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Washington, DC 20460

Attn: Section 8(e) Coordinator (CAP Agreement)

Re: CAP Agreement Identification No. 8ECAP-0110

Dear Sir or Madam:

Union Carbide Corporation ("Union Carbide") herewith submits the following report pursuant to the terms of the TSCA §8(e) Compliance Audit Program and Union Carbide's CAP Agreement dated August 14, 1991 (8ECAP-0110). This report describes A 90-day dietary inclusion study in rats with UC 70480 (O-(1-cyano-2-methylpropyl)-O-ethyl-S-propylphosphorothioate; CASRN [not available]).

"UC 70480: Ninety-Day Dietary Inclusion Study in Rats", Bushy Run Research Center, Project Report 49-11, January 14, 1987.

A complete summary of this report is attached.

Previous TSCA Section 8(e) or "FYI" Submission(s) related to this substance are:

(None)

Previous PMN submissions related to this substance are: (None)

This information is submitted in light of EPA's current guidance. Union Carbide does not necessarily agree that this information reasonably supports the conclusion that the subject chemical presents a substantial risk of injury to health or the environment.

49-11

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(2)

In the attached report the term "CONFIDENTIAL" may appear. This precautionary statement was for internal use at the time of issuance of the report. Confidentiality is hereby waived for purposes of the needs of the Agency in assessing health and safety information. The Agency is advised, however, that the publication rights to the contained information are the property of Union Carbide.

Yours truly,

William C. Kuryla, Ph.D.
Associate Director
Product Safety
(203/794-5230)

WCK/cr
Attachment (3 copies of cover letter, summary, and report)

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SUMMARY

BUSHY RUN RESEARCH CENTER
R. D. 4, Mellon Road, Export, Pennsylvania 15632 Telephone (412) 733-[redacted]

PROJECT REPORT 49-[redacted]
January 14, 1987

UC 70480 Ninety-Day Dietary Inclusion Study in Rats

Sponsor: Union Carbide Agricultural Products Company

* * * * *

SUMMARY

Male and female Sprague-Dawley CD® rats were administered diets containing 0 ppm, 3 ppm, 30 ppm or 300 ppm UC 70480 for 90 days. UC 70480 exposure did not result in mortality in either sex. Depressed body weights and body weight gains were observed throughout the study in 300 ppm male rats. Decreased food intake of 300 ppm male rats paralleled the depression in body weight and body weight gain for this sex. Although overt clinical signs of cholinesterase inhibition were not apparent at any UC 70480 exposure level, a biologically significant (greater than 25% of concurrent control values) inhibition of erythrocyte and plasma cholinesterase activity was apparent at weeks 7 and 13 in 30 ppm and 300 ppm male and female rats, and in plasma of 3 ppm female rats. Brain cholinesterase activity was inhibited in the 300 ppm UC 70480 dosage group of both sexes at 13 weeks. Minor decreases in hematocrit and platelets in both sexes as well as in hemoglobin and erythrocyte count in males at the highest dose of UC 70480 were also observed.

CONCLUSIONS

Inhibition of cholinesterase activity (erythrocyte, plasma, brain) and alterations in hematology and clinical chemistry of animals treated with 30 ppm and 300 ppm UC 70480 for 90 days excludes these groups as a no-observable-effect-level (NOEL) for the compound. Based on the information obtained in the present study, dietary concentrations of 3 ppm UC 70480 would appear to be a NOEL for 90 days in male rats and a minimally toxic dose in female rats.

BUSHY RUN RESEARCH CENTER
R. D. 4, Mellon Road, Export, Pennsylvania 15632
Telephone (412) 733-5200

Study Title

UC 70480
Ninety-Day Dietary Inclusion Study in Rats

Data Requirement

Guidelines 82-3

Author(s)

J. P. Van Miller, Ph.D.
D. E. McLain, Ph.D.

Study Completed On

October 30, 1984

Performing Laboratory

Bushy Run Research Center
R. D. #4, Mellon Road
Export, PA 15632

Laboratory Project ID

Project Report 49-11

Report Date = 1/14/87

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BUSHY RUN RESEARCH CENTER
R. D. 4, Mellon Road, Export, Pennsylvania 15632 Telephone (412) 733-5200

Good Laboratory Practices Compliance Statement

This study was conducted in accordance with Good Laboratory Practices Regulations for non-clinical laboratory studies as developed by the Environmental Protection Agency, Pesticides Programs, Good Laboratory Practice Standards, as part of the U. S. Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), published in the Federal Register, Vol. 48, No. 230, November 29, 1983 (effective May 2, 1984).

Study Director: 1-7-8
John P. Van Miller, Ph.D. Date
Bushy Run Research Center

Sponsor: _____

_____

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PROJECT REPORT
January 14, 1987

UC 70480 Ninety-Day Dietary Inclusion Study in Rats

Sponsor: Union Carbide Agricultural Products Company

* * * * *

SUMMARY

Male and female Sprague-Dawley CD® rats were administered diets containing 0 ppm, 3 ppm, 30 ppm or 300 ppm UC 70480 for 90 days. UC 70480 exposure did not result in mortality in either sex. Depressed body weight gains were observed throughout the study in 300 ppm male rats. Decreased food intake of 300 ppm male rats paralleled the depression in body weight and body weight gain for this sex. Although overt clinical signs of cholinesterase inhibition were not apparent at any UC 70480 exposure level, biologically significant (greater than 25% of concurrent control values) inhibition of erythrocyte and plasma cholinesterase activity was apparent at weeks 7 and 13 in 30 ppm and 300 ppm male and female rats, and in plasma of ppm female rats. Brain cholinesterase activity was inhibited in the 300 ppm UC 70480 dosage group of both sexes at 13 weeks. Minor decreases in hematocrit and platelets in both sexes as well as in hemoglobin and erythrocyte count in males at the highest dose of UC 70480 were also observed.

INTRODUCTION

The purpose of this study was to evaluate any toxic effects in rats due repeated oral exposure to UC 70480 for 90 days. The oral route is a probable human exposure route. Preliminary range-finding studies of two weeks (BRRC Report No. 47-129) and four weeks duration (BRRC Report No. 47-123) were performed in rats and the results were used to set concentration levels in this study. Since the lowest concentration used in the two-week study, 3 ppm, did not produce systemic toxicity, the lowest concentration of this subchronic study was set at 3 ppm UC 70480.

MATERIALS AND METHODS

This study was conducted according to the protocol (BRRC Project No. 84-03-50003) approved by Union Carbide Agricultural Products Company, Inc. The first day rats received UC 70480 was July 2, 1984. The last day of recovery animal sacrifice was October 30, 1984.

Test Substance

Approximately 450 g of UC 70480 [O-(1-cyano-2-methylpropyl)-O-ethyl-S-propylphosphorothioate] were received on May 17, 1984 from Union Carbide Agricultural Products Company, Inc. (UCAPC, Research Triangle Park, NC). The sample was labeled with the identification number HTS4820AA and assigned BRRC sample number 47-135 (A,B). The test material was a colorless, slightly viscous, transparent liquid with an analytical purity of 95.77% (analysis provided by sponsor). No CAS Registry number was available for the material. A reserve 20 g sample was taken and stored frozen in Room 164 of the Chemical Hygiene Fellowship (CHF) building at BRRC.

Animals and Animal Care

Two hundred eighty-seven (287) Sprague-Dawley CD® rats (144 males, 143 females), 35 days of age, were received from Charles River Breeding Laboratories, Inc., Kingston, NY on June 18, 1984. Upon receipt, quality control procedures, including blood serology and aerobic bacteriology cultures from the lung, were performed on 5 animals/sex. Examination for parasites was done on feces collected from 6 cages (2 animals/cage). In addition, the liver, lungs, heart, kidneys, salivary glands, trachea, nasal cavity and cervical lymph nodes were fixed and examined microscopically.

All animals were allowed a 2 week environmental acclimation phase before experimental treatment. From receipt to study termination, rats were individually housed in stainless steel wire-mesh cages (9" L x 6" W x 7" H) mounted in stainless steel racks in Room 170 of the CHF building. A layer of Deotized Animal Cage Board® (Shepherd Specialty Papers, Inc., Kalamazoo, MI) was placed under each cage and changed at least three times per week. Other animal care procedures were performed regularly by animal care personnel according to BRRC Standard Operating Procedures. The Guide for Care and Use of Laboratory Animals (Institute of Laboratory Animal Resources, National Research Council, Department of Health, Education and Welfare, Publication No. 78-23, 1978) was followed to provide adequate care for the animals. Water (Municipal Authority of Westmoreland County, Greensburg, PA) was supplied by an automatic dispensing system. A certified ground rodent feed (Purina Certified Rodent Chow #5002, Ralston Purina Company, St. Louis, MO) was provided in 8 oz. opal glass jars. Food and water were available ad libitum. Rats were kept on a 12-hour photoperiod throughout the study. Room temperature (22 ± 3°C) and relative humidity (30-74%) were recorded (Cole-Parmer Hygrothermograph® Seven-Day Continuous Recorder, Model #8368-00). Animals were identified by toe-clipping.

Diet Preparation and Analysis

The basic diet used for diet preparation was ground Purina Certified Rodent Chow #5002 (Ralston Purina Company, St. Louis, MO). Analysis of chemical composition and possible contaminants of each batch of diet were performed by Raltech Scientific Services, St. Louis, MO, and nitrosamine analysis was performed by Hazleton Laboratories Inc., Madison, WI.

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For the actual diet preparation, a solution of UC 70480 dissolved in acetone (10 ml acetone/g UC 70480) was prepared. This solution was then added to ground chow and mixed in a Hobart mixer to produce a 3000 ppm (w/w) premix. Mixing time was approximately thirty minutes to allow enough time for complete acetone evaporation. To insure homogeneity at the lower dosage levels, this initial premix was used to prepare the highest dosage level and a second premi of 100 ppm. The 100 ppm premix was then used to prepare the intermediate and low dosage levels. In all cases, the individual test diets were prepared by adding the appropriate amount of premix to ground diet and mixing in a Hobart mixer for approximately 15 minutes. Control diets were prepared from a premix containing acetone concentrations to yield equivalent amounts of control vehicle as in the high dose group diet after proper dilution. Both premixes and all test diets were prepared weekly on the same day. Test diets were stored at -20°C except during designated feeding times. Animals were fed 3 times weekly.

Homogeneity, stability, and analysis of test diets for concentrations of U 70480 were performed at BRRC.

Experimental Design

The dosage levels of UC 70480 were selected based on preliminary findings from a two-week and four-week dietary inclusion study of UC 70480 performed at BRRC. The experimental design is summarized in the following table:

Exposure Levels for UC 70480 90-Day Dietary Inclusion Study in Rats

Group	Exposure Levels (ppm in Diet)	Number of Rats	
		Male	Female
-	0.0 (Predose Control)	10	10
1	0.0 (Control)	30	30
2	3	20	20
3	30	20	20
4	300	30	30

Ten animals/sex (predose control group) were used to establish the genera health of the test population (e.g. clinical pathology) and then sacrificed a discarded immediately prior to study initiation. Predose animals were select from the extra animals after computer randomization into study groups. Twent animals/sex were subdivided by computer randomization as follows; 10 animals/sex/group were designated for hematology, coagulation tests and methemoglobin determination at weeks 7 and 13; and 10 animals/sex/group were designated for clinical chemistry and cholinesterase at weeks 7 and 13. Ten animals/sex in groups 1 and 4 were placed on control diet for one month at 13 weeks to serve as recovery groups.

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Animals selected for clinical pathology and cholinesterase assays at 7 eks were also used for these assays at 13 weeks. Animals selected for atology, coagulation tests, and methemoglobin determinations at 7 weeks were d for these assays at 13 weeks.

Rats were assigned to groups using a computer-generated statistical domization procedure. Rats judged unsuitable for study because of abnormal nical signs or body weights (weights greater than ± 2 SD from the mean for t sex) and those left after all study groups had been filled were removed m the study and their fate documented. The means and variances of the body ghts for all groups were statistically equivalent before dosing was iated. Body weight ranges at dosage initiation were 201-236 g for males 149-180 g for females.

To accommodate the number of blood samples to be collected and processed ing the study and at termination, male and female rats began treatment one apart (July 2-3, 1984) and collection of blood samples was staggered over a r-day period. To achieve a balanced design, one-half of each sex per group e randomly designated for blood collection on days 1 and 3 (males) and 2 and females) of each 4 day sampling period.

