酢酸ビニル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(混水試験)報告書

APPENDIX

(E1～K4)
がん原性：ラット/0162；マウス/0163

APPENDIXES (CONTINUED)

APPENDIXES (CONTINUED)

APPENDIX E 1

CHEMICAL INTAKE CHANGES : SUMMARY, RAT : MALE

(2-YEAR STUDY)

STUDY NO. : 0162
ANIMAL : RAT F344
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 1	2	3	4	5	6	7
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.048± 0.007	0.045± 0.010	0.038± 0.005	0.032± 0.002	0.029± 0.001	0.036± 0.002	0.032± 0.005
2000 ppm	0.226± 0.015	0.223± 0.074	0.185± 0.026	0.153± 0.009	0.146± 0.009	0.173± 0.013	0.149± 0.011
10000 ppm	0.950± 0.057	0.885± 0.085	0.768± 0.053	0.669± 0.041	0.664± 0.066	0.774± 0.106	0.639± 0.045

STUDY NO. : 0162
ANIMAL : RAT F344
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 8	9	10	11	12	13	14
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.032± 0.005	0.029± 0.004	0.029± 0.007	0.025± 0.003	0.021± 0.001	0.021± 0.001	0.022± 0.001
2000 ppm	0.146± 0.012	0.139± 0.015	0.136± 0.012	0.117± 0.009	0.103± 0.007	0.104± 0.008	0.105± 0.008
10000 ppm	0.605± 0.038	0.575± 0.037	0.575± 0.034	0.504± 0.079	0.454± 0.053	0.452± 0.026	0.459± 0.027

STUDY NO. : 0162
ANIMAL : RAT F344
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 16	18	20	22	24	26	28
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.023± 0.002	0.021± 0.002	0.021± 0.002	0.021± 0.002	0.020± 0.002	0.020± 0.002	0.019± 0.001
2000 ppm	0.112± 0.008	0.104± 0.011	0.101± 0.010	0.100± 0.009	0.098± 0.008	0.097± 0.010	0.096± 0.009
10000 ppm	0.476± 0.024	0.454± 0.021	0.438± 0.026	0.432± 0.025	0.425± 0.021	0.422± 0.026	0.420± 0.024

STUDY NO. : 0162
ANIMAL : RAT F344
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 30	32	34	36	38	40	42
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.020± 0.005	0.019± 0.001	0.018± 0.003	0.019± 0.003	0.019± 0.003	0.018± 0.001	0.018± 0.003
2000 ppm	0.092± 0.005	0.089± 0.005	0.084± 0.004	0.090± 0.005	0.090± 0.006	0.088± 0.006	0.089± 0.007
10000 ppm	0.408± 0.025	0.398± 0.023	0.376± 0.038	0.412± 0.025	0.427± 0.062	0.413± 0.028	0.407± 0.024

STUDY NO. : 0162
ANIMAL : RAT F344
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 44	46	48	50	52	54	56
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.016± 0.002	0.018± 0.003	0.017± 0.003	0.018± 0.002	0.017± 0.002	0.017± 0.002	0.016± 0.001
2000 ppm	0.075± 0.006	0.086± 0.005	0.080± 0.006	0.084± 0.006	0.079± 0.009	0.083± 0.005	0.079± 0.006
10000 ppm	0.364± 0.020	0.406± 0.053	0.381± 0.026	0.403± 0.025	0.388± 0.025	0.393± 0.024	0.378± 0.026

STUDY NO. : 0162
ANIMAL : RAT F344
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 58	60	62	64	66	68	70
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.017± 0.002	0.017± 0.001	0.017± 0.001	0.016± 0.001	0.017± 0.001	0.017± 0.002	0.017± 0.001
2000 ppm	0.082± 0.007	0.082± 0.011	0.082± 0.006	0.076± 0.007	0.081± 0.011	0.081± 0.006	0.081± 0.007
10000 ppm	0.390± 0.027	0.385± 0.032	0.394± 0.030	0.372± 0.035	0.388± 0.037	0.388± 0.045	0.381± 0.047

STUDY NO. : 0162
ANIMAL : RAT F344
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 72	74	76	78	80	82	84
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.017± 0.002	0.018± 0.002	0.018± 0.002	0.018± 0.002	0.018± 0.002	0.019± 0.002	0.018± 0.002
2000 ppm	0.082± 0.007	0.084± 0.010	0.083± 0.010	0.082± 0.014	0.089± 0.018	0.087± 0.015	0.084± 0.013
10000 ppm	0.393± 0.046	0.410± 0.091	0.433± 0.116	0.397± 0.064	0.404± 0.079	0.401± 0.099	0.398± 0.088

STUDY NO. : 0162
ANIMAL : RAT F344
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 86	88	90	92	94	96	98
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.020± 0.004	0.021± 0.003	0.022± 0.005	0.022± 0.004	0.023± 0.004	0.022± 0.004	0.023± 0.005
2000 ppm	0.089± 0.022	0.094± 0.022	0.096± 0.028	0.097± 0.020	0.100± 0.020	0.101± 0.026	0.104± 0.029
10000 ppm	0.417± 0.106	0.423± 0.135	0.452± 0.138	0.458± 0.133	0.456± 0.185	0.430± 0.079	0.440± 0.077

STUDY NO. : 0162
ANIMAL : RAT F344
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 100	102	104
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.023± 0.006	0.024± 0.006	0.025± 0.008
2000 ppm	0.103± 0.026	0.106± 0.029	0.107± 0.035
10000 ppm	0.448± 0.088	0.450± 0.082	0.461± 0.123

APPENDIX D 2

CHEMICAL INTAKE CHANGES : SUMMARY, RAT : FEMALE

(2-YEAR STUDY)

STUDY NO. : 0162
ANIMAL : RAT F344
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 1	2	3	4	5	6	7
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.060± 0.016	0.058± 0.019	0.056± 0.018	0.052± 0.012	0.057± 0.023	0.055± 0.021	0.040± 0.009
2000 ppm	0.266± 0.018	0.257± 0.050	0.235± 0.026	0.240± 0.032	0.229± 0.034	0.225± 0.045	0.184± 0.041
10000 ppm	1.062± 0.084	0.980± 0.069	0.921± 0.055	0.902± 0.056	0.845± 0.082	0.801± 0.071	0.730± 0.050

STUDY NO. : 0162
ANIMAL : RAT F344
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 8	9	10	11	12	13	14
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.038± 0.011	0.036± 0.011	0.038± 0.014	0.029± 0.009	0.027± 0.008	0.027± 0.006	0.030± 0.015
2000 ppm	0.172± 0.039	0.161± 0.036	0.166± 0.031	0.140± 0.018	0.135± 0.016	0.136± 0.022	0.130± 0.013
10000 ppm	0.678± 0.042	0.676± 0.045	0.689± 0.045	0.571± 0.033	0.520± 0.027	0.543± 0.041	0.548± 0.096

STUDY NO. : 0162
ANIMAL : RAT F344
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 16	18	20	22	24	26	28
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.043± 0.016	0.042± 0.019	0.039± 0.017	0.040± 0.019	0.041± 0.019	0.038± 0.015	0.035± 0.010
2000 ppm	0.185± 0.045	0.180± 0.056	0.170± 0.051	0.173± 0.049	0.172± 0.058	0.171± 0.058	0.156± 0.031
10000 ppm	0.655± 0.048	0.617± 0.042	0.565± 0.048	0.566± 0.072	0.565± 0.037	0.557± 0.037	0.578± 0.052

STUDY NO. : 0162
ANIMAL : RAT F344
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 30	32	34	36	38	40	42
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.033± 0.010	0.036± 0.014	0.030± 0.011	0.037± 0.014	0.033± 0.009	0.034± 0.012	0.032± 0.012
2000 ppm	0.164± 0.050	0.155± 0.034	0.144± 0.039	0.173± 0.073	0.152± 0.040	0.156± 0.056	0.152± 0.047
10000 ppm	0.562± 0.043	0.554± 0.041	0.512± 0.032	0.577± 0.044	0.567± 0.040	0.600± 0.094	0.555± 0.046

STUDY NO. : 0162
ANIMAL : RAT F344
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 44	46	48	50	52	54	56
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.028± 0.006	0.030± 0.009	0.031± 0.010	0.027± 0.006	0.023± 0.007	0.028± 0.009	0.027± 0.006
2000 ppm	0.137± 0.028	0.143± 0.041	0.142± 0.045	0.141± 0.034	0.109± 0.014	0.136± 0.021	0.128± 0.023
10000 ppm	0.542± 0.042	0.535± 0.044	0.545± 0.067	0.542± 0.045	0.501± 0.040	0.547± 0.061	0.537± 0.059

STUDY NO. : 0162
ANIMAL : RAT F344
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 58	60	62	64	66	68	70
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.026± 0.006	0.025± 0.003	0.026± 0.007	0.023± 0.006	0.026± 0.006	0.027± 0.009	0.024± 0.007
2000 ppm	0.135± 0.041	0.131± 0.032	0.126± 0.020	0.117± 0.021	0.134± 0.042	0.139± 0.045	0.123± 0.029
10000 ppm	0.534± 0.053	0.533± 0.054	0.528± 0.064	0.501± 0.077	0.537± 0.072	0.561± 0.077	0.497± 0.072

STUDY NO. : 0162
ANIMAL : RAT F344
UNIT : g/kg/day
REPORT TYPE : A1 104
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 72	74	76	78	80	82	84
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.022± 0.004	0.026± 0.007	0.025± 0.005	0.024± 0.004	0.023± 0.003	0.024± 0.004	0.022± 0.004
2000 ppm	0.119± 0.045	0.135± 0.043	0.132± 0.026	0.126± 0.027	0.124± 0.036	0.123± 0.031	0.118± 0.024
10000 ppm	0.478± 0.091	0.544± 0.092	0.568± 0.090	0.554± 0.103	0.544± 0.129	0.546± 0.116	0.515± 0.134

STUDY NO. : 0162
ANIMAL : RAT F344
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 86	88	90	92	94	96	98
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.024± 0.004	0.025± 0.004	0.023± 0.006	0.025± 0.005	0.025± 0.005	0.025± 0.005	0.024± 0.006
2000 ppm	0.125± 0.035	0.131± 0.030	0.129± 0.027	0.129± 0.028	0.130± 0.029	0.127± 0.027	0.126± 0.025
10000 ppm	0.554± 0.162	0.574± 0.169	0.573± 0.163	0.563± 0.163	0.568± 0.171	0.552± 0.164	0.557± 0.167

STUDY NO. : 0162
ANIMAL : RAT F344
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 100	102	104
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.025± 0.005	0.028± 0.008	0.027± 0.008
2000 ppm	0.129± 0.029	0.130± 0.034	0.133± 0.037
10000 ppm	0.583± 0.204	0.582± 0.131	0.557± 0.146

