125±	22	14.8±	2.2	0.4±	0.0	140±	1	4.0±	0.2	105±	1
2500 ppm	10	136±	23	124±	10	15.3±	2.1	0.4±	0.0	139±	1	4.1±	0.3	105±	2
10000 ppm	0	-		-		-		-		-		-		-	

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

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	CALCIUM mg/dℓ	INORGANIC PHOSPHORUS mg/dℓ
Control	10	10.9± 0.4	8.1± 0.7
40 ppm	10	11.0± 0.4	8.4± 0.8
156 ppm	10	10.8± 0.3	8.1± 0.8
625 ppm	10	10.7± 0.2	8.1± 0.7
2500 ppm	10	10.7± 0.3	7.8± 0.9
10000 ppm	0	-	-

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

APPENDIX A 6-2

BIOCHEMISTRY : SUMMARY, RAT : FEMALE

(2Week STUDY)

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	TOTAL PROTEIN g/dℓ		ALBUMIN g/dℓ		T-BILIRUBIN mg/dℓ		GLUCOSE mg/dℓ		T-CHOLESTEROL mg/dℓ		GOT IU/ℓ		GPT IU/ℓ	
Control	10	5.7±	0.1	3.4±	0.1	0.16±	0.02	191±	12	74±	5	49±	3	13±	1
40 ppm	10	5.7±	0.1	3.3±	0.1	0.15±	0.02	193±	10	75±	5	47±	3	13±	1
156 ppm	10	5.8±	0.1	3.5±	0.1	0.17±	0.04	192±	8	77±	4	47±	4	13±	1
625 ppm	10	5.8±	0.2	3.5±	0.1	0.17±	0.03	190±	13	82±	3**	49±	2	12±	1*
2500 ppm	10	5.6±	0.1	3.3±	0.1	0.20±	0.06	189±	12	85±	6**	50±	3	9±	1**
10000 ppm	0	-		-		-		-		-		-		-	

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

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	LDH IU/ℓ	CPK IU/ℓ	UREA NITROGEN mg/dℓ	CREATININE mg/dℓ	SODIUM mEq/ℓ	POTASSIUM mEq/ℓ	CHLORIDE mEq/ℓ
Control	10	162± 45	115± 16	16.9± 2.4	0.4± 0.0	139± 1	3.7± 0.1	106± 2
40 ppm	10	157± 27	118± 13	16.9± 2.4	0.4± 0.0	138± 1	3.8± 0.2	106± 2
156 ppm	10	144± 20	114± 7	17.3± 2.7	0.4± 0.0	139± 1	3.9± 0.2	106± 2
625 ppm	10	157± 47	118± 15	16.6± 2.7	0.4± 0.1	139± 2	3.9± 0.4	105± 3
2500 ppm	10	132± 23	110± 6	17.8± 3.6	0.4± 0.0	139± 1	3.9± 0.3	106± 1
10000 ppm	0	-	-	-	-	-	-	-

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

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	CALCIUM mg/dℓ	INORGANIC PHOSPHORUS mg/dℓ
Control	10	10.7± 0.3	6.4± 1.4
40 ppm	10	10.6± 0.2	6.8± 1.7
156 ppm	10	10.7± 0.2	6.9± 1.6
625 ppm	10	10.6± 0.3	7.0± 1.8
2500 ppm	10	10.5± 0.2	6.8± 1.3
10000 ppm	0	-	-

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

APPENDIX A 6-3

BIOCHEMISTRY : SUMMARY, MOSUE : MALE

(2Week STUDY)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	TOTAL PROTEIN g/dℓ	ALBUMIN g/dℓ	T-BILIRUBIN mg/dℓ	GLUCOSE mg/dℓ	T-CHOLESTEROL mg/dℓ	GOT IU/ℓ	GPT IU/ℓ
Control	9	4.7± 0.1	2.5± 0.1	0.73± 0.15	274± 18	88± 7	33± 4	11± 1
222 ppm	10	4.7± 0.1	2.6± 0.1	0.76± 0.14	249± 31	89± 9	35± 3	12± 3
667 ppm	10	4.6± 0.1	2.6± 0.1	0.66± 0.08	273± 32	89± 8	33± 3	12± 2
2000 ppm	9	4.6± 0.3	2.5± 0.2	0.82± 0.17	255± 36	96± 10	35± 3	11± 1
6000 ppm	1	4.0± 0.0 ?	2.4± 0.0 ?	0.82± 0.00 ?	98± 0 ?	102± 0 ?	98± 0 ?	22± 0 ?
18000 ppm	0	-	-	-	-	-	-	-

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

? : Significant test is not applied,because No. of data in this group is less than 3.