Ophthalmic examinations were performed on all animals prior to study iation using an indirect ophthalmoscope. Those with unsuitable lesions e discarded and replaced. These examinations were repeated prior to the day sacrifice.

nical Methodology

Blood samples for clinical pathology analyses were collected by orbital eding of animals fasted overnight. One set of 10 animals per group per sex e bled for the following analyses: hematology, methemoglobin, and gulation analyses. Another set, also 10 animals per group per sex, were d for clinical chemistry and cholinesterase determinations. After a r-week recovery period, samples for hematology, methemoglobin, coagulation, nical chemistry, cholinesterase and urinalysis were collected from 10 mals per sex per group from the 300 ppm UC 70480 group (recovery) and from control group.

linesterase

Samples for erythrocyte and plasma cholinesterase were obtained from mals fasted overnight prior to dosing, at 7 and 13 weeks, and following a eek recovery period. Samples for brain cholinesterase were obtained at 13 ks and following the 4-week recovery period. Approximately 2.0 ml of blood e collected into tubes with sodium heparin as anticoagulant (Vacutainer® nd, Becton-Dickinson Company, Rutherford, NJ). Plasma was separated from red blood cells by centrifugation prior to assay.

Brains were homogenized utilizing a Polytron® tissue homogenizer lytron Kinematics, Luzern, Switzerland). The homogenate was centrifuged and supernatant analyzed for brain cholinesterase activity.

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Cholinesterase assays were performed on an Auto-Analyzer II C equipped with data handler (Technicon Instrument Corporation, Tarrytown, NY) and teletype printer (Teletype Corporation, Skokie, IL). Commercially available control samples (Decision Level 1, Level 2, Level 3, Beckman Instruments, Inc., Clinical Instruments Division, Fullerton, CA) were assayed immediately prior to and following each group of erythrocyte, plasma, and brain samples. All cholinesterase assays were performed on the day of sample collection.

Serum Clinical Chemistry

Blood samples for serum chemistry analyses prior to dosing and at 7, 13, and 17 weeks were also collected from rats fasted overnight. Approximately 1.0 ml of blood was collected into tubes without anticoagulant (Vacutainer® Brand, Becton-Dickinson Company, Rutherford, NJ).

The following chemistry analyses were performed at 7 and 13 weeks and following a 4-week recovery period:

1. glucose
2. urea nitrogen
3. aspartate aminotransferase
4. alanine aminotransferase
5. total protein
6. albumin
7. globulin
8. A/G ratio
9. total bilirubin
10. creatinine phosphokinase
11. lactic dehydrogenase
12. γ-glutamyl transferase
13. cholesterol
14. alkaline phosphatase
15. calcium
16. inorganic phosphorus
17. sodium
18. potassium
19. chloride

The Astra™-8 or Astra™-4 Automated Stat/Routine Analyzer (Beckman Instruments, Inc., Brea, CA) was used to analyze serum concentrations of glucose, urea nitrogen, total bilirubin, sodium, potassium, and chloride. Serum controls (Decision Level 1, Level 2, Level 3, Beckman Instruments, Inc., Clinical Instruments Division, Fullerton, CA) were analyzed after each 10 samples. Calibration checks were made immediately prior to sample analyses.

The CentrifiChem® centrifugal analyzer (Baker Instruments, Pleasantville, NY) was used to analyze serum concentrations of aspartate aminotransferase, alanine aminotransferase, creatinine phosphokinase, lactic dehydrogenase, γ-glutamyl transferase, cholesterol, alkaline phosphatase, calcium, inorganic phosphorus, total protein, and albumin. Globulin, the difference between total protein and albumin, and albumin to globulin ratio were calculated. Serum controls (Decision Level 1, Level 2, Level 3, Beckman Instruments, Inc., Clinical Instruments Division, Fullerton, CA) were assayed with each run of 20 samples. Precision checks were made on this instrument in the week immediately preceding the day of sample analysis. All serum clinical chemistry analyses were performed on the day of sample collection.

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Hematology

Samples for hematologic determinations were also obtained from rats fasted overnight prior to dosing and at 7, 13, and 17 weeks. Approximately 1.0 ml of blood was collected into each of two tubes containing EDTA as an anticoagulant (Vacutainer® Brand, Becton-Dickinson Company, Rutherford, NJ).

The following hematologic parameters were measured: total leukocyte count, erythrocyte count, hemoglobin, hematocrit, mean corpuscular volume, mean corpuscular hemoglobin, mean corpuscular hemoglobin concentration, and platelet count. Blood smears for differential leukocyte counts and Heinz body counts were prepared and evaluated for all animals. Reticulocyte and bone marrow smears were prepared for each animal but not evaluated.

Hematologic analyses, with the exception of differential leukocyte and Heinz Body counts, were performed on a Coulter Counter® S-Plus IV (Coulter Electronics, Inc., Hialeah, FL). Commercially available quality control samples (4C Plus II Coulter Counter Cell Control, Coulter Diagnostics, Hialeah, FL) were analyzed prior to the samples. All hematologic analyses, other than the differential leukocyte and Heinz Body counts, were performed on the day of sample collection.

Methemoglobin analyses were performed on the Beckman Trace™ III Chemistry System (Beckman Instruments, Inc., Fullerton, CA). Wavelength calibration and photometric accuracy evaluation was performed daily prior to sample analyses.

Approximately 0.5 ml of blood was collected into each of two tubes containing sodium citrate as anticoagulant (Vacutainer® Brand, Becton-Dickinson Company, Rutherford, NJ). The analysis of prothrombin time and partial thromboplastin time were performed on the BBL Fibrometer (Becton-Dickinson Company, Rutherford, NJ). Commercially available coagulation control samples (Ortho Diagnostic Systems, Inc., Raritan, NJ) were assayed with the samples.

Urinalysis

Samples for urinalysis were obtained prior to dosing and at 6, 12, and 16 weeks. Urine volume was measured using calibrated test tubes, and urine color and turbidity were visually assessed. Urine specific gravity was determined by refractometry using a clinical refractometer (American Optical Co, Buffalo, NY). Semiquantitative measurements were made on urine pH, protein, glucose, ketone, bilirubin, blood, and urobilinogen using the Ames Multi-stix® Reagent Strip and read on the Clini-tek® (Ames Division, Miles Laboratories, Elkhart, IN). Microscopic constituents in the urine were analyzed using the KOVA® System. Appropriate commercially available controls and Clini-tek® performance capsules were analyzed on each day of urinalysis.

Experimental Evaluation

Body Weights: Body weights and body weight gains were measured weekly for all animals.

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Food Consumption: Fresh diet was offered, and consumption measured, three times each week (Monday, Wednesday, and Friday).

Mortality Checks: Mortality checks were performed twice daily (a.m., p.m.) on weekdays and once daily (a.m.) on weekends.

Clinical Observations: Observations for overt clinical signs of UC 70480 toxicity were made once daily on weekdays.

Gross and Histomorphologic Pathology

Animal Sacrifice and Necropsy: All animals found dead in the cage or sacrificed at either 13 or 17 weeks were subjected to a detailed macroscopic examination. In addition, the brain, liver, kidneys, heart, spleen, adrenals, and gonads (ovaries/testes) were removed and weighed from sacrificed animals only. Animals were killed from exsanguination by severing the brachial blood vessels following anesthetization with methoxyflurane for retroorbital blood sampling. Final body weights were obtained the day of sacrifice on fasted animals.

Histopathology: Appropriate samples of tissues from all animals were preserved in 10% neutral buffered formalin for histopathologic examination. Histopathologic examinations were performed on the following tissues and organs from all animals in the control and high dose groups at final sacrifice and at the recovery sacrifice, and from all animals that died during the study: Tumors (and associated tissues), gross lesions (with adjacent tissue), brain (cerebrum, cerebellum, brainstem), spinal cord (three levels), eyes, pituitary, salivary glands, heart, thymus, thyroid (with parathyroid), lungs (with mainstem bronchi), trachea, spleen, sternum or femur (with marrow), lymph nodes (2, mandibular and mesenteric), sciatic nerve, esophagus, stomach (cardia, fundus and pylorus), duodenum, jejunum, ileum, cecum, colon, rectum, adrenal glands, pancreas, liver (at least two lobes), kidneys, urinary bladder, ovaries/testes, prostate, epididymis, vagina, uterus/cervix, skin, mammary gland area, and skeletal muscle. In addition, all gross lesions, tumors, lungs, liver, kidneys and all organs and tissues showing evidence of lesions in the high dose group (target organ) were examined for all animals in the low and intermediate dose groups. Deviations from this list are described in the Anatomic Pathology Record (Appendix 4).

Statistical Procedures

Body weight and food consumption, as well as the data for the organ weights, hematology, clinical chemistry, and cholinesterase determinations from the four groups were intercompared using Levene's test for homogeneity of variance[1]. An analysis of variance[2] was performed on the groups with homogeneous variances and, if found to be significant, group differences were delineated by grouped variance Student t-tests[3]. When heterogeneous variances were indicated, Welch and Brown-Forsythe[4] analyses were performed. If either was significant, group differences were determined by separate variance Student t-tests[3].

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Medians[5] and quartile deviations[5] were calculated for non-parametric data. These data were statistically analyzed by the Kruskal-Wallis test[6] or by the Wilcoxon rank sum test as modified by Mann-Whitney[7]. The fiducial limit of 0.05 (2-tailed) was used as the critical level of significance for all tests.

Storage of Records

The final report, nonperishable specimens, and all raw data are retained in the Archives of the Bushy Run Research Center.

RESULTS AND DISCUSSION

Pre-Study Information and Quality Control

The 144 male and 143 female rats arrived at BRRC on June 18, 1984. The birth date of the animals was recorded as May 14, 1984.

Results of quality control evaluations, including serology, parasitology, histology and physical examination, were within normal limits established from data for historical controls. Ophthalmic examinations performed on these animals revealed no significant lesions upon receipt.

Feed contaminant analyses, supplied by the Ralston Purina Co. Central Research Services (St. Louis, MO) for all feed lots used in the study indicated all contaminants were within the acceptable levels. Assays of feed lots used (supplied by Hazleton Laboratories, Inc., Madison, WI) indicated nitrosamine concentrations were within acceptable range. Water analysis was conducted by the Municipal Authority of Westmoreland County (MAWC) on a water sample collected at BRRC in the summer of 1984. None of the EPA standards for maximum levels of contaminants were exceeded. Furthermore, no notable differences were evident between contaminant levels reported in BRRC water in previous years and the present analysis.

On June 27, 1984 predose blood and urine samples were obtained from ten male and ten female rats. Samples were submitted to Clinical Pathology for all analyses listed in the study protocol (i.e., hematology, coagulation, clinical chemistry, cholinesterase, and urinalysis). Samples for coagulation and methemoglobin were not evaluated because of problems with the analyses. All other available results from this predose sampling period were tabulated, evaluated, and found to be within the historical normal range for 6-week old Sprague-Dawley rats in this laboratory.

Diet Analyses

A complete Analytical Chemistry Report, including Summary, Introduction, Materials and Methods, and Results, is included in Appendix 1.

The stability study of UC 70480 in rodent diet showed that at frozen conditions, the 3 ppm diet mixtures remained stable for 7 days, and the 300 ppm test diet remained stable for 21 days (Table 2, Appendix 1). Based on these results, test diets were prepared weekly, stored frozen, and fed three times weekly.

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The homogeneity study indicated that the distribution of UC 70480 in test diet was uniform (Table 3, Appendix 1). In addition, the periodic analysis of the concentration of UC 70480 in the test diet showed good agreement between the expected and actual values throughout the study (Ta Appendix 1).

Mortality

Detailed records of individual animal fate by group are reported in Ta 7 and 8 of Appendix 3 (Experimental Toxicology Record, In-Life Numbers and Animal Information). UC 70480 dietary concentrations of 3, 30, or 300 pp not result in mortality in either sex of rats. Four females (1 control, 1 mid-dose, and 2 high dose) died as a result of blood sampling procedures 7-week evaluation period.

Body Weight

Body weights and body weight gains of male rats are reported in Table Table 4, respectively. A graph of male body weight versus time (days) is in Figure 1. Body weights and body weight gains of female rats are report Table 5 and Table 6, respectively. A graph of female body weight versus (days) is shown in Figure 2. Individual body weights are reported in App

Depressed body weight (weeks 1-13) and body weight gain from day zero (weeks 1-13) were apparent in male rats consuming 300 ppm UC 70480. Howev absolute body weight differences did not exceed 6% of concurrent controls During the recovery period (weeks 14-17) high-dose male rats fed control d gained approximately 31% more weight (64 g) than concurrent controls (44

No statistical difference in absolute body weight was apparent in fema rats consuming 300 ppm UC 70480. However, body weight gain from day zero significantly depressed through study week 4 and at week 6. These differe (15-20% of concurrent controls) were not statistically significant after st week 6.

Food Consumption

Food intake for 300 ppm UC 70480 male rats (Table 7) was statistically less than controls for food measurement days 2, 4, 25, 35, and 39. In contrast, during the recovery period high dose males fed control diet consum significantly more food than controls on days 93, 95, 100 and 107.