APPENDIX E 3

CHEMICAL INTAKE CHANGES : SUMMARY, MOSUE : MALE

(2-YEAR STUDY)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 1	2	3	4	5	6	7
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.085± 0.017	0.071± 0.012	0.066± 0.011	0.064± 0.012	0.058± 0.008	0.052± 0.007	0.050± 0.007
2000 ppm	0.405± 0.064	0.362± 0.049	0.342± 0.045	0.314± 0.037	0.297± 0.041	0.266± 0.034	0.255± 0.034
10000 ppm	2.081± 0.336	1.868± 0.272	1.688± 0.214	1.701± 0.616	1.484± 0.174	1.327± 0.122	1.280± 0.148

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 8	9	10	11	12	13	14
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.052± 0.009	0.046± 0.007	0.046± 0.007	0.045± 0.006	0.044± 0.006	0.044± 0.005	0.047± 0.015
2000 ppm	0.269± 0.069	0.240± 0.031	0.228± 0.030	0.228± 0.033	0.221± 0.050	0.219± 0.022	0.223± 0.037
10000 ppm	1.444± 1.161	1.121± 0.121	1.182± 0.161	1.148± 0.103	1.058± 0.115	1.105± 0.127	1.104± 0.176

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 16	18	20	22	24	26	28
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.045± 0.014	0.047± 0.016	0.043± 0.007	0.042± 0.012	0.040± 0.006	0.038± 0.006	0.041± 0.017
2000 ppm	0.216± 0.031	0.228± 0.051	0.198± 0.019	0.193± 0.021	0.205± 0.021	0.189± 0.021	0.183± 0.021
10000 ppm	1.039± 0.137	1.110± 0.166	1.054± 0.161	1.024± 0.190	1.059± 0.179	1.006± 0.210	1.019± 0.194

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 30	32	34	36	38	40	42
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.037± 0.007	0.039± 0.011	0.040± 0.004	0.036± 0.003	0.032± 0.004	0.036± 0.004	0.039± 0.006
2000 ppm	0.189± 0.026	0.194± 0.043	0.190± 0.020	0.175± 0.020	0.248± 0.430	0.182± 0.029	0.184± 0.024
10000 ppm	0.962± 0.190	1.017± 0.181	1.024± 0.211	0.911± 0.211	0.832± 0.156	0.974± 0.251	0.910± 0.140

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 44	46	48	50	52	54	56
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.036± 0.005	0.037± 0.003	0.037± 0.005	0.035± 0.004	0.034± 0.003	0.036± 0.009	0.035± 0.004
2000 ppm	0.167± 0.017	0.182± 0.016	0.176± 0.016	0.168± 0.015	0.177± 0.014	0.185± 0.019	0.179± 0.027
10000 ppm	0.813± 0.162	0.943± 0.166	0.857± 0.134	0.861± 0.133	0.848± 0.135	0.879± 0.137	0.845± 0.126

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 58	60	62	64	66	68	70
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.045± 0.052	0.036± 0.008	0.036± 0.005	0.036± 0.006	0.035± 0.008	0.037± 0.010	0.038± 0.013
2000 ppm	0.177± 0.018	0.169± 0.014	0.173± 0.017	0.170± 0.016	0.170± 0.015	0.173± 0.014	0.170± 0.015
10000 ppm	0.818± 0.143	0.808± 0.101	0.827± 0.105	0.808± 0.105	0.826± 0.114	0.845± 0.148	0.800± 0.112

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 72	74	76	78	80	82	84
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.040± 0.015	0.039± 0.017	0.041± 0.020	0.044± 0.020	0.040± 0.015	0.040± 0.013	0.040± 0.012
2000 ppm	0.175± 0.021	0.176± 0.021	0.182± 0.024	0.183± 0.024	0.180± 0.024	0.194± 0.025	0.189± 0.049
10000 ppm	0.835± 0.179	0.841± 0.194	0.888± 0.187	0.965± 0.388	0.914± 0.365	0.944± 0.370	0.915± 0.459

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 86	88	90	92	94	96	98
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.041± 0.011	0.041± 0.012	0.042± 0.013	0.044± 0.013	0.042± 0.013	0.045± 0.015	0.047± 0.022
2000 ppm	0.188± 0.050	0.195± 0.062	0.197± 0.076	0.209± 0.078	0.205± 0.076	0.211± 0.083	0.218± 0.090
10000 ppm	0.912± 0.482	0.941± 0.487	0.946± 0.450	0.979± 0.201	1.004± 0.184	1.038± 0.194	1.016± 0.192

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : MALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 100	102	104
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.050± 0.026	0.049± 0.027	0.059± 0.038
2000 ppm	0.225± 0.094	0.231± 0.104	0.257± 0.140
10000 ppm	1.134± 0.406	1.043± 0.242	1.070± 0.246

APPENDIX E 4

CHEMICAL INTAKE CHANGES : SUMMARY, MOSUE : FEMALE

(2-YEAR STUDY)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 1	2	3	4	5	6	7
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.092± 0.010	0.081± 0.008	0.081± 0.013	0.083± 0.016	0.077± 0.012	0.081± 0.023	0.076± 0.026
2000 ppm	0.483± 0.188	0.421± 0.044	0.403± 0.037	0.403± 0.070	0.371± 0.073	0.376± 0.085	0.374± 0.080
10000 ppm	2.185± 0.231	2.078± 0.214	2.003± 0.148	2.057± 0.207	1.950± 0.207	1.850± 0.240	1.929± 0.246

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 8	9	10	11	12	13	14
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.088± 0.032	0.081± 0.033	0.083± 0.036	0.081± 0.037	0.102± 0.077	0.112± 0.076	0.125± 0.132
2000 ppm	0.378± 0.066	0.363± 0.070	0.363± 0.049	0.360± 0.055	0.402± 0.159	0.464± 0.183	0.458± 0.195
10000 ppm	1.978± 0.307	1.776± 0.234	1.903± 0.300	1.938± 0.263	1.902± 0.352	1.963± 0.301	2.047± 0.320

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
UNIT : g/kg/day
REPORT TYPE : A1 104
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 16	18	20	22	24	26	28
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.094± 0.061	0.107± 0.099	0.082± 0.045	0.082± 0.040	0.075± 0.021	0.077± 0.037	0.073± 0.032
2000 ppm	0.375± 0.051	0.463± 0.466	0.377± 0.093	0.349± 0.103	0.353± 0.120	0.337± 0.096	0.334± 0.055
10000 ppm	1.829± 0.203	1.832± 0.229	1.695± 0.225	1.607± 0.204	1.736± 0.232	1.627± 0.218	1.572± 0.281

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 30	32	34	36	38	40	42
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.070± 0.027	0.070± 0.025	0.077± 0.030	0.070± 0.026	0.059± 0.022	0.059± 0.018	0.071± 0.028
2000 ppm	0.319± 0.052	0.322± 0.066	0.358± 0.203	0.303± 0.098	0.296± 0.176	0.281± 0.055	0.339± 0.210
10000 ppm	1.529± 0.206	1.604± 0.266	1.631± 0.260	1.462± 0.224	1.397± 0.234	1.476± 0.249	1.562± 0.260

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 44	46	48	50	52	54	56
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.059± 0.015	0.059± 0.014	0.056± 0.019	0.060± 0.041	0.051± 0.014	0.052± 0.017	0.046± 0.012
2000 ppm	0.306± 0.214	0.283± 0.093	0.306± 0.111	0.287± 0.121	0.261± 0.090	0.281± 0.145	0.268± 0.194
10000 ppm	1.297± 0.237	1.490± 0.248	1.412± 0.317	1.359± 0.213	1.273± 0.216	1.308± 0.215	1.227± 0.201

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 58	60	62	64	66	68	70
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.048± 0.011	0.047± 0.009	0.049± 0.013	0.047± 0.010	0.045± 0.009	0.053± 0.015	0.050± 0.013
2000 ppm	0.269± 0.134	0.256± 0.117	0.251± 0.131	0.230± 0.044	0.234± 0.048	0.242± 0.062	0.236± 0.060
10000 ppm	1.217± 0.190	1.158± 0.176	1.197± 0.211	1.098± 0.161	1.106± 0.189	1.137± 0.197	1.150± 0.182

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 72	74	76	78	80	82	84
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.052± 0.014	0.052± 0.012	0.052± 0.012	0.054± 0.010	0.051± 0.014	0.052± 0.012	0.053± 0.012
2000 ppm	0.235± 0.058	0.252± 0.073	0.250± 0.052	0.263± 0.054	0.249± 0.057	0.333± 0.449	0.266± 0.100
10000 ppm	1.024± 0.158	1.191± 0.183	1.112± 0.185	1.209± 0.232	1.131± 0.161	1.170± 0.217	1.117± 0.158

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 86	88	90	92	94	96	98
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.055± 0.008	0.054± 0.008	0.052± 0.008	0.055± 0.008	0.052± 0.012	0.054± 0.008	0.054± 0.008
2000 ppm	0.270± 0.056	0.254± 0.049	0.261± 0.055	0.274± 0.057	0.267± 0.072	0.281± 0.092	0.292± 0.084
10000 ppm	1.191± 0.179	1.181± 0.211	1.147± 0.304	1.248± 0.309	1.228± 0.197	1.270± 0.302	1.332± 0.264

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
UNIT : g／kg／d a y
REPORT TYPE : A1 104
SEX : FEMALE

CHEMICAL INTAKE CHENGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 100	102	104
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000
400 ppm	0.055± 0.015	0.052± 0.010	0.054± 0.013
2000 ppm	0.270± 0.062	0.271± 0.068	0.260± 0.063
10000 ppm	1.387± 0.357	1.409± 0.649	1.396± 0.615

APPENDIX F 1

HEMATOLOGY : SUMMARY, RAT : MALE

(2-YEAR STUDY)

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

HEMATOLOGY(1) (SUMMARY)
SURVIVAL ANIMALS (105)

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	44	8.29± 1.44	14.9± 2.5	42.4± 6.4	51.8± 5.6	18.1± 1.7	34.9± 1.6	904± 177
400 ppm	39	8.23± 1.01	15.0± 1.6	42.3± 4.1	51.7± 2.7	18.2± 0.9	35.3± 0.8	936± 138
2000 ppm	36	8.20± 1.71	14.5± 3.0	41.5± 8.0	52.1± 9.4	18.1± 2.8	34.9± 1.5	878± 306
10000 ppm	39	8.35± 1.26	14.8± 2.6	42.4± 5.9	50.9± 2.5	17.6± 1.7	34.7± 3.1	867± 208

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

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

HEMATOLOGY(2) (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	WBC $10^3/\mu\ell$	Differential WBC (%) N-BAND	N-SEG	EOSINO	BASO	MONO	LYMPHO	OTHERS
Control	44	5.78± 2.67	1± 1	51± 9	2± 1	0± 0	4± 2	36± 7	5± 6
400 ppm	39	6.38± 3.06	1± 1	53± 10	2± 1	0± 0	4± 2	34± 7	7± 11
2000 ppm	36	7.25± 7.22	1± 1	52± 12	1± 1	0± 0	5± 2	35± 8	6± 12
10000 ppm	39	7.27± 12.60	0± 1	51± 12	2± 1	0± 0	5± 2	36± 9	5± 13