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	LDH IU/ℓ	CPK IU/ℓ	UREA NITROGEN mg/dℓ	SODIUM mEq/ℓ	POTASSIUM mEq/ℓ	CHLORIDE mEq/ℓ	CALCIUM mg/dℓ
Control	9	324± 138	70± 18	25.5± 6.1	147± 1	4.6± 0.5	117± 2	8.5± 0.3
222 ppm	10	311± 110	63± 18	35.4± 19.4	148± 2	5.2± 0.6	118± 2	8.8± 0.2
667 ppm	10	251± 42	72± 42	24.7± 6.9	148± 2	4.7± 0.3	118± 3	8.6± 0.2
2000 ppm	9	417± 128	92± 29	19.5± 2.9	148± 5	5.3± 0.8*	118± 3	8.7± 0.5
6000 ppm	1	1002± 0 ?	64± 0 ?	26.6± 0.0 ?	150± 0 ?	6.2± 0.0 ?	118± 0 ?	7.6± 0.0 ?
18000 ppm	0	-	-	-	-	-	-	-

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

? : Significant test is not applied,because No. of data in this group is less than 3.

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	INORGANIC PHOSPHORUS mg/dℓ
Control	9	7.3± 0.8
222 ppm	10	7.8± 0.8
667 ppm	10	7.3± 0.7
2000 ppm	9	8.1± 1.5
6000 ppm	1	4.8± 0.0 ?
18000 ppm	0	-

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

? : Significant test is not applied,because No. of data in this group is less than 3.

APPENDIX A 6-4

BIOCHEMISTRY : SUMMARY, MOSUE : FEMALE

(2Week STUDY)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	TOTAL PROTEIN g/dℓ	ALBUMIN g/dℓ	T-BILIRUBIN mg/dℓ	GLUCOSE mg/dℓ	T-CHOLESTEROL mg/dℓ	GOT IU/ℓ	GPT IU/ℓ
Control	10	4.4± 0.1	2.7± 0.1	0.66± 0.10	239± 19	70± 6	40± 3	13± 2
222 ppm	9	4.4± 0.2	2.6± 0.1	0.74± 0.14	257± 28	69± 6	38± 3	11± 2
667 ppm	10	4.5± 0.2	2.7± 0.1	0.73± 0.19	247± 16	72± 4	40± 7	15± 12
2000 ppm	10	4.3± 0.2	2.6± 0.2	0.85± 0.07**	246± 19	79± 4**	39± 4	10± 1**
6000 ppm	2	4.1± 0.1 ?	2.5± 0.1 ?	0.94± 0.11 ?	178± 4 ?	95± 10 ?	62± 0 ?	13± 1 ?
18000 ppm	0	-	-	-	-	-	-	-

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

? : Significant test is not applied,because No. of data in this group is less than 3.

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	LDH IU/ℓ	CPK IU/ℓ	UREA NITROGEN mg/dℓ	SODIUM mEq/ℓ	POTASSIUM mEq/ℓ	CHLORIDE mEq/ℓ	CALCIUM mg/dℓ
Control	10	283± 59	63± 22	18.3± 1.5	147± 2	4.3± 0.3	119± 1	8.3± 0.3
222 ppm	9	328± 93	80± 29	18.9± 1.6	146± 1	4.7± 0.5	118± 1	8.2± 0.4
667 ppm	10	294± 147	53± 9	17.2± 2.2	146± 2	4.4± 0.3	118± 1	8.4± 0.3
2000 ppm	10	354± 124	60± 18	17.5± 2.4	147± 2	5.3± 0.7**	118± 2	8.3± 0.4
6000 ppm	2	487± 41 ?	79± 4 ?	23.0± 2.3 ?	150± 3 ?	6.1± 0.1 ?	120± 0 ?	7.8± 0.0 ?
18000 ppm	0	-	-	-	-	-	-	-

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

? : Significant test is not applied,because No. of data in this group is less than 3.

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (2)

Group Name	NO. of Animals	INORGANIC PHOSPHORUS mg/dℓ
Control	10	7.1± 0.7
222 ppm	9	7.7± 1.0
667 ppm	10	6.6± 0.7
2000 ppm	10	7.4± 1.1
6000 ppm	2	6.0± 0.3 ?
18000 ppm	0	-

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

? : Significant test is not applied,because No. of data in this group is less than 3.

APPENDIX A 7-1

GROSS FINDINGS : SUMMARY, RAT : MALE : DEAD AND MORIBUND ANIMALS

(2Week STUDY)

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 2W)

Organ	Findings	Group Name NO. of Animals	Control 0 (%)	40 ppm 0 (%)	156 ppm 0 (%)	625 ppm 0 (%)
lung	red		- (-)	- (-)	- (-)	- (-)
thymus	atrophic		- (-)	- (-)	- (-)	- (-)
forestomach	ulcer		- (-)	- (-)	- (-)	- (-)
gl stomach	red patch/zone		- (-)	- (-)	- (-)	- (-)
	black patch/zone		- (-)	- (-)	- (-)	- (-)
	fluid:black		- (-)	- (-)	- (-)	- (-)
stomach	fluid:red		- (-)	- (-)	- (-)	- (-)
small intes	fluid:black		- (-)	- (-)	- (-)	- (-)
urin bladd	red zone		- (-)	- (-)	- (-)	- (-)
	fluid:red		- (-)	- (-)	- (-)	- (-)
other	yellow		- (-)	- (-)	- (-)	- (-)