For 300 ppm female rats, food intake was significantly less than control for food measurement days 1, 3, 10, 13, 15, 20, 27, 36 and 66 (Table 8). However, with the exception of day 92, no compensatory increase was apparent during the recovery period.

Individual food intake records for male and female rats are reported in Appendix 3.

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Compound Intake

UC 70480 intake (mg/kg body weight/day) by male and female rats is reported in Table 9 and Table 10, respectively. Mean dosages attained by 3, 30, and 300 ppm UC 70480-treated male rats were 0.2, 2.0, and 19.7 mg/kg/day, respectively. Corresponding values for female rats were 0.2, 2.3 and 22.9 mg/kg/day, respectively.

Clinical Observations

No treatment-related effect on the incidence of clinical signs (Tables 11-12) was apparent at any dose in either sex. A chronological list of individual examination findings is included in Appendix 3.

Hematology

The mean results of hematologic determinations and coagulation function at 7, 13, and 17 weeks for male and female rats exposed to UC 70480 are reported in Tables 13-21. Individual results for these determinations are included in Appendix 2.

A slight decrease (approximately 3%) in hematocrit was observed in male rats from the 300 ppm group at week 7. A larger reduction (approximately 7%) in hematocrit was observed in these animals at 13 weeks, and this change was accompanied by moderate reductions in hemoglobin and erythrocyte count. A decrease in hematocrit of the females from the 300 ppm group was also observed at 13 weeks. The decrease in hematocrit observed at 7 weeks in the 3 ppm male group was considered unrelated to UC 70480 exposure based on the lack of dose response and the lack of consistency in the 13-week measurement. No differences were seen in these parameters after the 4-week recovery period.

The platelet count (Plt) was significantly increased in male rats at 7 weeks (30 ppm, 300 ppm) and 13 weeks (300 ppm), and in female rats at 7 weeks (300 ppm). Leukocyte counts (WBC) were also increased in 300 ppm female rats at 7 weeks due to increased levels of lymphocytes and monocytes. Other statistically significant alterations were considered spurious or of equivocal biological importance. The statistically significant increase in methemoglobin (Mhgb) level of 300 ppm male rats at week 17 was considered spurious since no alterations in Mhgb were observed during the dosing phase of the study.

No biologically significant alterations were observed in the analysis of coagulation function (Tables 19-21). Statistically significant decreases in partial thromboplastin time (PTT) at 7 weeks were considered spurious due to lack of dose-response and the lack of consistency at the 13-week measurement.

Cholinesterase

The mean results and percent inhibition of the cholinesterase determinations at 7, 13 and 17 weeks for male and female rats exposed to UC 70480 are reported in Tables 22-24, respectively. Individual results for these determinations are reported in Appendix 2.

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A biologically significant cholinesterase inhibition (greater than 25% of concurrent control values) was observed in plasma and erythrocytes of 30 ppm and 300 ppm male and female rats, and in plasma of 3 ppm female rats at study weeks 7 and 13. In addition, brain cholinesterase activity was inhibited in the 300 ppm dosage group of both sexes at the 13-week measurement (Table 23). No differences were detected in plasma, erythrocyte, or brain cholinesterase levels of recovery animals sacrificed at week 17 (Table 24).

Clinical Chemistry

The mean results of clinical chemistry determinations at 7, 13, and 17 weeks for male and female rats exposed to UC 70480 are reported in Tables 25-29. Individual results for these determinations are reported in Appendix 2.

A statistically significant decrease in serum glucose was observed at 7 weeks in male rats of the 300 ppm UC 70480 dosage group (Table 25). This alteration, approximately 10% as compared to concurrent controls, was not observed at the 13 or 17 week evaluation periods (Tables 27 and 29).

Statistically significant decreases were also observed in total protein, albumin, and globulin of 300 ppm male rats at the 7 and 13 week evaluation periods. Albumin to globulin ratio (A/G) was significantly increased in these animals at 13 weeks reflecting the greater decrease in globulin with respect to albumin concentration. Both globulin and A/G ratio remained significantly altered at the 17 week recovery evaluation while albumin was significantly increased at this period. At the 7 and 13 week evaluation periods, significant decreases were observed in total protein and globulin concentration of the 300 ppm females (Tables 26 and 28). A/G ratio was also increased at these evaluation periods. No effects were observed for females at the 17-week period.

Potassium concentration was also significantly increased in high dose males at 7 weeks and in high dose females at 13 weeks. These alterations are generally without biological significance in the absence of other changes in electrolytes. Increased serum cholesterol noted for male rats at 7 weeks was considered a spurious finding. ALT was decreased in high dose females at 13 weeks but this was not considered biologically significant based on the small magnitude of the change. No alterations were observed for male or female rats in any other clinical chemistry parameters at other evaluation periods.

Urinalysis

No statistically significant alterations were observed in any urinalysis parameter monitored at 6, 12 or 16 weeks in either male or female rats. The mean results of urinalysis parameters are reported in Tables 30-35. Individual results of these determinations are reported in Appendix 2.

Organ Weights

Absolute organ weights, organ weights relative to final body weight, organ weights relative to brain weight, and final body weight of male rats are reported in Tables 36-43, respectively. Corresponding values for females are reported in Tables 44-51. Individual organ weights, organ/body and organ/brain weight ratios are reported in Appendix 3.

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Dietary administration of UC 70480 for 90 days to male or female rats did not result in biologically significant absolute or relative organ weight effects. Apparent absolute organ weight effects in both sexes were due to reduced final body weights at 13 weeks and were not apparent in recovery animals.

Gross and Histomorphologic Pathology

Incidence summaries of gross necropsy and microscopic observations (in-life deaths and final sacrifice) for male and female rats are reported in Tables 52-61. Individual gross and histomorphologic pathology records are included in Appendix 4.

No significant treatment-related pathologic alterations were apparent at gross or microscopic examination of animals dying during the in-life portion of this study or at sacrifice. In addition, no lesions were observed to explain findings of abnormal organ weights. Mild to moderate hydronephrosis was observed in 22 rats (7 males and 15 females) but was not treatment related. This lesion has been described in various rat strains in incidences up to 59% and is considered a spontaneous disease of unknown etiology.[9-12]

CONCLUSIONS

Inhibition of cholinesterase activity (erythrocyte, plasma, brain) and alterations in hematology and clinical chemistry of animals treated with 30 ppm and 300 ppm UC 70480 for 90 days excludes these groups as a no-observable-effect-level (NOEL) for the compound. Based on the information obtained in the present study, dietary concentrations of 3 ppm UC 70480 would appear to be a NOEL for 90 days in male rats and a minimally toxic dose in female rats.

Reviewed and Approved by:

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11-19-86

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TABLE 1
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
IN-LIFE NUMBERS AND ANIMAL INFORMATION

ANIMAL	SEX	GROUP	TYPE OF DEATH	AGE IN WEEKS	DATE OF DEATH	DAYS ON STUDY	DATE OF NECROPSY	DAYS TO NECROPSY
11041	M	GROUP P (0 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11043	M	GROUP P (0 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11047	M	GROUP P (0 PPM)	SCH SAC	24	29-OCT-84	119	29-OCT-84	119
11048	M	GROUP P (0 PPM)	SCH SAC	24	29-OCT-84	119	29-OCT-84	119
11049	M	GROUP P (0 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11076	M	GROUP P (0 PPM)	SCH SAC	24	29-OCT-84	119	29-OCT-84	119
11079	M	GROUP P (0 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11081	M	GROUP P (0 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11094	M	GROUP P (0 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11095	M	GROUP P (0 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11097	M	GROUP P (0 PPM)	SCH SAC	24	29-OCT-84	119	29-OCT-84	119
11099	M	GROUP P (0 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11104	M	GROUP P (0 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11113	M	GROUP P (0 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11116	M	GROUP P (0 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11117	M	GROUP P (0 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11120	M	GROUP P (0 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11122	M	GROUP P (0 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11128	M	GROUP P (0 PPM)	SCH SAC	24	29-OCT-84	119	29-OCT-84	119
11136	M	GROUP P (0 PPM)	SCH SAC	24	29-OCT-84	119	29-OCT-84	119
11144	M	GROUP P (0 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11146	M	GROUP P (0 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11149	M	GROUP P (0 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11150	M	GROUP P (0 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11155	M	GROUP P (0 PPM)	SCH SAC	24	29-OCT-84	119	29-OCT-84	119
11158	M	GROUP P (0 PPM)	SCH SAC	24	29-OCT-84	119	29-OCT-84	119
11162	M	GROUP P (0 PPM)	SCH SAC	24	29-OCT-84	119	29-OCT-84	119
11165	M	GROUP P (0 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11166	M	GROUP P (0 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11176	M	GROUP P (0 PPM)	SCH SAC	24	29-OCT-84	119	29-OCT-84	119

SCH SAC = SCHEDULED SACRIFICE
M = MALE

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TABLE 1 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
IN-LIFE NUMBERS AND ANIMAL INFORMATION

ANIMAL	SEX	GROUP	TYPE OF DEATH	AGE IN WEEKS	DATE OF DEATH	DAYS ON STUDY	DATE OF NECROPSY	DAYS TO NECROPSY
11053	M	GROUP S (3 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11063	M	GROUP S (3 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11066	M	GROUP S (3 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11068	M	GROUP S (3 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11071	M	GROUP S (3 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11072	M	GROUP S (3 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11082	M	GROUP S (3 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11090	M	GROUP S (3 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11091	M	GROUP S (3 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11108	M	GROUP S (3 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11110	M	GROUP S (3 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11123	M	GROUP S (3 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11167	M	GROUP S (3 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11134	M	GROUP S (3 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11142	M	GROUP S (3 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11152	M	GROUP S (3 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11172	M	GROUP S (3 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11174	M	GROUP S (3 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11175	M	GROUP S (3 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11115	M	GROUP S (3 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11044	M	GROUP T (30 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11045	M	GROUP T (30 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11050	M	GROUP T (30 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11057	M	GROUP T (30 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11064	M	GROUP T (30 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11073	M	GROUP T (30 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11083	M	GROUP T (30 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11092	M	GROUP T (30 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11100	M	GROUP T (30 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93

SCH SAC = SCHEDULED SACRIFICE
M = MALE

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TABLE 1 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
IN-LIFE NUMBERS AND ANIMAL INFORMATION

ANIMAL	SEX	GROUP	TYPE OF DEATH	AGE IN WEEKS	DATE OF DEATH	DAYS ON STUDY	DATE OF NECROPSY	DAYS TO NECROPSY
11101	M	GROUP T (30 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11119	M	GROUP T (30 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11125	M	GROUP T (30 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11135	M	GROUP T (30 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11143	M	GROUP T (30 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11151	M	GROUP T (30 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11153	M	GROUP T (30 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11157	M	GROUP T (30 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11163	M	GROUP T (30 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11169	M	GROUP T (30 PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11173	M	GROUP T (30 PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11046	M	GROUP Y (300PPM)	SCH SAC	24	29-OCT-84	119	29-OCT-84	119
11054	M	GROUP Y (300PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11058	M	GROUP Y (300PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11059	M	GROUP Y (300PPM)	SCH SAC	24	29-OCT-84	119	29-OCT-84	119
11062	M	GROUP Y (300PPM)	SCH SAC	24	29-OCT-84	119	29-OCT-84	119
11065	M	GROUP Y (300PPM)	SCH SAC	24	29-OCT-84	119	29-OCT-84	119
11069	M	GROUP Y (300PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11074	M	GROUP Y (300PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11075	M	GROUP Y (300PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11085	M	GROUP Y (300PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11086	M	GROUP Y (300PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11089	M	GROUP Y (300PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11093	M	GROUP Y (300PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11102	M	GROUP Y (300PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11103	M	GROUP Y (300PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11105	M	GROUP Y (300PPM)	SCH SAC	24	29-OCT-84	119	29-OCT-84	119
11178	M	GROUP Y (300PPM)	SCH SAC	24	29-OCT-84	119	29-OCT-84	119
11121	M	GROUP Y (300PPM)	SCH SAC	24	29-OCT-84	119	29-OCT-84	119

SCH SAC = SCHEDULED SACRIFICE
M = MALE

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TABLE 1 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
IN-LIFE NUMBERS AND ANIMAL INFORMATION