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

(HCL071)

APPENDIX F 2

HEMATOLOGY : SUMMARY, RAT : FEMALE

(2-YEAR STUDY)

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

HEMATOLOGY(1) (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	RED BLOOD CELL $10^6/\mu\ell$		HEMOGLOBIN g/dℓ		HEMATOCRIT %		MCV fℓ		MCH pg		MCHC g/dℓ		PLATELET $10^3/\mu\ell$	
Control	36	7.41±	1.40	13.8±	2.6	39.5±	6.1	53.8±	5.0	18.7±	1.8	34.8±	2.9	682±	135
400 ppm	39	7.94±	0.88	15.1±	1.5*	42.4±	4.0	53.5±	2.8	19.1±	0.8*	35.7±	1.1	706±	146
2000 ppm	39	7.98±	0.73	15.0±	1.4	41.7±	3.5	52.3±	2.8	18.9±	1.4	36.0±	1.9*	675±	121
10000 ppm	36	7.56±	1.32	13.9±	2.6	39.4±	6.5	52.3±	4.1	18.3±	1.8	34.9±	2.0	694±	161

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

(HCL070)

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

HEMATOLOGY(2) (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	WBC $10^3/\mu\ell$	Differential WBC (%) N-BAND	N-SEG	EOSINO	BASO	MONO	LYMPHO	OTHERS
Control	36	5.30± 9.90	1± 1	44± 15	2± 1	0± 0	4± 2	43± 14	6± 12
400 ppm	39	3.24± 1.46	1± 1	47± 11	2± 1	0± 0	4± 2	42± 10	4± 3
2000 ppm	39	4.38± 4.22	1± 1	49± 12	1± 1	0± 0	5± 2	41± 12	3± 2
10000 ppm	36	3.18± 1.52	1± 2	49± 10	2± 1	0± 0	4± 2	40± 10	5± 4

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

APPENDIX F 3

HEMATOLOGY : SUMMARY, MOSUE : MALE

(2-YEAR STUDY)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

HEMATOLOGY(1) (SUMMARY)
SURVIVAL ANIMALS (105)

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	35	9.48± 0.87	13.5± 1.3	40.8± 3.8	43.1± 1.3	14.2± 0.5	33.0± 0.7	1901± 311
400 ppm	40	8.86± 1.65	12.5± 2.1	38.4± 5.9	43.8± 3.8	14.2± 1.1	32.5± 1.2	1999± 372
2000 ppm	38	9.05± 0.91	12.7± 1.5	39.0± 3.8	43.1± 2.6	14.1± 0.9	32.7± 1.3	1895± 502
10000 ppm	32	9.24± 1.27	12.9± 1.6	39.1± 5.0	42.5± 1.5	14.0± 0.7	33.0± 0.8	2140± 424**

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

(HCL070)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

HEMATOLOGY(2) (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	WBC $10^3/\mu\ell$	Differential WBC (%) N-BAND	N-SEG	EOSINO	BASO	MONO	LYMPHO	OTHERS
Control	35	3.36± 2.03	2± 2	33± 16	2± 2	0± 0	3± 2	58± 17	2± 2
400 ppm	40	4.41± 8.41	2± 2	34± 14	1± 1	0± 0	3± 1	56± 16	4± 5
2000 ppm	38	4.05± 7.92	2± 2	29± 13	1± 1	0± 0	4± 2	61± 13	4± 6
10000 ppm	32	2.41± 1.30	2± 2	43± 18*	1± 1	0± 0	3± 2	48± 18*	2± 2

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

(HCL071)

APPENDIX F 4

HEMATOLOGY : SUMMARY, MOSUE : FEMALE

(2-YEAR STUDY)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

HEMATOLOGY(1) (SUMMARY)
SURVIVAL ANIMALS (105)

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	25	9.04± 1.11	13.3± 1.7	39.5± 4.4	43.8± 2.0	14.7± 0.6	33.5± 0.8	1248± 299
400 ppm	24	9.27± 0.76	13.6± 1.2	40.2± 3.2	43.4± 1.6	14.7± 0.8	33.8± 1.2	1157± 317
2000 ppm	25	8.95± 1.46	13.1± 2.1	39.1± 5.7	43.9± 1.9	14.7± 0.8	33.5± 1.4	1136± 344
10000 ppm	23	8.42± 1.49	12.2± 1.7	37.5± 4.4	45.3± 5.5	14.7± 1.2	32.5± 1.5*	1149± 391

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

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

HEMATOLOGY(2) (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	WBC $10^3/\mu\ell$	Differential WBC (%) N-BAND	N-SEG	EOSINO	BASO	MONO	LYMPHO	OTHERS
Control	25	1.61± 1.06	3± 3	31± 12	1± 1	0± 0	4± 2	56± 16	5± 5
400 ppm	24	24.10± 103.12	2± 1	27± 14	1± 1	0± 0	3± 2	60± 15	7± 12
2000 ppm	25	5.10± 14.57	2± 2	36± 18	1± 1	0± 0	4± 2	50± 18	6± 12
10000 ppm	23	1.62± 1.20	4± 4	42± 19	0± 1	0± 0	3± 2	44± 21	5± 8

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

(HCL071)

APPENDIX G 1

BIOCHEMISTRY : SUMMARY, RAT : MALE

(2-YEAR STUDY)

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

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	44	7.0± 0.5	3.3± 0.3	0.9± 0.1	0.27± 0.07	156± 25	195± 50	203± 143
400 ppm	39	7.0± 0.4	3.2± 0.3	0.9± 0.1	0.27± 0.06	149± 24	211± 49	255± 156
2000 ppm	36	6.9± 0.5	3.2± 0.3	0.9± 0.1	0.69± 2.51	159± 23	188± 63	219± 173
10000 ppm	39	6.9± 0.4	3.3± 0.2	1.0± 0.2*	0.27± 0.10	157± 30	158± 48**	156± 112

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

(HCL074)

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

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	44	314± 98	62± 23	20± 10	169± 51	178± 69	6± 4	78± 21
400 ppm	39	342± 92	65± 31	21± 12	180± 60	174± 78	6± 3	77± 19
2000 ppm	36	305± 130	96± 130	24± 19	203± 140	228± 144	7± 7	76± 24
10000 ppm	39	255± 92*	70± 37	18± 6	195± 114	207± 81	4± 2	83± 27

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

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

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	44	23.3± 8.0	0.7± 0.3	144± 1	3.5± 0.3	107± 2	10.9± 0.6	4.5± 1.2
400 ppm	39	25.5± 8.2	0.7± 0.2	143± 1	3.5± 0.3	106± 2	10.9± 0.4	4.4± 1.0
2000 ppm	36	23.8± 12.9	0.7± 0.2	143± 2	3.5± 0.4	107± 2	10.8± 0.4	4.4± 1.1
10000 ppm	39	20.6± 4.7	0.6± 0.1	143± 2	3.5± 0.4	107± 2	10.6± 0.3*	4.1± 0.8

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

APPENDIX G 2

BIOCHEMISTRY : SUMMARY, RAT : FEMALE

(2-YEAR STUDY)

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

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	37	7.1± 0.6	3.7± 0.4	1.1± 0.1	0.23± 0.06	155± 19	136± 44	100± 54
400 ppm	39	7.2± 0.4	3.8± 0.3	1.1± 0.1	0.25± 0.06	160± 27	142± 35	119± 79
2000 ppm	40	7.1± 0.4	3.7± 0.3	1.1± 0.1	0.24± 0.04	157± 22	141± 40	131± 125
10000 ppm	36	7.0± 0.7	3.8± 0.4	1.2± 0.1	0.30± 0.33	148± 23	127± 33	114± 85

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

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

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	37	254± 83	138± 121	32± 18	275± 262	158± 92	2± 1	84± 28
400 ppm	39	269± 73	125± 81	34± 22	326± 402	137± 55	3± 3	93± 59
2000 ppm	40	267± 88	119± 74	31± 15	239± 101	162± 142	2± 1	81± 14
10000 ppm	36	240± 63	158± 156	28± 14	238± 112	141± 66	2± 1	76± 16

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

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

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	37	17.1± 2.9	0.5± 0.1	143± 2	3.5± 0.4	106± 2	10.5± 0.4	3.9± 0.7
400 ppm	39	16.7± 2.1	0.5± 0.1	143± 2	3.5± 0.4	106± 2	10.5± 0.4	3.9± 1.1
2000 ppm	40	16.2± 1.8	0.5± 0.1	142± 2	3.6± 0.3	106± 2	10.5± 0.3	3.6± 0.7
10000 ppm	36	16.2± 4.7	0.5± 0.1	142± 2	3.6± 0.4	106± 2	10.5± 0.4	3.8± 0.8

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

APPENDIX G 3

BIOCHEMISTRY : SUMMARY, MOSUE : MALE

(2-YEAR STUDY)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

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	35	5.4±	0.4	2.7±	0.2	1.0±	0.1	0.26±	0.09	190±	40	108±	22	75±	18
400 ppm	40	5.4±	0.7	2.7±	0.4	1.0±	0.1	0.26±	0.10	162±	56*	111±	44	68±	24
2000 ppm	38	5.4±	0.6	2.7±	0.3	1.1±	0.1	0.27±	0.08	177±	45	106±	33	70±	22
10000 ppm	32	5.1±	0.7	2.7±	0.4	1.1±	0.2*	0.25±	0.07	158±	52*	90±	29**	48±	18**

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

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	GOT IU/ℓ	GPT IU/ℓ	LDH IU/ℓ	ALP IU/ℓ	CPK IU/ℓ	UREA NITROGEN mg/dℓ	SODIUM mEq/ℓ
Control	35	99± 105	31± 30	327± 152	165± 57	42± 21	23.8± 7.2	156± 2
400 ppm	40	142± 190	48± 75	578± 832	159± 68	51± 46	27.0± 11.1	155± 2
2000 ppm	38	168± 267	80± 167	720± 1155	228± 377	45± 18	25.6± 7.9	155± 2
10000 ppm	32	358± 1668	127± 612	1488± 6854	184± 39*	66± 87	29.2± 35.4	156± 2

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

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	POTASSIUM mEq／ℓ	CHLORIDE mEq／ℓ	CALCIUM mg／dℓ	INORGANIC PHOSPHORUS mg／dℓ
Control	35	4.4± 0.5	122± 3	9.0± 0.4	6.4± 0.9
400 ppm	40	4.5± 0.6	123± 3	9.0± 0.6	6.3± 1.0
2000 ppm	38	4.4± 0.5	122± 3	8.9± 0.3	6.1± 0.7
10000 ppm	32	4.4± 0.7	122± 4	8.6± 0.6**	6.2± 1.5