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 2W)

Organ	Findings	Group Name NO. of Animals	2500 ppm 0 (%)	10000 ppm 10 (%)
lung	red		- (-)	1 (10)
thymus	atrophic		- (-)	1 (10)
forestomach	ulcer		- (-)	2 (20)
gl stomach	red patch/zone		- (-)	3 (30)
	black patch/zone		- (-)	1 (10)
	fluid:black		- (-)	2 (20)
stomach	fluid:red		- (-)	3 (30)
small intes	fluid:black		- (-)	1 (10)
urin bladd	red zone		- (-)	1 (10)
	fluid:red		- (-)	9 (90)
other	yellow		- (-)	1 (10)

APPENDIX A 7-2

GROSS FINDINGS : SUMMARY, RAT : FEMALE : DEAD AND MORIBUND ANIMALS

(2Week STUDY)

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 2W)

Organ	Findings	Group Name NO. of Animals	Control 0 (%)	40 ppm 0 (%)	156 ppm 0 (%)	625 ppm 0 (%)
lung	red		- (-)	- (-)	- (-)	- (-)
thymus	atrophic		- (-)	- (-)	- (-)	- (-)
forestomach	ulcer		- (-)	- (-)	- (-)	- (-)
gl stomach	red patch/zone		- (-)	- (-)	- (-)	- (-)
	black patch/zone		- (-)	- (-)	- (-)	- (-)
	fluid:black		- (-)	- (-)	- (-)	- (-)
stomach	fluid:red		- (-)	- (-)	- (-)	- (-)
	fluid:black		- (-)	- (-)	- (-)	- (-)
small intes	fluid:red		- (-)	- (-)	- (-)	- (-)
	fluid:black		- (-)	- (-)	- (-)	- (-)
urin bladd	fluid:red		- (-)	- (-)	- (-)	- (-)
other	soiled		- (-)	- (-)	- (-)	- (-)

Organ	Findings	Group Name NO. of Animals	2500 ppm 0 (%)	10000 ppm 10 (%)
lung	red		- (-)	2 (20)
thymus	atrophic		- (-)	1 (10)
forestomach	ulcer		- (-)	2 (20)
gl stomach	red patch/zone		- (-)	2 (20)
	black patch/zone		- (-)	1 (10)
	fluid:black		- (-)	2 (20)
stomach	fluid:red		- (-)	3 (30)
	fluid:black		- (-)	1 (10)
small intes	fluid:red		- (-)	1 (10)
	fluid:black		- (-)	1 (10)
urin bladd	fluid:red		- (-)	8 (80)
other	soiled		- (-)	2 (20)

APPENDIX A 7-3

GROSS FINDINGS : SUMMARY, RAT : MALE : SACRIFICED ANIMALS

(2Week STUDY)

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (2W)

Organ	Findings	Group Name / NO. of Animals	Control 10 (%)	40 ppm 10 (%)	156 ppm 10 (%)	625 ppm 10 (%)
lung	red zone		0 (0)	1 (10)	0 (0)	1 (10)
other	yellow		0 (0)	0 (0)	0 (0)	0 (0)

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (2W)

Organ	Findings	Group Name / NO. of Animals	2500 ppm 10 (%)	10000 ppm 0 (%)
lung	red zone		1 (10)	- (-)
other	yellow		10 (100)	- (-)

APPENDIX A 7-4

GROSS FINDINGS : SUMMARY, RAT : FEMALE : SACRIFICED ANIMALS

(2Week STUDY)

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (2W)

Organ	Findings	Group Name NO. of Animals	Control 10 (%)	40 ppm 10 (%)	156 ppm 10 (%)	625 ppm 10 (%)
lung	red zone		0 (0)	1 (10)	1 (10)	0 (0)
liver	herniation		1 (10)	0 (0)	0 (0)	0 (0)
other	yellow		0 (0)	0 (0)	0 (0)	0 (0)
	soiled		0 (0)	0 (0)	0 (0)	0 (0)

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (2W)

Organ	Findings	Group Name NO. of Animals	2500 ppm 10 (%)	10000 ppm 0 (%)
lung	red zone		0 (0)	- (-)
liver	herniation		0 (0)	- (-)
other	yellow		9 (90)	- (-)
	soiled		2 (20)	- (-)

APPENDIX A 7-5

GROSS FINDINGS : SUMMARY, MOSUE : MALE : DEAD AND MORIBUND ANIMALS

(2Week STUDY)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 2W)