ANIMAL	SEX	GROUP	TYPE OF DEATH	AGE IN WEEKS	DATE OF DEATH	DAYS ON STUDY	DATE OF NECROPSY	DAYS TO NECROPSY
11126	M	GROUP Y (300PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11131	M	GROUP Y (300PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11140	M	GROUP Y (300PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11141	M	GROUP Y (300PPM)	SCH SAC	24	29-OCT-84	119	29-OCT-84	119
11145	M	GROUP Y (300PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11147	M	GROUP Y (300PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11080	M	GROUP Y (300PPM)	SCH SAC	20	1-OCT-84	91	1-OCT-84	91
11161	M	GROUP Y (300PPM)	SCH SAC	24	29-OCT-84	119	29-OCT-84	119
11130	M	GROUP Y (300PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11168	M	GROUP Y (300PPM)	SCH SAC	24	29-OCT-84	119	29-OCT-84	119
11170	M	GROUP Y (300PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93
11171	M	GROUP Y (300PPM)	SCH SAC	20	3-OCT-84	93	3-OCT-84	93

SCH SAC = SCHEDULED SACRIFICE
M = MALE

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TABLE 2
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
IN-LIFE NUMBERS AND ANIMAL INFORMATION

ANIMAL	SEX	GROUP	TYPE OF DEATH	AGE IN WEEKS	DATE OF DEATH	DAYS ON STUDY	DATE OF NECROPSY	DAYS TO NECROPSY
11188	F	GROUP P (0 PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11195	F	GROUP P (0 PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11196	F	GROUP P (0 PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11198	F	GROUP P (0 PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11202	F	GROUP P (0 PPM)	SCH SAC	24	30-OCT-84	119	30-OCT-84	119
11203	F	GROUP P (0 PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11206	F	GROUP P (0 PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11207	F	GROUP P (0 PPM)	SCH SAC	24	30-OCT-84	119	30-OCT-84	119
11218	F	GROUP P (0 PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11219	F	GROUP P (0 PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11220	F	GROUP P (0 PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11222	F	GROUP P (0 PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11240	F	GROUP P (0 PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11250	F	GROUP P (0 PPM)	SCH SAC	24	30-OCT-84	119	30-OCT-84	119
11252	F	GROUP P (0 PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11255	F	GROUP P (0 PPM)	SCH SAC	24	30-OCT-84	119	30-OCT-84	119
11256	F	GROUP P (0 PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11271	F	GROUP P (0 PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11272	F	GROUP P (0 PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11274	F	GROUP P (0 PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11284	F	GROUP P (0 PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11288	F	GROUP P (0 PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11291	F	GROUP P (0 PPM)	SCH SAC	24	30-OCT-84	119	30-OCT-84	119
11292	F	GROUP P (0 PPM)	FD DEAD*	13	14-AUG-84	42	14-AUG-84	42
11295	F	GROUP P (0 PPM)	SCH SAC	24	30-OCT-84	119	30-OCT-84	119
11302	F	GROUP P (0 PPM)	SCH SAC	24	30-OCT-84	119	30-OCT-84	119
11305	F	GROUP P (0 PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11307	F	GROUP P (0 PPM)	SCH SAC	24	30-OCT-84	119	30-OCT-84	119
11318	F	GROUP P (0 PPM)	SCH SAC	24	30-OCT-84	119	30-OCT-84	119
11320	F	GROUP P (0 PPM)	SCH SAC	24	30-OCT-84	119	30-OCT-84	119

SCH SAC = SCHEDULED SACRIFICE
F = FEMALE
* = DIED FROM BLEEDING PROCEDURES

TABLE 2 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
IN-LIFE NUMBERS AND ANIMAL INFORMATION

ANIMAL	SEX	GROUP	TYPE OF DEATH	AGE IN WEEKS	DATE OF DEATH	DAYS ON STUDY	DATE OF NECROPSY	DAYS TO NECROPSY
11194	F	GROUP S (3 PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11204	F	GROUP S (3 PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11208	F	GROUP S (3 PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11214	F	GROUP S (3 PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11215	F	GROUP S (3 PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11227	F	GROUP S (3 PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11238	F	GROUP S (3 PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11239	F	GROUP S (3 PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11241	F	GROUP S (3 PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11244	F	GROUP S (3 PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11251	F	GROUP S (3 PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11263	F	GROUP S (3 PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11275	F	GROUP S (3 PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11281	F	GROUP S (3 PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11197	F	GROUP S (3 PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11293	F	GROUP S (3 PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11306	F	GROUP S (3 PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11313	F	GROUP S (3 PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11315	F	GROUP S (3 PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11319	F	GROUP S (3 PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11187	F	GROUP T (30PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11233	F	GROUP T (30PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11242	F	GROUP T (30PPM)	FD DEAD*	13	16-AUG-84	44	16-AUG-84	44
11253	F	GROUP T (30PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11257	F	GROUP T (30PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11259	F	GROUP T (30PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11261	F	GROUP T (30PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11262	F	GROUP T (30PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11265	F	GROUP T (30PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93

SCH SAC = SCHEDULED SACRIFICE
F = FEMALE
* = DIED FROM BLEEDING PROCEDURES

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TABLE 2 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
IN-LIFE NUMBERS AND ANIMAL INFORMATION

ANIMAL	SEX	GROUP	TYPE OF DEATH	AGE IN WEEKS	DATE OF DEATH	DAYS ON STUDY	DATE OF NECROPSY	DAYS TO NECROPSY
11270	F	GROUP T (30PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11279	F	GROUP T (30PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11286	F	GROUP T (30PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11296	F	GROUP T (30PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11298	F	GROUP T (30PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11301	F	GROUP T (30PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11303	F	GROUP T (30PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11310	F	GROUP T (30PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11314	F	GROUP T (30PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11316	F	GROUP T (30PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11317	F	GROUP T (30PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11190	F	GROUP Y (300PPM)	SCH SAC	24	30-OCT-84	119	30-OCT-84	119
11200	F	GROUP Y (300PPM)	SCH SAC	24	30-OCT-84	119	30-OCT-84	119
11210	F	GROUP Y (300PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11213	F	GROUP Y (300PPM)	SCH SAC	24	30-OCT-84	119	30-OCT-84	119
11216	F	GROUP Y (300PPM)	FD DEAD*	13	14-AUG-84	42	14-AUG-84	42
11217	F	GROUP Y (300PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11221	F	GROUP Y (300PPM)	FD DEAD*	13	14-AUG-84	42	14-AUG-84	42
11223	F	GROUP Y (300PPM)	SCH SAC	24	30-OCT-84	119	30-OCT-84	119
11224	F	GROUP Y (300PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11226	F	GROUP Y (300PPM)	SCH SAC	24	30-OCT-84	119	30-OCT-84	119
11229	F	GROUP Y (300PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11231	F	GROUP Y (300PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11237	F	GROUP Y (300PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11243	F	GROUP Y (300PPM)	SCH SAC	24	30-OCT-84	119	30-OCT-84	119
11246	F	GROUP Y (300PPM)	SCH SAC	24	30-OCT-84	119	30-OCT-84	119
11247	F	GROUP Y (300PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11254	F	GROUP Y (300PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11264	F	GROUP Y (300PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93

SCH SAC = SCHEDULED SACRIFICE
F = FEMALE
* = DIED FROM BLEEDING PROCEDURES

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TABLE 2 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
IN-LIFE NUMBERS AND ANIMAL INFORMATION

ANIMAL	SEX	GROUP	TYPE OF DEATH	AGE IN WEEKS	DATE OF DEATH	DAYS ON STUDY	DATE OF NECROPSY	DAYS TO NECROPSY
11267	F	GROUP Y (300PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11268	F	GROUP Y (300PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11269	F	GROUP Y (300PPM)	SCH SAC	24	30-OCT-84	119	30-OCT-84	119
11273	F	GROUP Y (300PPM)	SCH SAC	24	30-OCT-84	119	30-OCT-84	119
11280	F	GROUP Y (300PPM)	SCH SAC	24	30-OCT-84	119	30-OCT-84	119
11282	F	GROUP Y (300PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11283	F	GROUP Y (300PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11290	F	GROUP Y (300PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11294	F	GROUP Y (300PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11299	F	GROUP Y (300PPM)	SCH SAC	20	2-OCT-84	91	2-OCT-84	91
11309	F	GROUP Y (300PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93
11321	F	GROUP Y (300PPM)	SCH SAC	20	4-OCT-84	93	4-OCT-84	93

SCH SAC = SCHEDULED SACRIFICE
F = FEMALE

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TABLE 3
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
BODY WEIGHT (G), SUMMARY OF MEANS
MALES

GROUP (PPM):		0	3	30	300
WEEK 0					
	MEAN	215.0	215.6	215.0	215.7
	S.D.	7.91	7.74	5.84	8.19
	N	30	20	20	30
1					
	MEAN	269.1	272.7	268.0	256.1**
	S.D.	13.47	9.70	12.58	12.98
	N	30	20	20	30
2					
	MEAN	308.2	311.5	309.1	291.2**
	S.D.	18.31	12.17	20.23	17.85
	N	30	20	20	30
3					
	MEAN	340.8	345.4	342.8	320.7**
	S.D.	21.20	14.49	26.69	20.68
	N	30	20	20	30

** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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Table 3 (Continued)

UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
BODY WEIGHT (G), SUMMARY OF MEANS
MALES

GROUP (PPM):		0	3	30	300
WEEK 4					
	MEAN	370.4	377.8	371.5	348.2**
	S.D.	24.18	16.05	31.28	23.72
	N	30	20	20	30
5					
	MEAN	393.0	401.0	394.7	368.6**
	S.D.	26.22	18.55	36.17	25.38
	N	30	20	20	30
6					
	MEAN	413.1	423.0	417.0	388.0**
	S.D.	29.48	19.65	39.87	26.05
	N	30	20	20	30
7					
	MEAN	420.8	430.9	424.6	401.1*
	S.D.	34.44	20.21	42.53	30.34
	N	30	20	20	30
8					
	MEAN	442.0	453.6	445.9	417.4**
	S.D.	35.69	23.05	46.54	33.28
	N	30	20	20	30

* = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.05 LEVEL
** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

Table 3 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
BODY WEIGHT (G), SUMMARY OF MEANS
MALES

GROUP (PPM):		0	3	30	300
WEEK 9					
	MEAN	457.8	470.0	460.5	431.3**
	S.D.	37.14	24.22	49.43	33.70
	N	30	20	20	30
10					
	MEAN	470.0	481.7	475.7	444.9*
	S.D.	37.55	25.21	54.80	35.48
	N	30	20	20	30
11					
	MEAN	479.5	492.2	488.4	456.8*
	S.D.	39.93	26.04	56.74	36.54
	N	30	20	20	30
12					
	MEAN	487.5	500.8	494.9	462.9*
	S.D.	40.69	26.14	57.49	37.48
	N	30	20	20	30
13					
	MEAN	492.7	506.2	500.6	468.7*
	S.D.	41.04	27.59	58.30	38.07
	N	30	20	20	30

* = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.05 LEVEL
** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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Table 3 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
BODY WEIGHT (G), SUMMARY OF MEANS
MALES

GROUP (PPM):		0	3	30	300
WEEK 14	MEAN	521.9	0.0	0.0	507.4
	S.D.	54.84	0.00	0.00	42.18
	N	10	0	0	10
15	MEAN	527.0	0.0	0.0	519.7
	S.D.	55.17	0.00	0.00	45.01
	N	10	0	0	10
16	MEAN	523.6	0.0	0.0	515.6
	S.D.	53.73	0.00	0.00	46.64
	N	10	0	0	10
17	MEAN	536.8	0.0	0.0	532.9
	S.D.	53.44	0.00	0.00	48.62
	N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 4
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
BODY WEIGHT GAINS (G) FROM INTERVAL 0, SUMMARY OF MEANS
MALES

GROUP (PPM):		0	3	30	300
WEEK	0 TO 1				
	MEAN	54.1	57.1	53.0	40.4**
	S.D.	7.15	5.19	8.41	8.04
	N	30	20	20	30
	0 TO 2				
	MEAN	93.2	95.9	94.2	75.4**
	S.D.	12.49	8.95	16.02	14.06
	N	30	20	20	30
	0 TO 3				
	MEAN	125.8	129.8	127.8	105.0**
	S.D.	15.79	12.76	22.46	17.47
	N	30	20	20	30
	0 TO 4				
	MEAN	155.4	162.2	156.5	132.5**
	S.D.	19.15	14.42	27.22	20.01
	N	30	20	20	30
	0 TO 5				
	MEAN	178.0	185.4	179.7	152.8**
	S.D.	21.46	16.82	32.24	21.23
	N	30	20	20	30

** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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Table 4 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
BODY WEIGHT GAINS (G) FROM INTERVAL 0, SUMMARY OF MEANS
MALES