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

APPENDIX G 4

BIOCHEMISTRY : SUMMARY, MOSUE : FEMALE

(2-YEAR STUDY)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

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	24	5.3± 0.7	2.7± 0.4	1.1± 0.2	0.24± 0.09	145± 26	85± 51	65± 12
400 ppm	25	5.2± 0.4	2.7± 0.2	1.1± 0.2	0.28± 0.14	139± 30	69± 13	62± 19
2000 ppm	25	5.4± 0.7	2.8± 0.2	1.1± 0.3	0.28± 0.11	121± 38	97± 101	67± 28
10000 ppm	23	5.1± 0.9	2.7± 0.4	1.2± 0.2	0.27± 0.09	106± 42**	76± 45	56± 31

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

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	GOT IU/ℓ	GPT IU/ℓ	LDH IU/ℓ	ALP IU/ℓ	CPK IU/ℓ	UREA NITROGEN mg/dℓ	SODIUM mEq/ℓ
Control	24	102± 73	26± 14	348± 248	287± 112	62± 38	17.0± 3.6	154± 2
400 ppm	25	175± 386	43± 101	981± 2624	293± 109	72± 76	17.7± 6.0	153± 3
2000 ppm	25	107± 67	29± 23	638± 838	248± 112	111± 209	20.6± 9.8	154± 3
10000 ppm	23	135± 109	30± 22	710± 728	293± 145	107± 105	24.3± 15.6	154± 3

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

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	POTASSIUM mEq/ℓ		CHLORIDE mEq/ℓ		CALCIUM mg/dℓ		INORGANIC PHOSPHORUS mg/dℓ	
Control	24	4.2±	0.4	121±	3	8.9±	0.7	6.3±	0.9
400 ppm	25	4.3±	0.5	121±	3	9.1±	0.6	6.5±	1.3
2000 ppm	25	4.3±	0.5	121±	3	9.2±	0.8	6.7±	1.2
10000 ppm	23	4.3±	0.6	122±	4	9.0±	0.7	6.5±	1.1

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

APPENDIX H 1

URINALYSIS : SUMMARY, RAT : MALE

(2-YEAR STUDY)

STUDY NO. : 0162
ANIMAL : RAT F344
SAMPLING DATE : 104-2
SEX : MALE REPORT TYPE : A1

URINALYSIS

Group Name	NO. of Animals	pH 5.0	6.0	6.5	7.0	7.5	8.0	8.5	CHI	Protein −	±	+	2+	3+	4+	CHI	Glucose −	±	+	2+	3+	4+	CHI	Ketone body −	±	+	2+	3+	4+	CHI	Bilirubin −	+	2+	3+	CHI
Control	44	0	3	1	8	21	11	0		0	0	0	1	15	28		44	0	0	0	0	0		43	1	0	0	0	0		44	0	0	0	
400 ppm	41	0	1	9	14	12	5	0	**	0	0	0	0	12	29		41	0	0	0	0	0		39	2	0	0	0	0		41	0	0	0	
2000 ppm	36	0	2	2	15	11	6	0		0	0	0	0	11	25		36	0	0	0	0	0		35	1	0	0	0	0		35	0	0	1	
10000 ppm	39	0	1	9	9	13	7	0	*	0	0	0	0	12	27		39	0	0	0	0	0		33	6	0	0	0	0	*	39	0	0	0	

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

STUDY NO. : 0162
ANIMAL : RAT F344
SAMPLING DATE : 104-2
SEX : MALE REPORT TYPE : A1

URINALYSIS

Group Name	NO. of Animals	Occult blood −	±	+	2+	3+	CHI	Urobilinogen ±	+	2+	3+	4+	CHI
Control	44	43	0	0	1	0		44	0	0	0	0	
400 ppm	41	41	0	0	0	0		41	0	0	0	0	
2000 ppm	36	36	0	0	0	0		35	0	1	0	0	
10000 ppm	39	33	1	1	2	2		39	0	0	0	0	

Significent difference : * : P ≦ 0.05 ** : P ≦ 0.01 Test of CHI SQUARE

APPENDIX H 2

URINALYSIS : SUMMARY, RAT : FEMALE

(2-YEAR STUDY)

STUDY NO. : 0162
ANIMAL : RAT F344
SAMPLING DATE : 104-2
SEX : FEMALE REPORT TYPE : A1

URINALYSIS

Group Name	NO. of Animals	pH 5.0	6.0	6.5	7.0	7.5	8.0	8.5	CHI	Protein −	±	+	2+	3+	4+	CHI	Glucose −	±	+	2+	3+	4+	CHI	Ketone body −	±	+	2+	3+	4+	CHI	Bilirubin −	+	2+	3+	CHI
Control	41	0	0	2	3	15	16	5		0	0	3	7	13	18		41	0	0	0	0	0		8	30	3	0	0	0		41	0	0	0	
400 ppm	40	0	1	3	3	16	12	5		0	0	0	9	7	24		40	0	0	0	0	0		10	28	2	0	0	0		40	0	0	0	
2000 ppm	41	0	0	3	9	13	15	1		0	0	2	3	14	22		41	0	0	0	0	0		14	26	1	0	0	0		41	0	0	0	
10000 ppm	38	0	1	2	5	17	9	4		0	0	1	6	10	21		38	0	0	0	0	0		2	34	2	0	0	0		38	0	0	0	

Significent difference ; * : P ≦ 0.05 ** : P ≦ 0.01

Test of CHI SQUARE

STUDY NO. : 0162
ANIMAL : RAT F344
SAMPLING DATE : 104-2
SEX : FEMALE REPORT TYPE : A1

URINALYSIS

Group Name	NO. of Animals	Occult blood −	±	+	2+	3+	CHI	Urobilinogen ±	+	2+	3+	4+	CHI
Control	41	38	1	0	1	1		41	0	0	0	0	
400 ppm	40	36	3	1	0	0		40	0	0	0	0	
2000 ppm	41	40	1	0	0	0		41	0	0	0	0	
10000 ppm	38	33	2	1	1	1		38	0	0	0	0	

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

APPENDIX H 3

URINALYSIS : SUMMARY, MOSUE : MALE

(2-YEAR STUDY)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
SAMPLING DATE : 104-3
SEX : MALE REPORT TYPE : A1

URINALYSIS

Group Name	NO. of Animals	pH 5.0	6.0	6.5	7.0	7.5	8.0	8.5	CHI	Protein −	±	+	2+	3+	4+	CHI	Glucose −	±	+	2+	3+	4+	CHI	Ketone body −	±	+	2+	3+	4+	CHI	Occult blood −	±	+	2+	3+	CHI
Control	35	0	4	8	12	9	1	1		0	1	24	10	0	0		35	0	0	0	0	0		21	14	0	0	0	0		29	3	2	0	1	
400 ppm	40	0	5	18	14	2	0	1		0	1	26	12	1	0		40	0	0	0	0	0		32	8	0	0	0	0		32	2	2	1	3	
2000 ppm	37	0	5	15	12	5	0	0		0	0	26	11	0	0		37	0	0	0	0	0		23	14	0	0	0	0		32	4	0	1	0	
10000 ppm	32	0	13	16	3	0	0	0	**	0	0	9	23	0	0	**	32	0	0	0	0	0		14	14	4	0	0	0		27	1	0	1	3	

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

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
SAMPLING DATE : 104-3
SEX : MALE REPORT TYPE : A1

URINALYSIS

Group Name	NO. of Animals	Urobilinogen ±	+	2+	3+	4+	CHI
Control	35	35	0	0	0	0	
400 ppm	40	40	0	0	0	0	
2000 ppm	37	37	0	0	0	0	
10000 ppm	32	32	0	0	0	0	

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

APPENDIX H 4

URINALYSIS : SUMMARY, MOSUE : FEMALE

(2-YEAR STUDY)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
SAMPLING DATE : 104-3
SEX : FEMALE REPORT TYPE : A1

URINALYSIS

Group Name	NO. of Animals	pH 5.0	6.0	6.5	7.0	7.5	8.0	8.5	CHI	Protein −	±	+	2+	3+	4+	CHI	Glucose −	±	+	2+	3+	4+	CHI	Ketone body −	±	+	2+	3+	4+	CHI	Occult blood −	±	+	2+	3+	CHI
Control	26	0	0	3	9	7	5	2		0	1	19	4	2	0		26	0	0	0	0	0		3	18	4	1	0	0		19	1	4	1	1	
400 ppm	27	0	0	1	10	12	4	0		0	4	14	9	0	0		27	0	0	0	0	0		4	12	11	0	0	0		23	4	0	0	0	
2000 ppm	25	0	0	5	8	7	5	0		0	1	17	6	1	0		25	0	0	0	0	0		3	10	11	1	0	0		17	5	2	0	1	
10000 ppm	24	0	2	3	8	7	3	1		0	0	7	12	5	0	**	24	0	0	0	0	0		1	3	14	6	0	0	**	22	0	2	0	0	

Significent difference ; * : P ≦ 0.05 ** : P ≦ 0.01

Test of CHI SQUARE

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
SAMPLING DATE : 104-3
SEX : FEMALE REPORT TYPE : A1

URINALYSIS

Group Name	NO. of Animals	Urobilinogen ±	+	2+	3+	4+	CHI
Control	26	26	0	0	0	0	
400 ppm	27	27	0	0	0	0	
2000 ppm	25	25	0	0	0	0	
10000 ppm	24	24	0	0	0	0	

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

APPENDIX I 1

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

(2-YEAR STUDY)

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

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

Organ	Findings	Group Name / NO. of Animals	Control 6 (%)	400 ppm 10 (%)	2000 ppm 14 (%)	10000 ppm 11 (%)
skin/app	nodule		0 (0)	0 (0)	1 (7)	1 (9)
	scab		0 (0)	1 (10)	0 (0)	0 (0)
subcutis	jaundice		0 (0)	0 (0)	1 (7)	1 (9)
	mass		1 (17)	3 (30)	3 (21)	1 (9)
larynx	nodule		0 (0)	0 (0)	0 (0)	1 (9)
lung	red		0 (0)	0 (0)	1 (7)	0 (0)
	white zone		0 (0)	1 (10)	1 (7)	0 (0)
	red zone		0 (0)	1 (10)	1 (7)	1 (9)
	nodule		0 (0)	1 (10)	0 (0)	1 (9)
	voluminus		1 (17)	0 (0)	0 (0)	1 (9)
lymph node	enlarged		0 (0)	1 (10)	0 (0)	1 (9)
thymus	nodule		0 (0)	0 (0)	1 (7)	0 (0)
spleen	enlarged		1 (17)	2 (20)	3 (21)	4 (36)
	nodule		0 (0)	0 (0)	1 (7)	1 (9)
forestomach	ulcer		0 (0)	1 (10)	1 (7)	0 (0)
gl stomach	ulcer		0 (0)	0 (0)	0 (0)	1 (9)
stomach	gas		0 (0)	0 (0)	0 (0)	1 (9)
small intes	nodule		0 (0)	0 (0)	1 (7)	0 (0)
	gas		0 (0)	0 (0)	0 (0)	1 (9)
liver	enlarged		1 (17)	0 (0)	0 (0)	1 (9)
	pale		0 (0)	0 (0)	1 (7)	0 (0)
	nodule		1 (17)	0 (0)	1 (7)	0 (0)