Organ	Findings	Group Name NO. of Animals	Control 0 (%)	222 ppm 0 (%)	667 ppm 0 (%)	2000 ppm 0 (%)
lung	red		- (-)	- (-)	- (-)	- (-)
	red zone		- (-)	- (-)	- (-)	- (-)
thymus	atrophic		- (-)	- (-)	- (-)	- (-)
forestomach	red patch/zone		- (-)	- (-)	- (-)	- (-)
stomach	fluid:black		- (-)	- (-)	- (-)	- (-)
small intes	fluid:black		- (-)	- (-)	- (-)	- (-)
large intes	fluid:black		- (-)	- (-)	- (-)	- (-)
urin bladd	fluid:red		- (-)	- (-)	- (-)	- (-)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 2W)

Organ	Findings	Group Name NO. of Animals	6000 ppm 9 (%)	18000 ppm 10 (%)
lung	red		6 (67)	3 (30)
	red zone		2 (22)	3 (30)
thymus	atrophic		2 (22)	0 (0)
forestomach	red patch/zone		2 (22)	0 (0)
stomach	fluid:black		3 (33)	7 (70)
small intes	fluid:black		3 (33)	8 (80)
large intes	fluid:black		1 (11)	3 (30)
urin bladd	fluid:red		1 (11)	1 (10)

APPENDIX A 7-6

GROSS FINDINGS : SUMMARY, MOSUE : FEMALE : DEAD AND MORIBUND ANIMALS

(2Week STUDY)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 2W)

Organ	Findings	Group Name NO. of Animals	Control 0 (%)	222 ppm 0 (%)	667 ppm 0 (%)	2000 ppm 0 (%)
lung	red		- (-)	- (-)	- (-)	- (-)
	red zone		- (-)	- (-)	- (-)	- (-)
spleen	black zone		- (-)	- (-)	- (-)	- (-)
stomach	fluid:black		- (-)	- (-)	- (-)	- (-)
small intes	fluid:black		- (-)	- (-)	- (-)	- (-)
large intes	fluid:black		- (-)	- (-)	- (-)	- (-)
urin bladd	fluid:red		- (-)	- (-)	- (-)	- (-)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 2W)

Organ	Findings	Group Name NO. of Animals	6000 ppm 8 (%)	18000 ppm 10 (%)
lung	red		5 (63)	1 (10)
	red zone		0 (0)	3 (30)
spleen	black zone		0 (0)	1 (10)
stomach	fluid:black		7 (88)	10 (100)
small intes	fluid:black		7 (88)	10 (100)
large intes	fluid:black		1 (13)	3 (30)
urin bladd	fluid:red		2 (25)	0 (0)

APPENDIX A 7-7

GROSS FINDINGS : SUMMARY, MOSUE : MALE : SACRIFICED ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (2W)

Organ	Findings	Group Name / NO. of Animals	Control 10 (%)	222 ppm 10 (%)	667 ppm 10 (%)	2000 ppm 10 (%)
spleen	enlarged		0 (0)	0 (0)	0 (0)	5 (50)
	black		0 (0)	0 (0)	0 (0)	9 (90)
	black zone		2 (20)	0 (0)	0 (0)	0 (0)
liver	atrophic		0 (0)	0 (0)	0 (0)	0 (0)
	dark		0 (0)	0 (0)	1 (10)	3 (30)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (2W)

Organ	Findings	Group Name NO. of Animals	6000 ppm 1 (%)	18000 ppm 0 (%)
spleen	enlarged		1 (100)	- (-)
	black		1 (100)	- (-)
	black zone		0 (0)	- (-)
liver	atrophic		1 (100)	- (-)
	dark		1 (100)	- (-)

APPENDIX A 7-8

GROSS FINDINGS : SUMMARY, MOSUE : FEMALE : SACRIFICED ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (2W)

Organ	Findings	Group Name / NO. of Animals	Control 10 (%)	222 ppm 10 (%)	667 ppm 10 (%)	2000 ppm 10 (%)
lung	red patch/zone		0 (0)	1 (10)	0 (0)	0 (0)
thymus	atrophic		0 (0)	0 (0)	0 (0)	0 (0)
spleen	enlarged		0 (0)	0 (0)	0 (0)	7 (70)
	black		0 (0)	0 (0)	0 (0)	10 (100)
	black zone		2 (20)	1 (10)	3 (30)	0 (0)
forestomach	ulcer		0 (0)	0 (0)	0 (0)	0 (0)
liver	atrophic		0 (0)	0 (0)	0 (0)	0 (0)
	dark		0 (0)	0 (0)	0 (0)	1 (10)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (2W)

Organ	Findings	Group Name NO. of Animals	6000 ppm 2 (%)	18000 ppm 0 (%)
lung	red patch/zone		0 (0)	- (-)
thymus	atrophic		1 (50)	- (-)
spleen	enlarged		1 (50)	- (-)
	black		2 (100)	- (-)
	black zone		0 (0)	- (-)
forestomach	ulcer		2 (100)	- (-)
liver	atrophic		2 (100)	- (-)
	dark		2 (100)	- (-)