GROUP (PPM):		0	3	30	300
WEEK	0 TO 6 MEAN	198.1	207.4	202.1	172.3**
	S.D.	24.66	18.35	36.06	21.96
	N	30	20	20	30
	0 TO 7 MEAN	205.8	215.3	209.6	185.3**
	S.D.	30.51	19.47	38.70	25.65
	N	30	20	20	30
	0 TO 8 MEAN	226.9	237.9	230.9	201.7**
	S.D.	31.92	21.98	42.70	28.97
	N	30	20	20	30
	0 TO 9 MEAN	242.8	254.4	245.6	215.6**
	S.D.	32.90	23.63	45.74	29.24
	N	30	20	20	30
	0 TO 10 MEAN	255.0	266.1	260.7	229.2**
	S.D.	33.47	24.74	51.32	30.97
	N	30	20	20	30

** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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Table 4 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
BODY WEIGHT GAINS (G) FROM INTERVAL 0, SUMMARY OF MEANS
MALES

GROUP (PPM):		0	3	30	300
WEEK	0 TO 11				
	MEAN	264.5	276.6	273.4	241.1*
	S.D.	35.93	25.94	53.31	32.12
	N	30	20	20	30
	0 TO 12				
	MEAN	272.4	285.2	279.9	247.2**
	S.D.	36.54	25.71	54.13	32.66
	N	30	20	20	30
	0 TO 13				
	MEAN	277.7	290.5	285.6	253.0**
	S.D.	37.04	26.42	55.02	33.21
	N	30	20	20	30
	0 TO 14				
	MEAN	307.5	0.0	0.0	286.3
	S.D.	49.25	0.00	0.00	35.78
	N	10	0	0	10
	0 TO 15				
	MEAN	312.6	0.0	0.0	298.7
	S.D.	49.47	0.00	0.00	38.85
	N	10	0	0	10

* = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.05 LEVEL
** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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Table 4 (Continued)
UC 70480 NINETY DAY DIETARY INCLUSION STUDY IN RATS
BODY WEIGHT GAINS (G) FROM INTERVAL 0, SUMMARY OF MEANS
MALES

GROUP (PPM):		0	3	30	300
WEEK	0 TO 16				
	MEAN	309.3	0.0	0.0	294.6
	S.D.	48.33	0.00	0.00	39.49
	N	10	0	0	10
	0 TO 17				
	MEAN	322.4	0.0	0.0	311.8
	S.D.	47.52	0.00	0.00	42.96
	N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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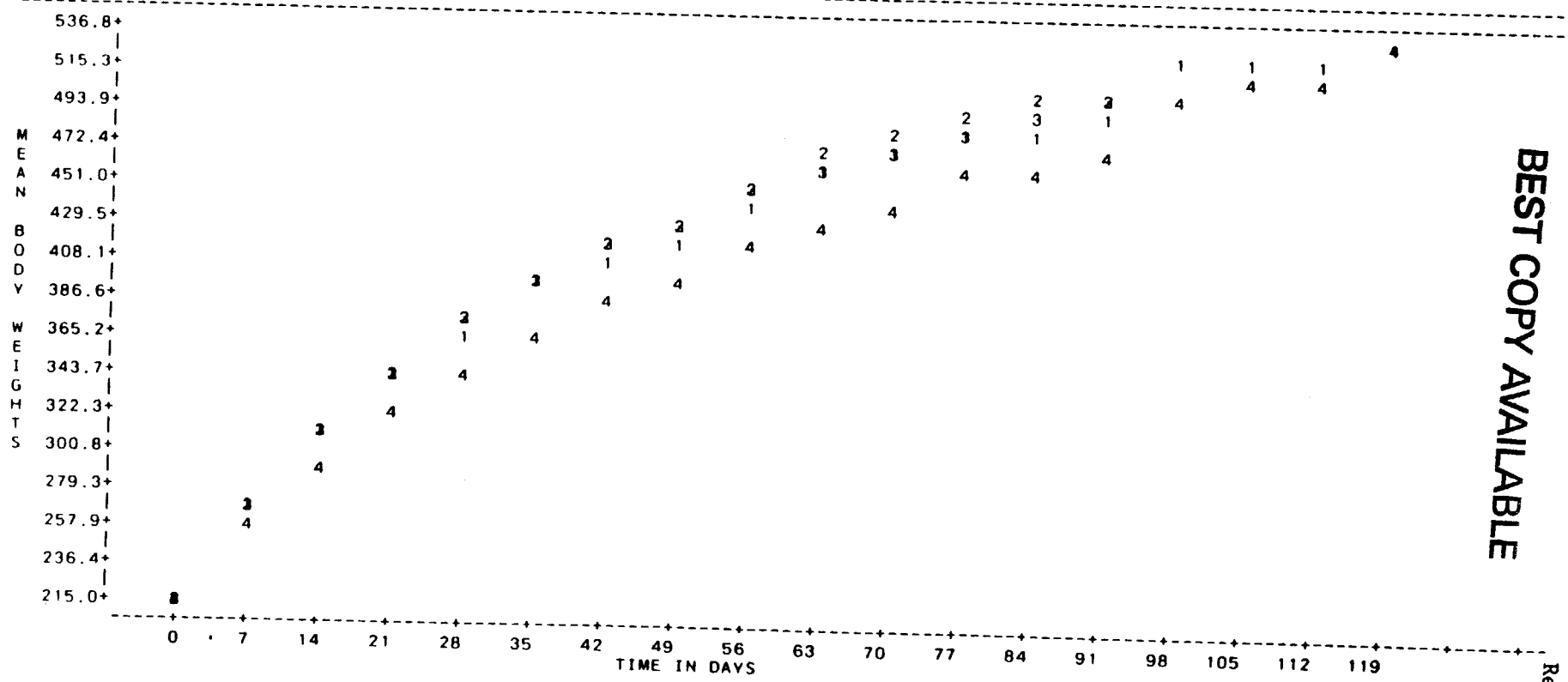
FIGURE 1
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
MEAN BODY WEIGHTS (GRAMS) VERSUS TIME
MALES



FOOTNOTE FOR SYMBOLS:
1- 0 PPM 2- 3 PPM 3- 30 PPM 4- 300 PPM

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TABLE 5
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
BODY WEIGHT (G), SUMMARY OF MEANS
FEMALES

GROUP (PPM):		0	3	30	300
WEEK 0	MEAN	164.5	163.3	163.4	164.2
	S.D.	5.47	7.52	7.10	6.87
	N	30	20	20	30
1	MEAN	184.2	184.7	185.0	179.9
	S.D.	8.15	10.57	11.35	10.01
	N	30	20	20	30
2	MEAN	202.2	204.6	203.8	196.2
	S.D.	10.51	13.16	13.80	12.09
	N	30	20	20	30
3	MEAN	217.0	219.2	217.5	208.7
	S.D.	13.60	15.35	17.91	13.28
	N	30	20	20	30

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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Table 5 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
BODY WEIGHT (G), SUMMARY OF MEANS
FEMALES

GROUP (PPM):		0	3	30	300
WEEK 4					
	MEAN	227.4	228.4	230.7	221.0
	S.D.	14.52	19.23	16.56	13.88
	N	30	20	20	30
5					
	MEAN	236.4	239.6	239.0	229.8
	S.D.	16.31	22.11	15.93	15.74
	N	30	20	20	30
6					
	MEAN	245.9	248.0	249.1	237.3
	S.D.	19.85	22.76	19.87	16.32
	N	30	20	20	30
7					
	MEAN	247.0	247.4	249.8	241.1
	S.D.	17.37	24.50	18.19	16.77
	N	29	20	19	28
8					
	MEAN	255.0	257.1	256.9	249.1
	S.D.	18.11	30.39	19.63	17.53
	N	29	20	19	28

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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Table 5 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
BODY WEIGHT (G), SUMMARY OF MEANS
FEMALES

GROUP (PPM):		0	3	30	300
WEEK 9	MEAN	262.3	265.2	265.5	256.4
	S.D.	19.54	31.38	19.92	17.54
	N	29	20	19	28
10	MEAN	268.0	271.6	271.1	259.9
	S.D.	19.21	30.10	22.92	18.51
	N	29	20	19	28
11	MEAN	272.1	274.1	278.8	266.7
	S.D.	20.04	31.53	23.21	18.60
	N	29	20	19	28
12	MEAN	276.3	279.6	286.2	272.3
	S.D.	20.99	30.92	25.00	20.61
	N	29	20	19	28
13	MEAN	278.6	279.1	285.7	273.1
	S.D.	20.85	31.70	25.05	20.80
	N	29	20	19	28

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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Table 5 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
BODY WEIGHT (G), SUMMARY OF MEANS
FEMALES

GROUP (PPM):		0	3	30	300
WEEK 14					
	MEAN	287.2	0.0	0.0	288.8
	S.D.	22.04	0.00	0.00	14.21
	N	10	0	0	10
15					
	MEAN	291.8	0.0	0.0	293.0
	S.D.	22.40	0.00	0.00	14.95
	N	10	0	0	10
16					
	MEAN	294.4	0.0	0.0	297.9
	S.D.	23.05	0.00	0.00	15.52
	N	10	0	0	10
17					
	MEAN	298.5	0.0	0.0	300.7
	S.D.	25.41	0.00	0.00	18.88
	N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 6
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
BODY WEIGHT GAINS (G) FROM INTERVAL ZERO, SUMMARY OF MEANS
FEMALES

GROUP (PPM):		0	3	30	300
WEEK	0 TO 1				
	MEAN	19.7	21.4	21.6	15.7**
	S.D.	4.56	5.27	5.76	4.87
	N	30	20	20	30
	0 TO 2				
	MEAN	37.7	41.3	40.4	31.9**
	S.D.	7.63	7.54	7.81	6.71
	N	30	20	20	30
	0 TO 3				
	MEAN	52.5	55.9	54.1	44.5**
	S.D.	10.08	9.73	12.49	7.90
	N	30	20	20	30
	0 TO 4				
	MEAN	62.9	65.1	67.3	56.8*
	S.D.	10.79	14.31	10.89	8.56
	N	30	20	20	30
	0 TO 5				
	MEAN	71.9	76.3	75.6	65.5
	S.D.	12.36	17.53	10.31	10.32
	N	30	20	20	30

* = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.05 LEVEL
** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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TABLE 6 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
BODY WEIGHT GAINS (G) FROM INTERVAL ZERO, SUMMARY OF MEANS
FEMALES

GROUP (PPM):		0	3	30	300
WEEK 0 TO 6	MEAN	81.3	84.7	85.8	73.1*
	S.D.	15.86	18.85	14.53	10.75
	N	30	20	20	30
0 TO 7	MEAN	82.4	84.1	86.2	76.4
	S.D.	13.42	19.92	13.45	11.58
	N	29	20	19	28
0 TO 8	MEAN	90.4	93.9	93.3	84.3
	S.D.	13.88	25.79	15.15	12.70
	N	29	20	19	28
0 TO 9	MEAN	97.8	102.0	101.9	91.6
	S.D.	15.69	26.86	14.85	12.73
	N	29	20	19	28
0 TO 10	MEAN	103.4	108.3	107.5	95.1
	S.D.	15.25	25.51	18.02	13.40
	N	29	20	19	28

* = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.05 LEVEL

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TABLE 6 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
BODY WEIGHT GAINS (G) FROM INTERVAL ZERO, SUMMARY OF MEANS
FEMALES

GROUP (PPM):		0	3	30	300
WEEK	0 TO 11				
	MEAN	107.5	110.8	115.1	102.0
	S.D.	15.97	26.72	18.65	13.55
	N	29	20	19	28
	0 TO 12				
	MEAN	111.7	116.3	122.6	107.5
	S.D.	17.16	26.37	20.47	15.89
	N	29	20	19	28
	0 TO 13				
	MEAN	114.1	115.8	122.1	108.4
	S.D.	17.00	26.87	20.61	16.05
	N	29	20	19	28
	0 TO 14				
	MEAN	120.9	0.0	0.0	122.8
	S.D.	18.33	0.00	0.00	9.05
	N	10	0	0	10
	0 TO 15				
	MEAN	125.5	0.0	0.0	126.9
	S.D.	18.81	0.00	0.00	11.89
	N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 6 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
BODY WEIGHT GAINS (G) FROM INTERVAL ZERO, SUMMARY OF MEANS
FEMALES