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

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

Organ	Findings	Group Name / NO. of Animals	Control 6 (%)	400 ppm 10 (%)	2000 ppm 14 (%)	10000 ppm 11 (%)
liver	cyst		0 (0)	1 (10)	0 (0)	0 (0)
	rough		0 (0)	1 (10)	1 (7)	1 (9)
	accentuation of lobular structure		0 (0)	1 (10)	0 (0)	0 (0)
pancreas	nodule		0 (0)	0 (0)	1 (7)	0 (0)
kidney	nodule		0 (0)	0 (0)	1 (7)	0 (0)
	cyst		1 (17)	0 (0)	0 (0)	0 (0)
	granular		3 (50)	0 (0)	1 (7)	0 (0)
urin bladd	urine:marked retention		0 (0)	0 (0)	1 (7)	0 (0)
pituitary	enlarged		2 (33)	3 (30)	4 (29)	1 (9)
	nodule		0 (0)	1 (10)	0 (0)	0 (0)
adrenal	enlarged		1 (17)	0 (0)	1 (7)	1 (9)
	nodule		0 (0)	0 (0)	1 (7)	0 (0)
testis	atrophic		1 (17)	1 (10)	3 (21)	5 (45)
	nodule		1 (17)	2 (20)	7 (50)	6 (55)
brain	black zone		0 (0)	0 (0)	1 (7)	0 (0)
	hemorrhage		0 (0)	1 (10)	0 (0)	0 (0)
spinal cord	brown zone		0 (0)	0 (0)	1 (7)	0 (0)
	black zone		0 (0)	0 (0)	1 (7)	0 (0)
	hemorrhage		0 (0)	1 (10)	0 (0)	0 (0)
eye	white		1 (17)	1 (10)	0 (0)	0 (0)
	red		1 (17)	0 (0)	0 (0)	0 (0)
Zymbal gl	nodule		0 (0)	1 (10)	1 (7)	0 (0)

Organ	Findings	Group Name / NO. of Animals	Control 6 (%)	400 ppm 10 (%)	2000 ppm 14 (%)	10000 ppm 11 (%)
muscle	nodule		0 (0)	1 (10)	0 (0)	1 (9)
vertebra	nodule		0 (0)	0 (0)	1 (7)	0 (0)
pleura	nodule		0 (0)	0 (0)	1 (7)	0 (0)
peritoneum	nodule		0 (0)	0 (0)	1 (7)	0 (0)
retroperit	mass		0 (0)	1 (10)	0 (0)	0 (0)
abdominal c	hemorrhage		0 (0)	0 (0)	0 (0)	1 (9)
	ascites		0 (0)	1 (10)	1 (7)	1 (9)
thoracic ca	pleural fluid		0 (0)	1 (10)	2 (14)	3 (27)
other	lower jaw:nodule		0 (0)	0 (0)	0 (0)	2 (18)
whole body	anemic		0 (0)	0 (0)	1 (7)	0 (0)

APPENDIX I 2

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

(2-YEAR STUDY)

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

Organ	Findings	Group Name / NO. of Animals	Control 9 (%)	400 ppm 10 (%)	2000 ppm 9 (%)	10000 ppm 13 (%)
subcutis	jaundice		1 (11)	0 (0)	2 (22)	1 (8)
	mass		4 (44)	2 (20)	3 (33)	3 (23)
lung	red		1 (11)	0 (0)	0 (0)	0 (0)
	red patch/zone		0 (0)	0 (0)	1 (11)	0 (0)
	nodule		0 (0)	1 (10)	1 (11)	1 (8)
lymph node	enlarged		0 (0)	0 (0)	0 (0)	2 (15)
spleen	enlarged		2 (22)	3 (30)	3 (33)	4 (31)
	white zone		0 (0)	0 (0)	0 (0)	1 (8)
heart	white zone		0 (0)	0 (0)	1 (11)	0 (0)
	fluid:red		0 (0)	1 (10)	0 (0)	0 (0)
esophagus	infarct		0 (0)	0 (0)	0 (0)	1 (8)
forestomach	ulcer		0 (0)	2 (20)	0 (0)	0 (0)
gl stomach	hemorrhage		0 (0)	1 (10)	0 (0)	0 (0)
	ulcer		1 (11)	0 (0)	1 (11)	0 (0)
liver	pale		0 (0)	1 (10)	0 (0)	0 (0)
	red zone		0 (0)	0 (0)	1 (11)	0 (0)
	nodule		0 (0)	2 (20)	2 (22)	0 (0)
	rough		1 (11)	0 (0)	1 (11)	1 (8)
	herniation		0 (0)	0 (0)	1 (11)	0 (0)
pancreas	nodule		1 (11)	0 (0)	0 (0)	0 (0)
kidney	white zone		0 (0)	0 (0)	0 (0)	1 (8)
	nodule		0 (0)	0 (0)	0 (0)	1 (8)

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

Organ	Findings	Group Name / NO. of Animals	Control 9 (%)	400 ppm 10 (%)	2000 ppm 9 (%)	10000 ppm 13 (%)
urin bladd	urine:marked retention		0 (0)	0 (0)	1 (11)	0 (0)
	urine:red		0 (0)	1 (10)	0 (0)	0 (0)
pituitary	enlarged		1 (11)	6 (60)	2 (22)	2 (15)
	red zone		0 (0)	1 (10)	2 (22)	1 (8)
	nodule		0 (0)	0 (0)	1 (11)	1 (8)
adrenal	enlarged		0 (0)	0 (0)	0 (0)	1 (8)
ovary	cyst		0 (0)	0 (0)	0 (0)	1 (8)
uterus	enlarged		0 (0)	0 (0)	2 (22)	0 (0)
	nodule		3 (33)	2 (20)	2 (22)	2 (15)
	dilated lumen		0 (0)	0 (0)	0 (0)	1 (8)
	invagination		0 (0)	0 (0)	1 (11)	0 (0)
prep/cli gl	nodule		0 (0)	0 (0)	1 (11)	0 (0)
spinal cord	hemorrhage		0 (0)	1 (10)	0 (0)	0 (0)
eye	red		0 (0)	0 (0)	0 (0)	2 (15)
vertebra	mass		0 (0)	0 (0)	0 (0)	1 (8)
mediastinum	mass		1 (11)	0 (0)	0 (0)	0 (0)
peritoneum	nodule		1 (11)	0 (0)	0 (0)	0 (0)
	nodular		1 (11)	0 (0)	0 (0)	0 (0)
retroperit	mass		1 (11)	0 (0)	2 (22)	0 (0)
abdominal c	ascites		1 (11)	0 (0)	0 (0)	0 (0)
mesenterium	mass		1 (11)	0 (0)	0 (0)	0 (0)
adipose	nodule		1 (11)	0 (0)	0 (0)	0 (0)

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

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

Organ	Findings	Group Name / NO. of Animals	Control 9 (%)	400 ppm 10 (%)	2000 ppm 9 (%)	10000 ppm 13 (%)
thoracic ca	pleural fluid		2 (22)	1 (10)	0 (0)	2 (15)
other	forelimb:nodule		1 (11)	0 (0)	0 (0)	0 (0)
	hindlimb:nodule		0 (0)	1 (10)	0 (0)	0 (0)
	lower jaw:nodule		0 (0)	0 (0)	0 (0)	1 (8)
whole body	anemic		0 (0)	0 (0)	2 (22)	1 (8)

APPENDIX I 3

GROSS FINDINGS : SUMMARY, RAT : MALE : SACRIFICED ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (105W)

Organ	Findings	Group Name / NO. of Animals	Control 44 (%)	400 ppm 40 (%)	2000 ppm 36 (%)	10000 ppm 39 (%)
skin/app	nodule		3 (7)	5 (13)	7 (19)	5 (13)
subcutis	jaundice		0 (0)	0 (0)	1 (3)	0 (0)
	nodule		1 (2)	0 (0)	0 (0)	0 (0)
	mass		9 (20)	6 (15)	13 (36)	3 (8)
lung	white zone		0 (0)	2 (5)	1 (3)	0 (0)
	nodule		5 (11)	1 (3)	1 (3)	1 (3)
lymph node	enlarged		0 (0)	0 (0)	1 (3)	0 (0)
spleen	enlarged		1 (2)	2 (5)	4 (11)	2 (5)
	deformed		1 (2)	1 (3)	2 (6)	0 (0)
heart	white zone		0 (0)	2 (5)	0 (0)	0 (0)
tongue	nodule		0 (0)	0 (0)	0 (0)	1 (3)
salivary gl	nodule		1 (2)	1 (3)	0 (0)	0 (0)
forestomach	nodule		0 (0)	0 (0)	0 (0)	1 (3)
	ulcer		0 (0)	1 (3)	1 (3)	1 (3)
	thick		2 (5)	0 (0)	0 (0)	0 (0)
gl stomach	nodule		0 (0)	0 (0)	1 (3)	0 (0)
	ulcer		0 (0)	1 (3)	1 (3)	1 (3)
	thick		0 (0)	0 (0)	0 (0)	1 (3)
small intes	nodule		0 (0)	0 (0)	1 (3)	0 (0)
liver	black zone		1 (2)	0 (0)	0 (0)	0 (0)
	nodule		1 (2)	1 (3)	0 (0)	1 (3)
	rough		2 (5)	0 (0)	3 (8)	0 (0)

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (105W)

Organ	Findings	Group Name / NO. of Animals	Control 44 (%)	400 ppm 40 (%)	2000 ppm 36 (%)	10000 ppm 39 (%)
liver	herniation		3 (7)	0 (0)	4 (11)	1 (3)
pancreas	nodule		0 (0)	1 (3)	0 (0)	0 (0)
kidney	granular		13 (30)	18 (45)	10 (28)	6 (15)
pituitary	enlarged		4 (9)	2 (5)	1 (3)	0 (0)
	red		1 (2)	0 (0)	0 (0)	0 (0)
	red zone		2 (5)	3 (8)	4 (11)	2 (5)
	nodule		2 (5)	4 (10)	4 (11)	4 (10)
thyroid	enlarged		2 (5)	7 (18)	1 (3)	1 (3)
	nodule		0 (0)	0 (0)	0 (0)	1 (3)
adrenal	enlarged		1 (2)	1 (3)	0 (0)	0 (0)
testis	nodule		38 (86)	32 (80)	30 (83)	36 (92)
	absence		1 (2)	0 (0)	0 (0)	0 (0)
epididymis	absence		1 (2)	0 (0)	0 (0)	0 (0)
spinal cord	red zone		0 (0)	0 (0)	1 (3)	0 (0)
eye	white		2 (5)	7 (18)	5 (14)	2 (5)
	red		0 (0)	1 (3)	0 (0)	0 (0)
peritoneum	nodule		0 (0)	0 (0)	1 (3)	1 (3)
thoracic ca	pleural fluid		0 (0)	0 (0)	1 (3)	0 (0)
other	lower jaw:nodule		0 (0)	0 (0)	0 (0)	1 (3)