APPENDIX A 8-1

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

RAT : MALE : DEAD AND MORIBUND ANIMALS

(2Week STUDY)

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 2W)

Organ	Findings	Group Name	Control				40 ppm				156 ppm				625 ppm			
		No. of Animals	0				0				0				0			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]																		
bone marrow	congestion		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
thymus	atrophy		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
spleen	atrophy		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	congestion		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
[Digestive system]																		
stomach	erosion:forestomach		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	hyperplasia:forestomach		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	erosion:glandular stomach		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
[Urinary system]																		
kidney	hyaline droplet		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	tubular necrosis		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)

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

Organ	Findings	Group Name	2500 ppm				10000 ppm			
		No. of Animals	0				7			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]										
bone marrow	congestion		- (-)	- (-)	- (-)	- (-)	0 (0)	0 (0)	7 (100)	0 (0)
thymus	atrophy		- (-)	- (-)	- (-)	- (-)	0 (0)	0 (0)	7 (100)	0 (0)
spleen	atrophy		- (-)	- (-)	- (-)	- (-)	7 (100)	0 (0)	0 (0)	0 (0)
	congestion		- (-)	- (-)	- (-)	- (-)	7 (100)	0 (0)	0 (0)	0 (0)
[Digestive system]										
stomach	erosion:forestomach		- (-)	- (-)	- (-)	- (-)	4 (57)	2 (29)	1 (14)	0 (0)
	hyperplasia:forestomach		- (-)	- (-)	- (-)	- (-)	1 (14)	3 (43)	0 (0)	0 (0)
	erosion:glandular stomach		- (-)	- (-)	- (-)	- (-)	3 (43)	0 (0)	0 (0)	0 (0)
[Urinary system]										
kidney	hyaline droplet		- (-)	- (-)	- (-)	- (-)	0 (0)	6 (86)	1 (14)	0 (0)
	tubular necrosis		- (-)	- (-)	- (-)	- (-)	4 (57)	1 (14)	2 (29)	0 (0)

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

APPENDIX A 8-2

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

RAT : FEMALE : DEAD AND MORIBUND ANIMALS

(2Week STUDY)

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 2W)

Organ	Findings	Group Name	Control				40 ppm				156 ppm				625 ppm			
		No. of Animals	0				0				0				0			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]																		
bone marrow	congestion		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
thymus	atrophy		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
spleen	atrophy		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	congestion		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
[Digestive system]																		
stomach	erosion:forestomach		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	hyperplasia:forestomach		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	erosion:glandular stomach		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
[Urinary system]																		
kidney	hyaline droplet		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	tubular necrosis		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	mineralization:cortico-medullary junction		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)

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

Organ	Findings	Group Name	2500 ppm				10000 ppm			
		No. of Animals	0				6			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]										
bone marrow	congestion		- (-)	- (-)	- (-)	- (-)	0 (0)	0 (0)	6 (100)	0 (0)
thymus	atrophy		- (-)	- (-)	- (-)	- (-)	0 (0)	0 (0)	6 (100)	0 (0)
spleen	atrophy		- (-)	- (-)	- (-)	- (-)	6 (100)	0 (0)	0 (0)	0 (0)
	congestion		- (-)	- (-)	- (-)	- (-)	6 (100)	0 (0)	0 (0)	0 (0)
[Digestive system]										
stomach	erosion:forestomach		- (-)	- (-)	- (-)	- (-)	1 (17)	2 (33)	0 (0)	0 (0)
	hyperplasia:forestomach		- (-)	- (-)	- (-)	- (-)	0 (0)	2 (33)	0 (0)	0 (0)
	erosion:glandular stomach		- (-)	- (-)	- (-)	- (-)	4 (67)	1 (17)	0 (0)	0 (0)
[Urinary system]										
kidney	hyaline droplet		- (-)	- (-)	- (-)	- (-)	5 (83)	0 (0)	0 (0)	0 (0)
	tubular necrosis		- (-)	- (-)	- (-)	- (-)	4 (67)	1 (17)	0 (0)	0 (0)
	mineralization:cortico-medullary junction		- (-)	- (-)	- (-)	- (-)	4 (67)	0 (0)	0 (0)	0 (0)

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

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 2W)

Organ	Findings	Group Name	Control				40 ppm				156 ppm				625 ppm			
		No. of Animals	0				0				0				0			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Endocrine system]																		
adrenal	hemorrhage		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)

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

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 2W)

Organ	Findings	Group Name	2500 ppm				10000 ppm			
		No. of Animals	0				6			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Endocrine system]										
adrenal	hemorrhage		- (-)	- (-)	- (-)	- (-)	3 (50)	0 (0)	0 (0)	0 (0)

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

APPENDIX A 8-3

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

RAT : MALE : SACRIFICED ANIMALS

(2Week STUDY)