GROUP (PPM):		0	3	30	300
WEEK 0 TO 16	MEAN	128.1	0.0	0.0	131.8
	S.D.	19.55	0.00	0.00	12.13
	N	10	0	0	10
0 TO 17	MEAN	132.2	0.0	0.0	134.7
	S.D.	22.01	0.00	0.00	15.95
	N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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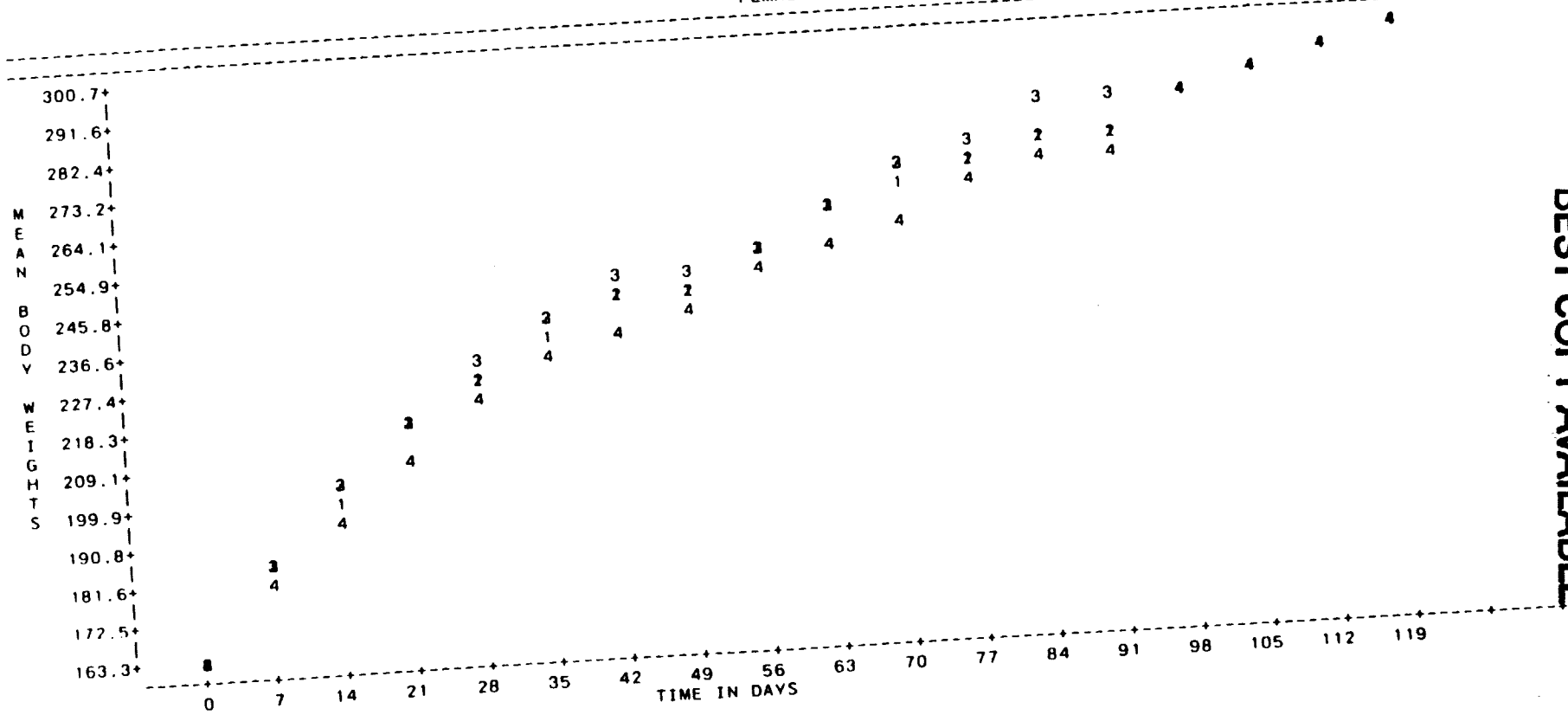
FIGURE 2
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
MEAN BODY WEIGHTS (GRAMS) VERSUS TIME
FEMALES



FOOTNOTE FOR SYMBOLS:
1- 0 PPM 2- 3 PPM 3- 30 PPM 4- 300 PPM

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TABLE 7
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
MALES

GROUP (PPM):		0	3	30	300
DAY 2					
	MEAN	22.0	23.2*	22.1	18.6**
	S.D.	1.59	1.69	1.40	2.14
	N	30	20	20	30
4					
	MEAN	24.4	24.9	24.0	22.9**
	S.D.	1.51	1.44	1.71	1.92
	N	30	20	20	30
7					
	MEAN	24.3	24.8	23.9	23.6
	S.D.	1.81	1.46	2.09	1.93
	N	30	20	20	30
9					
	MEAN	24.0	24.4	24.4	23.7
	S.D.	2.25	1.49	2.32	1.97
	N	30	20	20	30
11					
	MEAN	24.7	25.6	25.1	24.2
	S.D.	2.06	1.55	2.73	2.16
	N	30	20	20	30

* = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.05 LEVEL
** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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Table 7 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
MALES

GROUP (PPM):		0	3	30	300
DAY 14	MEAN	24.7	25.2	25.2	24.4
	S.D.	1.91	1.54	2.59	2.10
	N	30	20	20	30
16	MEAN	24.4	25.1	25.1	24.1
	S.D.	2.01	1.57	2.60	2.26
	N	29	19	20	30
18	MEAN	24.7	25.2	24.9	24.1
	S.D.	1.94	1.85	2.83	2.22
	N	30	20	20	30
21	MEAN	24.2	24.7	23.9	23.6
	S.D.	1.91	1.37	1.99	2.06
	N	30	19	20	30
23	MEAN	24.5	24.8	26.2	23.7
	S.D.	2.06	1.75	4.71	3.29
	N	30	20	20	29

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

Table 7 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
MALES

GROUP (PPM):		0	3	30	300
DAY 25					
	MEAN	25.0	25.6	25.2	23.5*
	S.D.	1.76	1.61	3.45	2.66
	N	30	20	19	30
28					
	MEAN	25.0	26.2**	25.4	24.0
	S.D.	1.69	1.15	2.88	2.40
	N	30	20	20	30
30					
	MEAN	23.9	25.5*	25.5*	23.7
	S.D.	2.14	1.43	2.65	2.38
	N	30	20	20	30
32					
	MEAN	24.5	25.9	26.0	25.0
	S.D.	1.83	1.82	2.82	2.49
	N	30	20	20	30
35					
	MEAN	25.3	25.6	25.2	23.8**
	S.D.	1.84	1.90	2.81	2.24
	N	30	20	20	30

* = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.05 LEVEL
** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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Table 7 (Continued)

UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
MALES

GROUP (PPM):		0	3	30	300
DAY 37	MEAN	25.4	25.6	26.0	24.3
	S.D.	2.18	2.26	3.46	2.51
	N	29	20	19	30
39	MEAN	25.4	25.5	25.6	23.6**
	S.D.	1.81	1.87	2.96	2.21
	N	30	20	20	30
42	MEAN	24.5	25.0	26.0	24.2
	S.D.	2.08	1.43	2.94	2.30
	N	29	20	20	30
44	MEAN	24.9	25.2	26.9**	24.3
	S.D.	2.31	2.53	3.26	2.16
	N	30	20	20	30
46	MEAN	25.1	26.7*	27.3**	25.4
	S.D.	2.26	2.62	2.76	2.18
	N	30	20	20	30

* = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.05 LEVEL
** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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Table 7 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY). SUMMARY OF MEANS
MALES

GROUP (PPM):		0	3	30	300
DAY 49	MEAN	25.4	26.1	26.6	25.9
	S.D.	2.13	1.89	2.81	2.05
	N	30	20	20	30
51	MEAN	24.1	25.2	25.4	24.1
	S.D.	2.58	1.88	3.21	2.88
	N	30	20	20	30
53	MEAN	25.4	26.9	25.8	24.5
	S.D.	2.24	1.76	3.05	3.04
	N	30	20	20	30
56	MEAN	25.7	27.0	25.5	24.5
	S.D.	2.14	1.70	2.92	2.81
	N	30	18	20	30
58	MEAN	25.1	26.2	25.4	24.5
	S.D.	2.20	2.37	2.92	2.51
	N	30	19	20	30

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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Table 7 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
MALES

GROUP (PPM):		0	3	30	300
DAY 60					
	MEAN	25.0	26.0	25.0	24.2
	S.D.	2.13	2.14	3.12	2.64
	N	30	20	20	30
63					
	MEAN	25.3	26.4	25.5	24.6
	S.D.	2.09	1.91	3.09	2.43
	N	30	20	20	30
65					
	MEAN	23.9	25.1	24.7	23.8
	S.D.	2.21	2.08	3.22	2.10
	N	30	20	20	30
67					
	MEAN	24.1	25.2	25.3	24.9
	S.D.	2.30	1.77	3.74	2.23
	N	30	20	20	30
70					
	MEAN	24.5	26.4**	25.4	25.3
	S.D.	2.03	1.77	3.45	2.18
	N	30	20	20	30

** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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Table 7 (Continued)

UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
MALES

GROUP (PPM):		0	3	30	300
DAY 72					
	MEAN	23.6	25.4	24.5	24.1
	S.D.	1.95	1.99	3.06	2.57
	N	30	20	20	30
74					
	MEAN	24.0	25.7	25.2	24.2
	S.D.	2.08	1.88	3.04	3.40
	N	30	20	20	30
77					
	MEAN	24.4	25.8	25.5	24.7
	S.D.	2.28	1.77	2.99	2.74
	N	30	20	20	30
79					
	MEAN	23.8	25.3	24.9	24.3
	S.D.	2.10	2.22	2.67	2.29
	N	30	20	20	30
81					
	MEAN	24.9	26.2	24.7	24.2
	S.D.	1.97	2.37	3.01	2.67
	N	30	20	20	30

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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Table 7 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
MALES

GROUP (PPM):		0	3	30	300
DAY 84	MEAN	23.7	25.2	24.4	23.7
	S.D.	1.90	2.34	3.07	2.27
	N	30	20	19	30
86	MEAN	24.3	27.0*	25.0	23.8
	S.D.	3.81	4.02	3.83	3.43
	N	30	20	20	30
88	MEAN	23.8	24.4	24.2	23.6
	S.D.	1.91	2.21	2.84	2.59
	N	30	20	20	30
91	MEAN	23.4	23.8	23.6	22.8
	S.D.	2.22	2.08	2.70	2.22
	N	30	20	20	30
93	MEAN	22.1	0.0	0.0	26.1*
	S.D.	2.65	0.00	0.00	4.64
	N	10	0	0	10

* = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.05 LEVEL

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Table 7 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
MALES

GROUP (PPM):		0	3	30	300
DAY 95					
	MEAN	22.9	0.0	0.0	25.8*
	S.D.	1.99	0.00	0.00	2.80
	N	10	0	0	10
98					
	MEAN	24.3	0.0	0.0	26.1
	S.D.	2.27	0.00	0.00	3.00
	N	10	0	0	10
100					
	MEAN	24.1	0.0	0.0	26.9*
	S.D.	2.36	0.00	0.00	3.29
	N	10	0	0	10
102					
	MEAN	22.5	0.0	0.0	25.0
	S.D.	1.63	0.00	0.00	3.40
	N	10	0	0	10
105					
	MEAN	24.5	0.0	0.0	26.4
	S.D.	1.72	0.00	0.00	2.83
	N	10	0	0	10

* = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.05 LEVEL

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Table 7 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
MALES

GROUP (PPM):		0	3	30	300
DAY 107	MEAN	24.1	0.0	0.0	26.9*
	S.D.	1.98	0.00	0.00	2.74
	N	10	0	0	10
109	MEAN	23.7	0.0	0.0	24.6
	S.D.	1.81	0.00	0.00	3.40
	N	10	0	0	10
112	MEAN	24.1	0.0	0.0	25.0
	S.D.	1.68	0.00	0.00	2.52
	N	10	0	0	10
114	MEAN	30.1	0.0	0.0	31.7
	S.D.	2.87	0.00	0.00	1.44
	N	10	0	0	10
116	MEAN	23.7	0.0	0.0	25.1
	S.D.	1.72	0.00	0.00	2.07
	N	10	0	0	10

* = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.05 LEVEL

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Table 7 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
MALES

GROUP (PPM):		0	3	30	300
DAY 119					
	MEAN	26.0	0.0	0.0	25.2
	S.D.	5.38	0.00	0.00	2.94
	N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 8
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
FEMALES

GROUP (PPM):		0	3	30	300
DAY 1	MEAN	15.7	15.8	15.7	12.7**
	S.D.	1.92	2.13	1.68	1.72
	N	30	20	20	30
3	MEAN	17.4	17.5	17.0	16.4**
	S.D.	1.28	1.58	1.43	1.49
	N	30	20	20	30
6	MEAN	18.3	18.3	18.5	18.1
	S.D.	1.26	1.73	1.56	1.47
	N	30	20	20	30
8	MEAN	17.9	17.4	17.4	17.2
	S.D.	1.56	1.38	1.74	1.44
	N	30	20	20	30
10	MEAN	18.6	19.1	18.5	17.1**
	S.D.	1.58	2.19	1.91	1.55
	N	30	20	20	30

** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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TABLE 8 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
FEMALES