APPENDIX I 4

GROSS FINDINGS : SUMMARY, RAT : FEMALE : SACRIFICED ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (105W)

Organ	Findings	Group Name / NO. of Animals	Control 41	(%)	400 ppm 40	(%)	2000 ppm 41	(%)	10000 ppm 37	(%)
skin/app	nodule		0	(0)	0	(0)	2	(5)	0	(0)
	scab		0	(0)	1	(3)	0	(0)	1	(3)
subcutis	mass		10	(24)	9	(23)	7	(17)	15	(41)
lung	nodule		2	(5)	1	(3)	1	(2)	1	(3)
lymph node	enlarged		0	(0)	0	(0)	1	(2)	0	(0)
spleen	enlarged		3	(7)	0	(0)	2	(5)	1	(3)
	nodule		1	(2)	0	(0)	0	(0)	0	(0)
	deformed		0	(0)	1	(3)	0	(0)	0	(0)
heart	nodule		0	(0)	0	(0)	0	(0)	1	(3)
tooth	white		0	(0)	0	(0)	0	(0)	1	(3)
salivary gl	nodule		0	(0)	0	(0)	1	(2)	0	(0)
gl stomach	nodule		0	(0)	1	(3)	1	(2)	0	(0)
liver	white zone		0	(0)	2	(5)	0	(0)	0	(0)
	red zone		1	(2)	0	(0)	0	(0)	0	(0)
	nodule		0	(0)	1	(3)	2	(5)	2	(5)
	rough		1	(2)	0	(0)	1	(2)	2	(5)
	herniation		2	(5)	2	(5)	1	(2)	3	(8)
kidney	white zone		0	(0)	0	(0)	0	(0)	1	(3)
	cyst		0	(0)	1	(3)	0	(0)	0	(0)
	deformed		0	(0)	1	(3)	0	(0)	0	(0)
	granular		3	(7)	3	(8)	2	(5)	1	(3)
pituitary	enlarged		3	(7)	3	(8)	3	(7)	5	(14)

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (105W)

Organ	Findings	Group Name / NO. of Animals	Control 41 (%)	400 ppm 40 (%)	2000 ppm 41 (%)	10000 ppm 37 (%)
pituitary	red		0 (0)	1 (3)	0 (0)	0 (0)
	red zone		5 (12)	2 (5)	7 (17)	2 (5)
	nodule		3 (7)	2 (5)	3 (7)	2 (5)
thyroid	enlarged		0 (0)	0 (0)	1 (2)	1 (3)
	red		1 (2)	0 (0)	0 (0)	0 (0)
adrenal	enlarged		0 (0)	0 (0)	1 (2)	2 (5)
ovary	cyst		3 (7)	4 (10)	3 (7)	4 (11)
uterus	nodule		7 (17)	6 (15)	8 (20)	5 (14)
prep/cli gl	nodule		2 (5)	1 (3)	2 (5)	0 (0)
eye	white		4 (10)	6 (15)	6 (15)	4 (11)
	red		1 (2)	0 (0)	0 (0)	0 (0)
Zymbal gl	nodule		0 (0)	0 (0)	1 (2)	0 (0)
other	lower jaw:nodule		0 (0)	1 (3)	0 (0)	0 (0)

APPENDIX J 1

ORGAN WEIGHT, ABSOLUTE : SUMMARY, RAT : MALE

(2-YEAR STUDY)

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE
UNIT: g

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

Group Name	NO. of Animals	Body Weight	ADRENALS	TESTES	HEART	LUNGS	KIDNEYS
Control	44	424± 53	0.091± 0.025	3.770± 1.422	1.239± 0.127	1.496± 0.264	2.976± 0.435
400 ppm	40	424± 44	0.089± 0.014	3.618± 1.196	1.262± 0.111	1.505± 0.201	3.167± 0.443
2000 ppm	36	433± 40	0.087± 0.014	3.484± 1.334	1.266± 0.104	1.547± 0.312	2.917± 0.308
10000 ppm	39	397± 34**	0.085± 0.018	3.770± 1.359	1.195± 0.107	1.445± 0.257	2.743± 0.272**

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

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE
UNIT: g

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

Group Name	NO. of Animals	SPLEEN		LIVER		BRAIN	
Control	44	1.152±	0.376	12.795±	2.081	2.034±	0.059
400 ppm	40	1.280±	0.909	13.479±	1.931	2.037±	0.064
2000 ppm	36	1.412±	1.115	12.699±	1.595	2.018±	0.074
10000 ppm	39	1.148±	0.602	11.500±	1.799**	2.019±	0.055

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

APPENDIX J 2

ORGAN WEIGHT, ABSOLUTE : SUMMARY, RAT : FEMALE

(2-YEAR STUDY)

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

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

Group Name	NO. of Animals	Body Weight	ADRENALS	OVARIES	HEART	LUNGS	KIDNEYS
Control	41	299± 40	0.085± 0.017	0.192± 0.284	0.957± 0.107	1.118± 0.151	2.003± 0.190
400 ppm	40	298± 37	0.083± 0.014	0.158± 0.142	0.945± 0.089	1.120± 0.241	1.974± 0.183
2000 ppm	41	300± 34	0.081± 0.017	0.141± 0.060	0.955± 0.085	1.077± 0.110	1.981± 0.227
10000 ppm	37	284± 50	0.637± 3.142	0.152± 0.154	0.932± 0.116	1.066± 0.193	2.042± 0.210

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

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

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

Group Name	NO. of Animals	SPLEEN		LIVER		BRAIN	
Control	41	1.457±	3.350	8.049±	1.363	1.868±	0.049
400 ppm	40	0.624±	0.224	7.616±	1.123	1.862±	0.049
2000 ppm	41	0.753±	0.623	7.679±	1.066	1.868±	0.053
10000 ppm	37	0.667±	0.415	7.616±	1.744	1.862±	0.066

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

APPENDIX J 3

ORGAN WEIGHT, ABSOLUTE : SUMMARY, MOSUE : MALE

(2-YEAR STUDY)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: g

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

Group Name	NO. of Animals	Body Weight	ADRENALS	TESTES	HEART	LUNGS	KIDNEYS
Control	35	47.5± 5.7	0.016± 0.005	0.217± 0.034	0.222± 0.023	0.238± 0.053	0.652± 0.051
400 ppm	42	44.8± 7.4	0.017± 0.006	0.215± 0.042	0.226± 0.025	0.235± 0.082	0.664± 0.060
2000 ppm	38	46.4± 6.9	0.052± 0.225	0.223± 0.028	0.227± 0.022	0.231± 0.038	0.684± 0.058
10000 ppm	33	33.2± 6.7**	0.014± 0.005	0.215± 0.026	0.190± 0.025**	0.212± 0.048**	0.569± 0.072**

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

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: g

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

Group Name	NO. of Animals	SPLEEN		LIVER		BRAIN	
Control	35	0.107±	0.105	1.747±	0.692	0.450±	0.015
400 ppm	42	0.138±	0.195	1.885±	1.327	0.449±	0.015
2000 ppm	38	0.141±	0.187	1.899±	0.642	0.450±	0.012
10000 ppm	33	0.087±	0.103	1.403±	0.598**	0.444±	0.012

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

APPENDIX J 4

ORGAN WEIGHT, ABSOLUTE : SUMMARY, MOSUE : FEMALE

(2-YEAR STUDY)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

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

Group Name	NO. of Animals	Body Weight	ADRENALS	OVARIES	HEART	LUNGS	KIDNEYS
Control	26	31.9± 4.3	0.016± 0.004	0.097± 0.144	0.176± 0.028	0.204± 0.021	0.450± 0.083
400 ppm	27	32.1± 3.4	0.018± 0.004	0.084± 0.140	0.184± 0.039	0.220± 0.047	0.454± 0.065
2000 ppm	25	33.3± 5.8	0.017± 0.005	0.065± 0.057	0.178± 0.029	0.226± 0.064	0.465± 0.068
10000 ppm	23	26.2± 4.3**	0.014± 0.004	0.148± 0.410	0.162± 0.028	0.223± 0.097	0.463± 0.094

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

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

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

Group Name	NO. of Animals	SPLEEN		LIVER		BRAIN	
Control	26	0.198±	0.349	1.444±	0.371	0.480±	0.034
400 ppm	27	0.247±	0.351	1.541±	0.503	0.473±	0.022
2000 ppm	25	0.273±	0.520	1.521±	0.349	0.476±	0.016
10000 ppm	23	0.150±	0.132	1.254±	0.298	0.475±	0.041

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

APPENDIX I 5

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

(2-YEAR STUDY)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

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

Organ	Findings	Group Name / NO. of Animals	Control 15 (%)	400 ppm 8 (%)	2000 ppm 12 (%)	10000 ppm 17 (%)
skin/app	ulcer		1 (7)	0 (0)	0 (0)	0 (0)
	erosion		1 (7)	0 (0)	0 (0)	0 (0)
subcutis	dry		0 (0)	0 (0)	1 (8)	0 (0)
	mass		0 (0)	1 (13)	0 (0)	3 (18)
larynx	nodule		0 (0)	0 (0)	0 (0)	1 (6)
lung	nodule		2 (13)	0 (0)	3 (25)	5 (29)
lymph node	enlarged		1 (7)	4 (50)	2 (17)	1 (6)
thymus	mass		0 (0)	0 (0)	0 (0)	1 (6)
spleen	enlarged		3 (20)	1 (13)	0 (0)	0 (0)
	black zone		1 (7)	0 (0)	0 (0)	1 (6)
	nodule		0 (0)	0 (0)	3 (25)	0 (0)
heart	white		0 (0)	0 (0)	0 (0)	1 (6)
oral cavity	mass		0 (0)	0 (0)	0 (0)	1 (6)
salivary gl	nodule		0 (0)	0 (0)	0 (0)	1 (6)
esophagus	dilated		0 (0)	0 (0)	1 (8)	0 (0)
forestomach	nodule		0 (0)	0 (0)	1 (8)	0 (0)
gl stomach	nodule		0 (0)	1 (13)	0 (0)	1 (6)
	ulcer		0 (0)	0 (0)	1 (8)	0 (0)
	thick		1 (7)	0 (0)	1 (8)	0 (0)
small intes	nodule		0 (0)	1 (13)	0 (0)	0 (0)
liver	yellow		0 (0)	0 (0)	1 (8)	0 (0)
	white zone		1 (7)	0 (0)	1 (8)	0 (0)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