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

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

Organ	Findings	Group Name	Control				40 ppm				156 ppm				625 ppm			
		No. of Animals	2				2				2				2			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]																		
spleen	congestion		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Digestive system]																		
stomach	hyperplasia:forestomach		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Urinary system]																		
kidney	eosinophilic body		2 (100)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)	0 (0)	0 (0)	1 (50)	1 (50)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)

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

STUDY NO. : 0081
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

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

Organ	Findings	Group Name	2500 ppm				10000 ppm			
		No. of Animals	2				0			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]										
spleen	congestion		1 (50)	0 (0)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
[Digestive system]										
stomach	hyperplasia:forestomach		2 (100)	0 (0)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
[Urinary system]										
kidney	eosinophilic body		0 (0)	0 (0)	2 (100)	0 (0)	- (-)	- (-)	- (-)	- (-)

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

APENDIX A 8-4

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

RAT : FEMALE : SACRIFICED ANIMALS

(2Week STUDY)

Organ	Findings	Group Name	Control				40 ppm				156 ppm				625 ppm			
		No. of Animals	2				2				2				2			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]																		
spleen	congestion		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Digestive system]																		
stomach	hyperplasia:forestomach		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
liver	herniation		1 (50)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Urinary system]																		
kidney	mineralization:cortico-medullary junction		2 (100)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)	0 (0)	1 (50)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)	0 (0)

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

Organ	Findings	Group Name	2500 ppm				10000 ppm			
		No. of Animals	2				0			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]										
spleen	congestion		2 (100)	0 (0)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
[Digestive system]										
stomach	hyperplasia:forestomach		2 (100)	0 (0)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
liver	herniation		0 (0)	0 (0)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
[Urinary system]										
kidney	mineralization:cortico-medullary junction		2 (100)	0 (0)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)

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

APPENDIX A 8-5

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

MOUSE: MALE : DEAD AND MORIBUND ANIMALS

(2Week STUDY)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 2W)

Organ	Findings	Group Name	Control				222 ppm				667 ppm				2000 ppm			
		No. of Animals	0				0				0				0			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]																		
thymus	atrophy		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
spleen	atrophy		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
[Circulatory system]																		
heart	thrombus		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
[Digestive system]																		
tongue	erosion		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
salivary gl	eosinophilic granule:decreased		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
stomach	ulcer:forestomach		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	hyperplasia:forestomach		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
liver	degeneration:central		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)

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

Organ	Findings	Group Name	6000 ppm				18000 ppm			
		No. of Animals	4				4			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]										
thymus	atrophy		0 (0)	3 (75)	0 (0)	0 (0)	0 (0)	2 (50)	1 (25)	0 (0)
spleen	atrophy		0 (0)	4 (100)	0 (0)	0 (0)	0 (0)	4 (100)	0 (0)	0 (0)
[Circulatory system]										
heart	thrombus		0 (0)	2 (50)	0 (0)	0 (0)	0 (0)	2 (50)	0 (0)	0 (0)
[Digestive system]										
tongue	erosion		1 (25)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
salivary gl	eosinophilic granule:decreased		0 (0)	0 (0)	1 (25)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
stomach	ulcer:forestomach		0 (0)	1 (25)	0 (0)	0 (0)	0 (0)	1 (25)	0 (0)	0 (0)
	hyperplasia:forestomach		3 (75)	1 (25)	0 (0)	0 (0)	0 (0)	1 (25)	0 (0)	0 (0)
liver	degeneration:central		0 (0)	0 (0)	0 (0)	0 (0)	1 (25)	1 (25)	0 (0)	0 (0)

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

APPENDIX A 8-6

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

MOUSE: FEMALE : DEAD AND MORIBUND ANIMALS

(2Week STUDY)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0- 2W)

Organ	Findings	Group Name	Control				222 ppm				667 ppm				2000 ppm			
		No. of Animals	0				0				0				0			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]																		
thymus	atrophy		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
spleen	atrophy		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
[Digestive system]																		
stomach	ulcer:forestomach		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)
	hyperplasia:forestomach		- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)	- (-)

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

Organ	Findings	Group Name	6000 ppm				18000 ppm			
		No. of Animals	2				3			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]										
thymus	atrophy		0 (0)	2 (100)	0 (0)	0 (0)	0 (0)	1 (33)	0 (0)	0 (0)
spleen	atrophy		0 (0)	2 (100)	0 (0)	0 (0)	0 (0)	3 (100)	0 (0)	0 (0)
[Digestive system]										
stomach	ulcer:forestomach		0 (0)	1 (50)	0 (0)	0 (0)	1 (33)	1 (33)	0 (0)	0 (0)
	hyperplasia:forestomach		1 (50)	0 (0)	0 (0)	0 (0)	2 (67)	0 (0)	0 (0)	0 (0)