GROUP (PPM):		0	3	30	300
DAY 13					
	MEAN	18.6	18.8	18.6	17.7*
	S.D.	1.57	1.59	1.65	1.43
	N	30	20	19	30
15					
	MEAN	18.2	18.0	17.5	16.9**
	S.D.	1.80	2.41	1.91	1.39
	N	29	19	20	30
17					
	MEAN	17.6	17.9	18.1	17.2
	S.D.	1.78	1.80	2.27	1.68
	N	30	19	20	30
20					
	MEAN	18.2	18.3	18.3	17.3*
	S.D.	1.77	1.46	1.64	1.18
	N	30	20	20	29
22					
	MEAN	17.5	17.9	18.1	16.8
	S.D.	1.79	1.56	2.48	1.75
	N	30	18	20	30

* = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.05 LEVEL
** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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TABLE 8 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
FEMALES

GROUP (PPM):		0	3	30	300
DAY 24	MEAN	17.8	17.3	18.9	17.7
	S.D.	2.27	3.94	1.82	1.44
	N	28	20	20	30
27	MEAN	18.5	18.6	19.3	17.4*
	S.D.	1.96	2.68	1.54	1.14
	N	30	19	20	30
29	MEAN	17.9	18.0	19.5**	18.0
	S.D.	1.98	2.30	1.89	1.53
	N	28	20	19	30
31	MEAN	19.1	18.2	19.6	18.1
	S.D.	2.32	3.25	1.69	1.61
	N	30	20	20	30
34	MEAN	18.8	19.4	19.6	18.1
	S.D.	1.80	2.31	1.66	1.56
	N	30	20	20	30

* = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.05 LEVEL
** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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TABLE 8 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
FEMALES

GROUP (PPM):		0	3	30	300
DAY 36					
	MEAN	18.3	17.4	16.8*	15.9**
	S.D.	2.84	2.38	1.40	2.05
	N	30	20	19	30
38					
	MEAN	18.9	19.0	19.2	18.1
	S.D.	2.51	2.69	2.42	1.86
	N	29	20	19	30
41					
	MEAN	18.4	17.8	18.8	17.3
	S.D.	2.10	2.29	2.53	1.31
	N	29	20	19	29
43					
	MEAN	17.3	18.2	18.6	18.1
	S.D.	2.64	2.86	3.21	5.16
	N	29	20	20	28
45					
	MEAN	19.4	18.8	20.6	19.9
	S.D.	2.47	3.44	3.92	4.02
	N	29	20	19	28

* = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.05 LEVEL
** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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TABLE 8 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
FEMALES

GROUP (PPM):		0	3	30	300
DAY 48	MEAN	18.7	18.9	18.4	18.4
	S.D.	1.92	1.86	1.70	1.51
	N	29	20	19	28
50	MEAN	17.1	17.2	19.3	17.0
	S.D.	1.82	2.39	5.05	1.71
	N	28	19	18	28
52	MEAN	18.6	19.1	19.3	18.4
	S.D.	1.94	2.86	2.23	1.95
	N	29	18	19	28
55	MEAN	18.6	18.8	19.5	18.3
	S.D.	1.54	2.86	1.97	1.79
	N	28	18	19	28
57	MEAN	18.0	18.3	18.9	18.1
	S.D.	2.35	3.26	1.78	1.65
	N	29	18	19	28

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 8 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
FEMALES

GROUP (PPM):		0	3	30	300
DAY 59	MEAN	18.2	18.6	18.5	17.7
	S.D.	1.89	3.32	2.49	1.56
	N	29	20	19	28
62	MEAN	19.0	19.6	19.7	18.7
	S.D.	1.82	2.60	2.28	1.79
	N	29	20	19	28
64	MEAN	18.4	18.4	18.5	18.5
	S.D.	2.26	2.46	1.52	1.43
	N	29	20	19	28
66	MEAN	18.4	18.8	18.3	16.5**
	S.D.	2.13	2.53	2.63	2.98
	N	27	20	19	28
69	MEAN	18.7	18.2	19.1	18.3
	S.D.	1.97	1.73	1.44	1.54
	N	27	18	19	28

** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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TABLE 8 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
FEMALES

GROUP (PPM):		0	3	30	300
DAY 71	MEAN	17.0	17.5	18.3	17.0
	S.D.	1.90	2.85	2.35	1.88
	N	29	20	19	28
73	MEAN	17.5	16.9	19.2**	18.3
	S.D.	2.43	2.03	1.97	1.80
	N	29	20	19	28
76	MEAN	18.8	18.6	19.4	17.9
	S.D.	1.99	2.37	1.80	1.60
	N	29	20	19	28
78	MEAN	16.8	16.6	18.5**	17.8
	S.D.	2.31	2.05	2.63	1.70
	N	29	20	19	28
80	MEAN	17.7	17.3	18.8	17.9
	S.D.	2.23	2.59	2.00	1.89
	N	29	20	19	28

** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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TABLE 8 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
FEMALES

GROUP (PPM):		0	3	30	300
DAY 83	MEAN	18.4	18.1	20.2**	18.5
	S.D.	2.01	2.38	2.64	1.66
	N	29	20	19	28
85	MEAN	17.2	16.1	18.6*	17.2
	S.D.	2.05	2.22	2.21	1.93
	N	29	20	19	28
87	MEAN	18.5	19.1	20.1	18.6
	S.D.	2.70	3.29	2.86	2.65
	N	29	20	19	28
90	MEAN	17.8	15.9**	18.0	17.3
	S.D.	1.63	2.09	2.43	1.71
	N	29	20	19	28
92	MEAN	17.4	0.0	0.0	20.0*
	S.D.	1.98	0.00	0.00	2.24
	N	10	0	0	10

* = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.05 LEVEL
** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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TABLE 8 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
FEMALES

GROUP (PPM):		0	3	30	300
DAY 94	MEAN	18.1	0.0	0.0	18.8
	S.D.	1.16	0.00	0.00	2.11
	N	10	0	0	10
97	MEAN	19.5	0.0	0.0	19.5
	S.D.	1.82	0.00	0.00	2.14
	N	10	0	0	10
99	MEAN	18.7	0.0	0.0	19.4
	S.D.	1.84	0.00	0.00	2.06
	N	10	0	0	10
101	MEAN	18.3	0.0	0.0	18.3
	S.D.	1.72	0.00	0.00	2.60
	N	10	0	0	10
104	MEAN	18.7	0.0	0.0	18.5
	S.D.	1.94	0.00	0.00	2.14
	N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 8 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
FEMALES

GROUP (PPM):		0	3	30	300
DAY 106					
	MEAN	19.8	0.0	0.0	19.2
	S.D.	1.72	0.00	0.00	2.36
	N	10	0	0	10
108					
	MEAN	17.8	0.0	0.0	16.8
	S.D.	2.34	0.00	0.00	1.98
	N	10	0	0	10
111					
	MEAN	18.5	0.0	0.0	18.1
	S.D.	1.02	0.00	0.00	1.94
	N	10	0	0	10
113					
	MEAN	20.6	0.0	0.0	19.6
	S.D.	2.81	0.00	0.00	3.10
	N	10	0	0	10
115					
	MEAN	18.1	0.0	0.0	17.3
	S.D.	2.85	0.00	0.00	2.28
	N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 8 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY), SUMMARY OF MEANS
FEMALES

GROUP (PPM):		0	3	30	300
DAY 118					
	MEAN	21.0	0.0	0.0	18.9
	S.D.	3.79	0.00	0.00	2.13
	N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 9
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
CALCULATED DOSAGE OF COMPOUND INGESTED (MG/KG BODYWEIGHT/DAY)
MALES

GROUP (PPM):		3	30	300
DAY 0 TO 7	MEAN	0.3	2.9	27.6
	S.D.	0.01	0.13	1.81
	N	20	20	30
DAY 7 TO 14	MEAN	0.3	2.6	26.4
	S.D.	0.01	0.14	1.56
	N	20	20	30
DAY 14 TO 21	MEAN	0.2	2.3	23.5
	S.D.	0.01	0.08	1.28
	N	20	20	30
DAY 21 TO 28	MEAN	0.2	2.1	21.3
	S.D.	0.01	0.17	1.76
	N	20	20	30
DAY 28 TO 35	MEAN	0.2	2.0	20.2
	S.D.	0.01	0.10	1.24
	N	20	20	30
DAY 35 TO 42	MEAN	0.2	1.9	19.1
	S.D.	0.01	0.09	1.09
	N	20	20	30
DAY 42 TO 49	MEAN	0.2	1.9	19.2
	S.D.	0.01	0.09	1.09
	N	20	20	30

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Table 9 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
CALCULATED DOSAGE OF COMPOUND INGESTED (MG/KG BODYWEIGHT/DAY)
MALES

GROUP (PPM):		3	30	300
DAY 49 TO 56	MEAN	0.2	1.8	17.9
	S.D.	0.01	0.10	1.47
	N	20	20	30
DAY 56 TO 63	MEAN	0.2	1.7	17.3
	S.D.	0.01	0.11	1.04
	N	20	20	30
DAY 63 TO 70	MEAN	0.2	1.6	16.9
	S.D.	0.01	0.12	0.74
	N	20	20	30
DAY 70 TO 77	MEAN	0.2	1.6	16.2
	S.D.	0.01	0.09	1.37
	N	20	20	30
DAY 77 TO 84	MEAN	0.2	1.5	15.7
	S.D.	0.01	0.08	0.93
	N	20	20	30
DAY 84 TO 91	MEAN	0.1	1.5	15.1
	S.D.	0.01	0.12	1.11
	N	20	20	30

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TABLE 10
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
CALCULATED DOSAGE OF COMPOUND INGESTED (MG/KG BODYWEIGHT/DAY)
FEMALES

GROUP (PPM):	3	30	300
DAY 0 TO 6			
MEAN	0.3	2.9	27.4
S.D.	0.02	0.18	1.66
N	20	20	30
DAY 6 TO 13			
MEAN	0.3	2.8	27.6
S.D.	0.02	0.15	1.40
N	20	20	30
DAY 13 TO 20			
MEAN	0.3	2.6	25.4
S.D.	0.02	0.15	1.30
N	20	20	30
DAY 20 TO 27			
MEAN	0.2	2.5	24.2
S.D.	0.03	0.11	1.08
N	20	20	30
DAY 27 TO 34			
MEAN	0.2	2.5	24.1
S.D.	0.02	0.16	1.15
N	20	20	30
DAY 34 TO 41			
MEAN	0.2	2.2	22.0
S.D.	0.01	0.20	1.03
N	20	19	30
DAY 41 TO 48			
MEAN	0.2	2.3	23.6
S.D.	0.02	0.20	3.13
N	20	19	28

TABLE 10 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
CALCULATED DOSAGE OF COMPOUND INGESTED (MG/KG BODYWEIGHT/DAY)
FEMALES

GROUP (PPM):		3	30	300
DAY 48 TO 55	MEAN	0.2	2.3	21.9
	S.D.	0.01	0.31	1.61
	N	19	19	28
DAY 55 TO 62	MEAN	0.2	2.2	21.6
	S.D.	0.02	0.18	1.35
	N	20	19	28
DAY 62 TO 69	MEAN	0.2	2.1	20.7
	S.D.	0.02	0.14	2.00
	N	20	19	28
DAY 69 TO 76	MEAN	0.2	2.1	20.2
	S.D.	0.02	0.18	1.30
	N	20	19	28
DAY 76 TO 83	MEAN	0.2	2.0	20.1
	S.D.	0.02	0.18	1.20
	N	20	19	28
DAY 83 TO 90	MEAN	0.2	2.0	19.5
	S.D.	0.02	0.18	1.23
	N	20	19	28

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TABLE 11
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
CLINICAL OBSERVATION, SUMMARY OF INCIDENCE
MALES

TABLE RANGE:	DAY 0 TO DAY 119			
GROUP:	1	2	3	4
BODY/INTEGUMENT				
-ALOPECIA	1	0	0	0
-TRAUMA, LEGS	0	0	0	1
-TRAUMA, HEAD	0	0	1	1
EYES/EARS/NOSE				
-NASAL DISCHARGE	0	0	2	2
-OCULAR DISCHARGE	1	1	1	2
ORAL/DENTAL				
-MALOCCLUSION	0	0	0	2

1- 0 PPM 2- 3 PPM 3- 30 PPM 4- 300 PPM

TABLE 12
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
CLINICAL OBSERVATIONS, SUMMARY OF INCIDENCE
FEMALES

TABLE RANGE:	DAY 0 TO DAY 119			
GROUP:	1	2	3	4
BODY/INTEGUMENT				
-ALOPECIA	1	1	0	1
-DERMATITIS	0	1	0	0
-TRAUMA, LEGS	1	0	0	0
-TRAUMA, HEAD	0	1	0	0
EYES/EARS/NOSE				
-NASAL DISCHARGE	1	0	2	0
-OCULAR DISCHARGE	1	1	0	0
ORAL/DENTAL				
-MALOCCLUSION	0	2	0	0