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

Organ	Findings	Group Name / NO. of Animals	Control 15 (%)	400 ppm 8 (%)	2000 ppm 12 (%)	10000 ppm 17 (%)
liver	nodule		4 (27)	3 (38)	4 (33)	4 (24)
gall bladd	dilated		0 (0)	0 (0)	0 (0)	1 (6)
pancreas	nodule		0 (0)	2 (25)	1 (8)	0 (0)
kidney	white zone		1 (7)	0 (0)	0 (0)	0 (0)
	nodule		0 (0)	0 (0)	1 (8)	1 (6)
	hydronephrosis		2 (13)	0 (0)	0 (0)	1 (6)
ureter	dilated		1 (7)	0 (0)	0 (0)	0 (0)
urin bladd	nodule		0 (0)	0 (0)	1 (8)	0 (0)
	urine:marked retention		4 (27)	1 (13)	1 (8)	2 (12)
pituitary	enlarged		2 (13)	0 (0)	0 (0)	0 (0)
adrenal	enlarged		0 (0)	0 (0)	0 (0)	1 (6)
testis	nodule		1 (7)	0 (0)	0 (0)	0 (0)
semin ves	nodule		0 (0)	0 (0)	1 (8)	0 (0)
prep/cli gl	enlarged		0 (0)	0 (0)	0 (0)	1 (6)
	nodule		1 (7)	0 (0)	1 (8)	2 (12)
brain	red zone		0 (0)	0 (0)	1 (8)	0 (0)
periph nerv	nodule		1 (7)	0 (0)	0 (0)	0 (0)
Harder gl	nodule		0 (0)	1 (13)	2 (17)	0 (0)
vertebra	brown		0 (0)	0 (0)	1 (8)	0 (0)
mediastinum	nodule		1 (7)	0 (0)	1 (8)	1 (6)
peritoneum	nodule		1 (7)	0 (0)	0 (0)	0 (0)
retroperit	mass		1 (7)	0 (0)	1 (8)	0 (0)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

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

Organ	Findings	Group Name / NO. of Animals	Control 15	(%)	400 ppm 8	(%)	2000 ppm 12	(%)	10000 ppm 17	(%)
abdominal c	hemorrhage		2	(13)	0	(0)	1	(8)	0	(0)
	mass		0	(0)	1	(13)	0	(0)	0	(0)
	pleural fluid		0	(0)	1	(13)	0	(0)	0	(0)
	ascites		4	(27)	1	(13)	3	(25)	3	(18)
thoracic ca	hemorrhage		0	(0)	0	(0)	0	(0)	1	(6)
	pleural fluid		1	(7)	2	(25)	3	(25)	1	(6)
other	hindlimb:nodule		0	(0)	0	(0)	1	(8)	0	(0)
	upper jaw:nodule		0	(0)	0	(0)	0	(0)	3	(18)
	lower jaw:nodule		0	(0)	0	(0)	0	(0)	2	(12)
whole body	anemic		1	(7)	0	(0)	0	(0)	0	(0)

APPENDIX I 6

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

(2-YEAR STUDY)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

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

Organ	Findings	Group Name / NO. of Animals	Control 24 (%)	400 ppm 23 (%)	2000 ppm 25 (%)	10000 ppm 26 (%)
subcutis	anemic		1 (4)	0 (0)	0 (0)	0 (0)
	edema		4 (17)	7 (30)	5 (20)	3 (12)
	jaundice		0 (0)	0 (0)	1 (4)	0 (0)
	nodule		0 (0)	0 (0)	0 (0)	1 (4)
	mass		3 (13)	5 (22)	1 (4)	2 (8)
lung	red		1 (4)	0 (0)	3 (12)	2 (8)
	red zone		1 (4)	1 (4)	0 (0)	2 (8)
	edema		1 (4)	0 (0)	1 (4)	0 (0)
	nodule		2 (8)	2 (9)	0 (0)	1 (4)
lymph node	enlarged		7 (29)	5 (22)	9 (36)	4 (15)
thymus	enlarged		1 (4)	1 (4)	0 (0)	0 (0)
spleen	enlarged		5 (21)	9 (39)	5 (20)	5 (19)
	white zone		0 (0)	1 (4)	0 (0)	0 (0)
heart	dilated		0 (0)	0 (0)	1 (4)	0 (0)
tongue	nodule		1 (4)	0 (0)	0 (0)	0 (0)
forestomach	nodule		0 (0)	1 (4)	0 (0)	0 (0)
	ulcer		0 (0)	0 (0)	0 (0)	1 (4)
	thick		0 (0)	0 (0)	0 (0)	2 (8)
gl stomach	red patch/zone		0 (0)	0 (0)	1 (4)	0 (0)
	hemorrhage		0 (0)	0 (0)	0 (0)	1 (4)
	thick		0 (0)	0 (0)	0 (0)	1 (4)
stomach	gas		0 (0)	0 (0)	0 (0)	1 (4)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

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

Organ	Findings	Group Name / NO. of Animals	Control 24 (%)	400 ppm 23 (%)	2000 ppm 25 (%)	10000 ppm 26 (%)
small intes	gas		0 (0)	0 (0)	0 (0)	1 (4)
large intes	gas		0 (0)	0 (0)	0 (0)	1 (4)
liver	enlarged		1 (4)	4 (17)	3 (12)	1 (4)
	pale		0 (0)	0 (0)	0 (0)	1 (4)
	white zone		7 (28)	6 (26)	5 (20)	4 (15)
	red zone		1 (4)	1 (4)	0 (0)	2 (8)
	black zone		0 (0)	1 (4)	0 (0)	0 (0)
	nodule		1 (4)	2 (9)	0 (0)	3 (12)
	rough		1 (4)	0 (0)	0 (0)	1 (4)
gall bladd	dilated		0 (0)	1 (4)	0 (0)	0 (0)
pancreas	nodule		0 (0)	1 (4)	1 (4)	2 (8)
kidney	enlarged		0 (0)	0 (0)	1 (4)	0 (0)
	pale		2 (8)	0 (0)	0 (0)	1 (4)
	white zone		0 (0)	0 (0)	1 (4)	0 (0)
	nodule		2 (8)	1 (4)	0 (0)	1 (4)
	hydronephrosis		2 (8)	0 (0)	2 (8)	3 (12)
urin bladd	urine:marked retention		1 (4)	0 (0)	2 (8)	0 (0)
pituitary	enlarged		4 (17)	1 (4)	1 (4)	1 (4)
	nodule		2 (8)	0 (0)	0 (0)	0 (0)
ovary	enlarged		4 (17)	2 (9)	4 (16)	4 (15)
	red		0 (0)	1 (4)	0 (0)	0 (0)
	nodule		1 (4)	1 (4)	0 (0)	0 (0)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

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

Organ	Findings	Group Name / NO. of Animals	Control 24	(%)	400 ppm 23	(%)	2000 ppm 25	(%)	10000 ppm 26	(%)
ovary	cyst		0	(0)	2	(9)	2	(8)	3	(12)
uterus	nodule		9	(38)	10	(43)	8	(32)	7	(27)
	mass		0	(0)	1	(4)	0	(0)	0	(0)
	dilated lumen		0	(0)	0	(0)	0	(0)	1	(4)
brain	red zone		1	(4)	0	(0)	0	(0)	0	(0)
	hemorrhage		1	(4)	0	(0)	0	(0)	1	(4)
periph nerv	nodule		0	(0)	0	(0)	1	(4)	0	(0)
muscle	mass		0	(0)	0	(0)	1	(4)	0	(0)
mediastinum	nodule		0	(0)	1	(4)	0	(0)	0	(0)
	mass		0	(0)	1	(4)	2	(8)	2	(8)
peritoneum	nodule		0	(0)	1	(4)	1	(4)	0	(0)
abdominal c	hemorrhage		1	(4)	1	(4)	1	(4)	1	(4)
	ascites		7	(29)	11	(48)	6	(24)	8	(31)
thoracic ca	hemorrhage		0	(0)	0	(0)	1	(4)	0	(0)
	mass		0	(0)	1	(4)	0	(0)	0	(0)
	pleural fluid		10	(42)	8	(35)	12	(48)	11	(42)
other	hemorrhage		0	(0)	0	(0)	0	(0)	1	(4)
	ear:nodule		1	(4)	0	(0)	0	(0)	0	(0)
	lower jaw:nodule		0	(0)	0	(0)	0	(0)	3	(12)
whole body	anemic		1	(4)	1	(4)	0	(0)	0	(0)

APPENDIX I 7

GROSS FINDINGS : SUMMARY, MOSUE : MALE : SACRIFICED ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (105W)

Organ	Findings	Group Name / NO. of Animals	Control 35	(%)	400 ppm 42	(%)	2000 ppm 38	(%)	10000 ppm 33	(%)
skin/app	nodule		0	(0)	0	(0)	1	(3)	0	(0)
	ulcer		0	(0)	1	(2)	1	(3)	0	(0)
	erosion		0	(0)	3	(7)	0	(0)	0	(0)
	scab		0	(0)	1	(2)	0	(0)	0	(0)
subcutis	mass		2	(6)	1	(2)	3	(8)	1	(3)
larynx	nodule		0	(0)	0	(0)	0	(0)	1	(3)
lung	nodule		7	(20)	7	(17)	8	(21)	4	(12)
lymph node	enlarged		3	(9)	1	(2)	3	(8)	5	(15)
thymus	enlarged		0	(0)	0	(0)	1	(3)	0	(0)
spleen	enlarged		0	(0)	0	(0)	2	(5)	1	(3)
	black zone		0	(0)	0	(0)	2	(5)	2	(6)
	nodule		1	(3)	2	(5)	0	(0)	0	(0)
	accentuation of white pulp		1	(3)	0	(0)	0	(0)	0	(0)
forestomach	nodule		1	(3)	0	(0)	0	(0)	3	(9)
	thin		0	(0)	0	(0)	0	(0)	1	(3)
	thick		0	(0)	0	(0)	0	(0)	2	(6)
gl stomach	nodule		0	(0)	0	(0)	0	(0)	1	(3)
	ulcer		1	(3)	0	(0)	0	(0)	0	(0)
	thick		11	(31)	19	(45)	14	(37)	3	(9)
liver	white zone		0	(0)	3	(7)	1	(3)	1	(3)
	red zone		1	(3)	2	(5)	0	(0)	2	(6)
	nodule		22	(63)	20	(48)	17	(45)	12	(36)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (105W)