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

APPENDIX A 8-7

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

MOSUE : MALE : SACRIFICED ANIMALS

(2Week STUDY)

STUDY NO. : 0082
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

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

Organ	Findings	Group Name	Control				222 ppm				667 ppm				2000 ppm			
		No. of Animals	2				2				2				2			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]																		
bone marrow	erythropoiesis:increased		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)	0 (0)
thymus	atrophy		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
spleen	deposit of hemosiderin		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 (100)	0 (0)	0 (0)	0 (0)
	extramedullary hematopoiesis		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)
[Digestive system]																		
salivary gl	eosinophilic granule:decreased		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
stomach	ulcer:forestomach		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (50)	0 (0)	0 (0)
	hyperplasia:forestomach		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (50)	0 (0)	0 (0)	0 (0)
liver	deposit of hemosiderin		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
[Urinary system]																		
kidney	deposit of hemosiderin		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

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

Organ	Findings	Group Name	6000 ppm				18000 ppm			
		No. of Animals	1				0			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]										
bone marrow	erythropoiesis:increased		0 (0)	1 (100)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
thymus	atrophy		0 (0)	1 (100)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
spleen	deposit of hemosiderin		1 (100)	0 (0)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
	extramedullary hematopoiesis		0 (0)	0 (0)	1 (100)	0 (0)	- (-)	- (-)	- (-)	- (-)
[Digestive system]										
salivary gl	eosinophilic granule:decreased		0 (0)	0 (0)	1 (100)	0 (0)	- (-)	- (-)	- (-)	- (-)
stomach	ulcer:forestomach		0 (0)	0 (0)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
	hyperplasia:forestomach		0 (0)	1 (100)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
liver	deposit of hemosiderin		0 (0)	1 (100)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
[Urinary system]										
kidney	deposit of hemosiderin		1 (100)	0 (0)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)

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

APPENDIX A 8-8

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

MOSUE : FEMALE : SACRIFICED ANIMALS

(2Week STUDY))

Organ	Findings	Group Name	Control				222 ppm				667 ppm				2000 ppm			
		No. of Animals	2				2				2				2			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]																		
bone marrow	erythropoiesis:increased		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)	0 (0)
thymus	atrophy		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
spleen	congestion		0 (0)	0 (0)	0 (0)	0 (0)	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		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)	0 (0)	0 (0)
	extramedullary hematopoiesis		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (50)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (100)	0 (0)
[Digestive system]																		
stomach	erosion:forestomach		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	hyperplasia:forestomach		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (50)	0 (0)	0 (0)
liver	deposit of hemosiderin		0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

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

Organ	Findings	Group Name	6000 ppm				18000 ppm			
		No. of Animals	2				0			
			<1> (%)	<2> (%)	<3> (%)	<4> (%)	<1> (%)	<2> (%)	<3> (%)	<4> (%)
[Hematopoietic system]										
bone marrow	erythropoiesis:increased		1 (50)	1 (50)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
thymus	atrophy		0 (0)	2 (100)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
spleen	congestion		1 (50)	0 (0)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
	deposit of hemosiderin		0 (0)	2 (100)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
	extramedullary hematopoiesis		0 (0)	1 (50)	1 (50)	0 (0)	- (-)	- (-)	- (-)	- (-)
[Digestive system]										
stomach	erosion:forestomach		1 (50)	0 (0)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
	hyperplasia:forestomach		0 (0)	2 (100)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)
liver	deposit of hemosiderin		2 (100)	0 (0)	0 (0)	0 (0)	- (-)	- (-)	- (-)	- (-)

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

APPENDIX A 9-1

IDENTITY AND PURITY OF CDNB

PERFORMED AT THE JAPAN BIOASSAY LABORATORY

(2Week STUDY)

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

A.Lot no.DCN1805

1.Physical properties	Determines	Literature Values
Appearance:	Yellow solid	Yellow solid
Melting point:	51°C	51°C (ENCYCLOPAEDIA Published by Kyooritsu CO..LTD.)
2.Spectral data		
Mass spectrometry		
Instrument	Hitachi M-80B	
Ionization	EI(Electron Impact)	
Range of Measurement	0～500	
Results	Molecule Weight	
Theory	202(Calculated without isotope)	
Determined	202	
Infrared		
Instrument	: Hitachi 270-30	
Cell	: KBr	
Slit	: Medium	

	Determines	Literature Values
Results	: Wave Number (CM^{-1})	
	485	480
	525	520
	555	550
	620	610
	670	665
	705	700
	750	740
	760	755
	850	840
	860	855
	915	905
	930	920
	1060	1050
	1115	1100
	1150	1140
	1170	1160
	1260	1250
	1360	1350
	1475	1460
	1560	1540
	1600	1595
	1620	
	1720	1710
	1980	1980
	3130	3100
		(WAKO PURE CHEMICAL INDUSTRIES,LTD)