Organ	Findings	Group Name / NO. of Animals	Control 35	(%)	400 ppm 42	(%)	2000 ppm 38	(%)	10000 ppm 33	(%)
pancreas	nodule		2	(6)	1	(2)	0	(0)	0	(0)
kidney	white zone		1	(3)	0	(0)	0	(0)	0	(0)
	cyst		1	(3)	1	(2)	1	(3)	0	(0)
ureter	dilated		0	(0)	1	(2)	0	(0)	0	(0)
urin bladd	urine:marked retention		2	(6)	8	(19)	4	(11)	0	(0)
	urine:turbid		1	(3)	0	(0)	0	(0)	0	(0)
pituitary	nodule		0	(0)	1	(2)	0	(0)	0	(0)
thyroid	enlarged		0	(0)	0	(0)	1	(3)	0	(0)
parathyroid	nodule		1	(3)	0	(0)	0	(0)	0	(0)
testis	red zone		0	(0)	0	(0)	1	(3)	0	(0)
	nodule		0	(0)	1	(2)	0	(0)	0	(0)
semin ves	nodule		0	(0)	0	(0)	1	(3)	0	(0)
prostate	nodule		0	(0)	1	(2)	0	(0)	0	(0)
prep/cli gl	nodule		15	(43)	12	(29)	19	(50)	9	(27)
eye	turbid		1	(3)	1	(2)	0	(0)	0	(0)
	white		0	(0)	1	(2)	0	(0)	0	(0)
Harder gl	enlarged		2	(6)	2	(5)	1	(3)	1	(3)
	nodule		1	(3)	0	(0)	1	(3)	0	(0)
abdominal c	ascites		0	(0)	0	(0)	0	(0)	1	(3)
mesenterium	red zone		0	(0)	1	(2)	0	(0)	0	(0)
adipose	nodule		1	(3)	0	(0)	0	(0)	0	(0)
other	tail:nodule		0	(0)	0	(0)	0	(0)	1	(3)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (105W)

Organ	Findings	Group Name / NO. of Animals	Control 35	(%)	400 ppm 42	(%)	2000 ppm 38	(%)	10000 ppm 33	(%)
other	lip:nodule		0	(0)	0	(0)	0	(0)	1	(3)
	ear:nodule		0	(0)	1	(2)	0	(0)	0	(0)

APPENDIX I 8

GROSS FINDINGS : SUMMARY, MOSUE : FEMALE : SACRIFICED ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (105W)

Organ	Findings	Group Name / NO. of Animals	Control 26 (%)	400 ppm 27 (%)	2000 ppm 25 (%)	10000 ppm 23 (%)
skin/app	nodule		0 (0)	0 (0)	0 (0)	1 (4)
subcutis	mass		1 (4)	0 (0)	1 (4)	2 (9)
lung	white zone		0 (0)	1 (4)	0 (0)	0 (0)
	nodule		1 (4)	3 (11)	3 (12)	2 (9)
lymph node	enlarged		3 (12)	3 (11)	3 (12)	2 (9)
spleen	enlarged		1 (4)	4 (15)	1 (4)	2 (9)
	nodule		1 (4)	0 (0)	2 (8)	1 (4)
	nodular		0 (0)	0 (0)	0 (0)	1 (4)
forestomach	thick		0 (0)	0 (0)	0 (0)	1 (4)
gl stomach	ulcer		0 (0)	0 (0)	1 (4)	0 (0)
	thick		5 (19)	5 (19)	2 (8)	1 (4)
liver	white patch/zone		0 (0)	0 (0)	1 (4)	0 (0)
	red zone		0 (0)	2 (7)	0 (0)	6 (26)
	nodule		8 (31)	8 (30)	7 (28)	2 (9)
	cyst		0 (0)	1 (4)	0 (0)	0 (0)
pancreas	nodule		1 (4)	0 (0)	0 (0)	2 (9)
kidney	atrophic		0 (0)	0 (0)	1 (4)	0 (0)
	red zone		0 (0)	1 (4)	0 (0)	0 (0)
	cyst		0 (0)	1 (4)	0 (0)	0 (0)
	rough		0 (0)	1 (4)	0 (0)	0 (0)
	hydronephrosis		0 (0)	0 (0)	1 (4)	2 (9)
pituitary	enlarged		1 (4)	1 (4)	3 (12)	3 (13)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (105W)

Organ	Findings	Group Name / NO. of Animals	Control 26 (%)	400 ppm 27 (%)	2000 ppm 25 (%)	10000 ppm 23 (%)
pituitary	red zone		1 (4)	1 (4)	0 (0)	0 (0)
	nodule		1 (4)	0 (0)	1 (4)	3 (13)
	mass		0 (0)	1 (4)	0 (0)	0 (0)
thyroid	enlarged		0 (0)	0 (0)	1 (4)	0 (0)
ovary	enlarged		0 (0)	1 (4)	0 (0)	3 (13)
	nodule		0 (0)	0 (0)	1 (4)	1 (4)
	cyst		9 (35)	6 (22)	4 (16)	1 (4)
	deformed		0 (0)	0 (0)	1 (4)	0 (0)
uterus	nodule		2 (8)	2 (7)	0 (0)	5 (22)
vagina	nodule		0 (0)	0 (0)	1 (4)	0 (0)
Harder gl	enlarged		0 (0)	0 (0)	0 (0)	1 (4)
	nodule		0 (0)	3 (11)	1 (4)	0 (0)
bone	nodule		0 (0)	1 (4)	0 (0)	0 (0)
mediastinum	nodule		0 (0)	2 (7)	0 (0)	0 (0)
retroperit	cyst		0 (0)	0 (0)	1 (4)	0 (0)
abdominal c	ascites		1 (4)	2 (7)	4 (16)	1 (4)
adipose	nodule		0 (0)	1 (4)	0 (0)	0 (0)
thoracic ca	pleural fluid		1 (4)	3 (11)	1 (4)	0 (0)
other	upper jaw:nodule		0 (0)	0 (0)	0 (0)	1 (4)
	lower jaw:nodule		0 (0)	0 (0)	0 (0)	2 (9)

APPENDIX K 2

ORGAN WEIGHT, RELATIVE : SUMMARY, RAT : FEMALE

(2-YEAR STUDY)

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

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

Group Name	NO. of Animals	Body Weight (g)	ADRENALS	OVARIES	HEART	LUNGS	KIDNEYS
Control	41	299± 40	0.029± 0.007	0.064± 0.084	0.326± 0.061	0.381± 0.078	0.683± 0.120
400 ppm	40	298± 37	0.028± 0.007	0.053± 0.044	0.320± 0.038	0.381± 0.093	0.671± 0.109
2000 ppm	41	300± 34	0.027± 0.007	0.048± 0.024	0.323± 0.045	0.363± 0.041	0.669± 0.104
10000 ppm	37	284± 50	0.301± 1.564	0.055± 0.060	0.335± 0.070	0.387± 0.124	0.736± 0.155

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

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

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

Group Name	NO. of Animals	SPLEEN	LIVER	BRAIN
Control	41	0.528± 1.237	2.736± 0.559	0.637± 0.090
400 ppm	40	0.211± 0.079	2.562± 0.303	0.633± 0.080
2000 ppm	41	0.257± 0.221	2.581± 0.376	0.632± 0.077
10000 ppm	37	0.246± 0.183	2.699± 0.583	0.670± 0.095

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

APPENDIX K 3

ORGAN WEIGHT, RELATIVE : SUMMARY, MOSUE : MALE

(2-YEAR STUDY)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: %

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

Group Name	NO. of Animals	Body Weight (g)	ADRENALS	TESTES	HEART	LUNGS	KIDNEYS
Control	35	47.5± 5.7	0.035± 0.011	0.459± 0.069	0.473± 0.074	0.506± 0.121	1.394± 0.231
400 ppm	42	44.8± 7.4	0.037± 0.012	0.487± 0.095	0.518± 0.096	0.537± 0.185	1.532± 0.354
2000 ppm	38	46.4± 6.9	0.115± 0.498	0.490± 0.096	0.499± 0.090	0.509± 0.125	1.511± 0.302
10000 ppm	33	33.2± 6.7**	0.042± 0.014	0.669± 0.150**	0.582± 0.077**	0.664± 0.220**	1.739± 0.166**

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

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: %

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

Group Name	NO. of Animals	SPLEEN	LIVER	BRAIN
Control	35	0.228± 0.216	3.745± 1.671	0.963± 0.143
400 ppm	42	0.322± 0.441	4.374± 3.509	1.033± 0.195
2000 ppm	38	0.305± 0.396	4.209± 1.797	0.992± 0.168
10000 ppm	33	0.275± 0.369	4.253± 1.622**	1.385± 0.266**

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

APPENDIX K 1

ORGAN WEIGHT, RELATIVE : SUMMARY, RAT : MALE

(2-YEAR STUDY)

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE
UNIT: %

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

Group Name	NO. of Animals	Body Weight (g)	ADRENALS	TESTES	HEART	LUNGS	KIDNEYS
Control	44	424± 53	0.022± 0.006	0.894± 0.355	0.295± 0.043	0.358± 0.086	0.717± 0.184
400 ppm	40	424± 44	0.021± 0.004	0.860± 0.287	0.300± 0.036	0.359± 0.058	0.760± 0.166
2000 ppm	36	433± 40	0.020± 0.004	0.806± 0.302	0.295± 0.041	0.362± 0.095	0.680± 0.103
10000 ppm	39	397± 34**	0.022± 0.005	0.944± 0.324	0.302± 0.032	0.366± 0.066	0.693± 0.071

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

STUDY NO. : 0162
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE
UNIT: %

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

Group Name	NO. of Animals	SPLEEN	LIVER	BRAIN
Control	44	0.272± 0.087	3.033± 0.444	0.486± 0.057
400 ppm	40	0.308± 0.224	3.225± 0.627	0.486± 0.057
2000 ppm	36	0.340± 0.305	2.955± 0.470	0.470± 0.051
10000 ppm	39	0.288± 0.145	2.896± 0.404	0.512± 0.047

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

APPENDIX K 4

ORGAN WEIGHT, RELATIVE : SUMMARY, MOSUE : FEMALE

(2-YEAR STUDY)

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

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

Group Name	NO. of Animals	Body Weight (g)	ADRENALS	OVARIES	HEART	LUNGS	KIDNEYS
Control	26	31.9± 4.3	0.049± 0.012	0.312± 0.470	0.561± 0.115	0.652± 0.120	1.428± 0.267
400 ppm	27	32.1± 3.4	0.055± 0.014	0.279± 0.530	0.573± 0.109	0.695± 0.173	1.424± 0.231
2000 ppm	25	33.3± 5.8	0.051± 0.018	0.189± 0.141	0.549± 0.134	0.695± 0.225	1.427± 0.307
10000 ppm	23	26.2± 4.3**	0.055± 0.013	0.510± 1.375	0.627± 0.097	0.865± 0.337**	1.806± 0.441**

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

STUDY NO. : 0163
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

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

Group Name	NO. of Animals	SPLEEN	LIVER	BRAIN
Control	26	0.608± 1.064	4.535± 1.028	1.534± 0.259
400 ppm	27	0.747± 1.019	4.780± 1.390	1.489± 0.172
2000 ppm	25	0.799± 1.459	4.641± 1.077	1.466± 0.248
10000 ppm	23	0.549± 0.441	4.799± 0.876	1.888± 0.509**

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