Ultraviolet

Instrument : Shimazdu UV-240

Cell : 10mm cell

Slit : 2

Results : Wavelength (nm)

205
235～260

3.Gas Chromatography

Instrument	: HEWLETT PACKARD 5890A
Column	: METHYL SILICONE,50m,0.2ϕ
Column Temperature	: 180°C
Flow Rate	: 1ml/min
Detector	: Flame Ionization Detecter(FID)
Injection Volume	: 1μl
Results	: Only one major peak

Peak No.	Retention Time(min)	Retention Time Relative to Major Peak	Area (percent of Major peak)
1	5.397	1.00	100

B. Conclusions:The results of the Mass spectra agreed with the theoretical values.Boiling point agreed with the Literature values.Impurity was not detected in test substance by Gas chromatography.The infrared spectra agreed with the Litrature values.Ultraviolet spectra was indecated of absorption of aromatic hydrocarbone(235nm～260nm).

APPENDIX A 9-2

STABILITY OF CDBN AT THE JAPAN BIOASSAY LABORATORY

(2Week STUDY)

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

A.Lot no.DCN1805

1.Sample storage: CDNB were stored for about two weeks at 5°C.

	Previous determined of test (02/06/87)	After determined of test (03/20/87)
2.Physical properties		
Appearance:	Yellow solid	Yellow solid
Melting point:	51°C	51°C
3.Spectral data		
Infrared		
Instrument	: Hitachi 270-30	
Cell	: KBr	
Slit	: Medium	
Results	: Wave Number (CM^{-1})	
	485	485
	525	525
	555	555
	620	620
	670	670
	705	705
	750	750
	760	760
	850	850
	860	860
	915	915
	930	930
	1060	1060
	1115	1115
	1150	1150
	1170	1170
	1260	1260
	1360	1360
	1475	1475
	1560	1560
	1600	1600
	1620	1620
	1720	1720
	1980	1980
	3130	3130

	Previous determined of test (02/06/87)	After determined of test (03/20/87)
Ultraviolet		
Instrument	: Shimazdu UV-240	
Cell	: 10mm cell	
Slit	: 2	
Results	: Wavelength (nm)	
	205 235～260	205 235～260

4.Gas Chromatography

Instrument	: HEWLETT PACKARD 5890A
Column	: METHYL SILICONE,50m,0.2ϕ
Column Temperature	: 180°C
Flow Rate	: 1ml/min
Detector	: Flame Ionization Detecter(FID)
Injection Volume	: 1μl
Results	: Only one major peak

Date	Retention Time(min)	Retention Time Relative to Major Peak	Area (percent of Major peak)
02/06/87	5.397	1.00	100
03/20/87	5.397	1.00	100

D.Conclusions:The results of the Infrared and Ultraviolet spectra agreed with the previous determine of test Values.Boiling point agreed with the previous determine of test Values.Impurity was not detected in test substance by Gas chromatography.
Consequently,CDNB was stable as the chemical when stored for about two weeks at temperatures to 5°C.

APPENDIX A 9-3

RESULTS OF ANALYSIS AND STABILITY OF FORMULATED FIETS IN THE TOW-WEEK STUDIES OF CDNB

RESULTS OF ANALYSIS OF FORMULATED DIETS IN THE TWO-WEEK STUDIES OF CDNB
(Rat)

	Concentration of DNCB in feed for Taget Concentration(ppm)				
Date Mixed	40 (a)	156 (a)	625 (a)	2500 (a)	10000 (a)
02/26/87	36.1(90.2)	132.1(84.7)	583.2(93.3)	2489.8(99.6)	10864.1(108.6)

(Mouse)

	Concentration of DNCB in feed for Taget Concentration(ppm)				
Date Mixed	222 (a)	667 (a)	2000 (a)	6000 (a)	18000 (a)
03/05/87	212.6(95.8)	641.1(96.1)	1954.7(97.7)	5934.8(98.9)	18310.4(101.7)

(a) Determined as a percent of taget

RESULT OF STABILITY OF FORMULATED DIETS IN THE TWO-WEEK STUDIES OF CDNB
(Rat)

	Concentration of DNCB in feed for Taget Concentration(ppm)				
Date Mixed	60 (a)	180 (a)	540 (a)	1620 (a)	4860 (a)
02/26/87(b)	36.1	132.1	583.2	2489.8	10864.1
03/05/87	27.4(75.9)	100.5(76.1)	436.9(74.9)	2031.6(81.6)	8300.3(76.4)

(Mouse)

	Concentration of DNCB in feed for Taget Concentration(ppm)				
Date Mixed	222 (a)	667 (a)	2000 (a)	6000 (a)	18000 (a)
03/05/87(b)	212.6	641.1	1954.7	5934.8	18310.4
03/12/87	132.1(59.5)	418.7(62.8)	1367.1(68.4)	4474.0(47.6)	15387.1(85.5)

(a) Determined as a percent of taget
(b) Formulated