1- 0 PPM 2- 3 PPM 3- 30 PPM 4- 300 PPM

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Table 13

Mean Results of Hematologic Determinations for CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

7-Week Results

Dosage	WBC	RBC	Hgb	Mhgb	Hct	MCV	MCH	MCHC	Plt
					MALES				
300 ppm	14.4 (2.5)	8.0 (0.3)	15.5 (0.4)	0.22 (0.14)	42.6[a] (1.1)	53.1 (1.5)	19.3 (0.7)	36.3 (0.4)	1300[b] (73)
30 ppm	14.8 (4.5)	8.3 (0.3)	15.8 (0.4)	0.22 (0.14)	44.1 (1.4)	53.2 (1.3)	19.1 (0.6)	35.9 (0.5)	1274[a] (113)
3 ppm	14.7 (3.0)	8.0 (0.3)	15.5 (0.3)	0.30 (0.14)	42.7[a] (1.1)	53.4 (0.9)	19.3 (0.4)	36.2 (0.4)	1199 (124)
0 ppm	13.9 (2.5)	8.3 (0.5)	15.8 (0.6)	0.22 (0.14)	44.1 (1.7)	53.4 (1.4)	19.1 (0.7)	35.8 (0.6)	1170 (87)
					FEMALES				
300 ppm	13.5[a] (5.3)	7.8 (0.3)	15.3 (0.4)	0.33 (0.35)	41.8 (1.5)	53.9 (0.9)	19.7 (0.6)	36.5 (0.7)	1378[a] (132)
30 ppm	9.2 (1.5)	7.7 (0.3)	15.5 (0.4)	0.09 (0.08)	42.3 (1.3)	54.9 (1.4)	20.1 (0.6)	36.6 (0.4)	1213 (137)
3 ppm	8.7 (2.0)	7.9 (0.2)	15.7[b] (0.3)	0.19[a] (0.12)	43.2 (0.8)	54.6 (0.6)	19.9 (0.5)	36.4 (0.6)	1162 (87)
0 ppm	8.1 (3.4)	7.7 (0.3)	15.2 (0.5)	0.08 (0.08)	42.1 (1.5)	54.3 (1.9)	19.7 (0.8)	36.3 (0.7)	1258 (108)

() = Standard deviation
Superscript denotes level of significance vs. control:
a = 0.05 > p > 0.01; b = 0.01 > p > 0.001; c = p < 0.001
WBC = White blood cells ($x10^3/mm^3$) MCV = Mean corpuscular volume (μ^3)
RBC = Red blood cells ($x10^6/mm^3$) MCH = Mean corpuscular hemoglobin (pg)
Hgb = Hemoglobin (g/dl) [illegible]
Mhgb = Meth[illegible] [illegible] concentration (g/dl)
Hct = Hematocrit (%) [illegible]

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Table 14

Mean Results of Hematologic Determinations for CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

13-Week Results

Dosage	WBC	RBC	Hgb	Mhgb	Hct	MCV	MCH	MCHC	Plt
					MALES				
300 ppm	12.0 (1.5)	8.1[b] (0.4)	14.7[b] (0.3)	0.19 (0.16)	40.7[c] (1.0)	50.2 (2.0)	18.1 (0.8)	36.0 (0.4)	1239[b] (108)
30 ppm	12.0 (2.6)	8.5 (0.6)	15.4 (0.6)	0.19 (0.18)	42.3 (1.9)	50.0 (2.4)	18.2 (0.8)	36.2[b] (0.4)	1195 (121)
3 ppm	11.5 (2.2)	8.7 (0.4)	15.4 (0.6)	0.19 (0.05)	42.9 (1.8)	49.5 (1.0)	17.8 (0.4)	36.0[a] (0.3)	1133 (89)
0 ppm	11.0 (2.8)	8.8 (0.4)	15.5 (0.6)	0.13 (0.22)	43.6 (1.8)	49.4 (1.9)	17.7 (0.7)	35.7 (0.5)	1090 (143)
					FEMALES				
300 ppm	7.4 (1.9)	7.4 (0.3)	14.4 (0.7)	0.18 (0.20)	39.3[a] (2.2)	53.1 (1.2)	19.5 (0.3)	36.8[b] (0.6)	1241 (127)
30 ppm	6.2 (1.5)	7.6 (0.4)	15.2 (0.4)	0.10 (0.10)	41.2 (1.4)	54.2 (1.5)	20.0 (0.8)	36.8[b] (0.5)	1053 (145)
3 ppm	6.9 (1.4)	8.4[a] (0.3)	16.2[b] (0.5)	0.18 (0.16)	44.7[b] (1.5)	53.4 (0.7)	19.4 (0.4)	36.3 (0.6)	1033 (103)
0 ppm	5.8 (1.6)	7.8 (1.0)	14.9 (1.4)	0.20 (0.18)	41.5 (3.7)	53.7 (3.1)	19.3 (1.1)	36.0 (0.7)	1138 (200)

() = Standard deviation
Superscript denotes level of significance vs. control:
a = 0.05 > p > 0.01; b = 0.01 > p > 0.001; c = p < 0.001
WBC = White blood cells ($x10^3/mm^3$)
RBC = Red blood cells ($x10^6/mm^3$)
Hgb = Hemoglobin (g/dl)
Mhgb = Methemoglobin (g/dl)
Hct = Hematocrit (%)
MCV = Mean corpuscular volume (μ^3)
MCH = Mean corpuscular hemoglobin (pg)
MCHC = Mean corpuscular hemoglobin concentration (g/dl)
Plt = Platelets ($x10^3/mm^3$)

WPC/rkk/0547P-2; 10-25-94

Table 15

Mean Results of Hematologic Determinations for CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

17-Week Results

Dosage	WBC	RBC	Hgb	Mhgb	Hct	MCV	MCH	MCHC	Plt
					MALES				
300 ppm	10.0 (2.0)	8.2 (0.5)	14.6 (0.4)	0.36[a] (0.22)	40.8 (1.6)	49.7 (1.6)	17.8 (0.7)	35.7 (0.5)	1172 (147)
0 ppm	11.0 (1.8)	8.6 (0.6)	15.0 (0.6)	0.15 (0.15)	41.8 (2.3)	48.9 (2.2)	17.6 (0.9)	35.9 (0.6)	1139 (131)
					FEMALES				
300 ppm	6.0 (1.8)	7.6 (0.2)	14.8 (0.4)	0.24 (0.19)	40.9 (1.2)	53.9 (1.1)	19.5 (0.6)	36.2 (0.4)	1108 (108)
0 ppm	5.4 (1.2)	7.8 (0.3)	14.9 (0.7)	0.25 (0.30)	41.4 (2.5)	52.8 (2.1)	19.1 (0.6)	36.1 (0.8)	1034 (128)

() = Standard deviation
Superscript denotes level of significance vs. control:
a = $0.05 > p > 0.01$

WBC = White blood cells ($x10^3/mm^3$)
RBC = Red blood cells ($x10^6/mm^3$)
Hgb = Hemoglobin (g/dl)
Mhgb = Methemoglobin (g/dl)
Hct = Hematocrit (%)

MCV = Mean corpuscular volume (μ^3)
MCH = Mean corpuscular hemoglobin (pg)
MCHC = Mean corpuscular hemoglobin concentration (g/dl)
Plt = Platelets ($x10^3/mm^3$)

WPC/rkk/0547B-3; 11-15-84

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Table 16

Mean and Median Results of Leukocyte Differentials and Heinz Body Counts for CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

7-Week Results

Dosage	Neutrophils*†	Lymphocytes*†	Monocytes**†	Basophils**†	Eosinophils**†	Banded Neutrophils**†	NRBC**	Large Monocytes**†	Immature Granulocytes**†	Heinz Bodies**
					MALES					
300 ppm	1594 (755)	11882 (2382)	704 [374]	0 [0]	70 [144]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
30 ppm	1894 (1103)	11901 (3845)	980 [589]	0 [0]	54 [110]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
3 ppm	2006 (1108)	11940 (3200)	548 [396]	0 [0]	130 [85]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
0 ppm	1415 (635)	11893 (2411)	461 [179]	0 [0]	126 [84]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
					FEMALES					
300 ppm	832 (495)	11735[a] (4637)	588[a] [420]	0 [0]	48 [50]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
30 ppm	769 (307)	7622 (1187)	563 [197]	0 [0]	177 [76]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
3 ppm	713 (381)	7389 (1808)	392 [192]	0 [0]	93 [48]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
0 ppm	808 (333)	6802 (2841)	302 [128]	0 [0]	118 [43]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]

*Mean
() Standard deviation
**Median
[] Quartile deviation
Superscript denotes level of significance vs. control: a = 0.05 > p > 0.01; b = 0.01 > p > 0.001; c = p < 0.001
† cells/mm^3
NRBC = Nucleated red blood cells/100 WBC's
Heinz bodies = positive cell/100 RBC's

WPC/rkk/0547B-1; 10-23-84

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Table 17

Mean and Median Results of Leukocyte Differentials and Heinz Body Counts for CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

13-Week Results

Dosage	Neutrophils*†	Lymphocytes*†	Monocytes**†	Basophils**†	Eosinophils**†	Banded Neutrophils**†	NRBC**	Large Monocytes**†	Immature Granulocytes**†	Heinz Bodies**
					MALES					
300 ppm	1874 (385)	9117 (1422)	673 [274]	0 [0]	118 [72]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
30 ppm	1872 (978)	9196 (2542)	722 [227]	0 [0]	133 [112]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
3 ppm	1833 (1143)	8857 (2293)	460 [369]	0 [0]	175 [48]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
0 ppm	1780 (967)	8272 (2606)	767 [312]	0 [0]	246 [82]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
					FEMALES					
300 ppm	898 (326)	5984 (1785)	307 [176]	0 [0]	111 [98]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
30 ppm	978 (593)	4898 (1044)	214 [86]	0 [0]	140 [101]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
3 ppm	675 (316)	5700 (1430)	375 [116]	0 [0]	106 [81]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
0 ppm	751 (396)	4672 (1360)	277 [110]	0 [0]	108 [52]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]

*Mean
() Standard deviation
† cells/mm^3
NRBC = Nucleated red blood cells/100 WBC's
Heinz bodies = positive cell/100 RBC's

**Median
[] Quartile deviation

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Table 18

Mean and Median Results of Leukocyte Differentials and Heinz Body Counts for CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

17-Week Results

Dosage	Neutrophils*†	Lymphocytes*†	Monocytes**†	Basophils**†	Eosinophils**†	Banded Neutrophils**†	NRBC**	Large Monocytes**†	Immature Granulocytes**†	Heinz Bodies**
					MALES					
300 ppm	1668 (454)	7153 (1833)	957 [105]	0 [0]	112 [92]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
0 ppm	1890 (872)	7776 (1832)	1031 [261]	0 [0]	261 [126]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
					FEMALES					
300 ppm	728 (164)	4845 (1727)	427 [122]	0 [0]	0 [31]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
0 ppm	1042 (970)	3912 (929)	370 (186)	0 [0]	72 [63]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]

*Mean
() Standard deviation
† cells/mm^3
NRBC = Nucleated red blood cells/100 WBC's
Heinz bodies = positive cell/100 RBC's

**Median
[] Quartile deviation

WPC/rkk/0547B-3; 11-15-84

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Table 19
Mean Results of Coagulation Determinations for CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

7-Week Results

Dosage	Prothrombin Time (Seconds)	Partial Thromboplastin Time (Seconds)
	MALES	
300 ppm	12.0 (0.5)	18.6[b] (0.6)
30 ppm	12.8 (1.0)	18.8[b] (2.3)
3 ppm	12.2 (0.6)	18.4[b] (1.5)
0 ppm	13.1 (1.9)	21.1 (2.2)
	FEMALES	
300 ppm	11.1 (0.7)	15.5 (1.8)
30 ppm	11.4 (1.1)	16.2 (2.1)
3 ppm	11.5 (0.8)	17.0 (2.6)
0 ppm	11.8 (1.0)	17.8 (4.4)

() Standard deviation
Superscript denotes level of significance vs. control:
a = $0.05 > p > 0.01$
b = $0.01 > p > 0.001$
c = $p < 0.001$

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Table 20

Mean Results of Coagulation Determinations for CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

13-Week Results

Dosage	Prothrombin Time (Seconds)	Partial Thromboplastin Time (Seconds)
	MALES	
300 ppm	11.4 (1.2)	17.8 (2.0)
30 ppm	11.6 (1.1)	18.8 (1.8)
3 ppm	11.6 (1.0)	19.5 (2.3)
0 ppm	11.6 (1.1)	19.6 (2.4)
	FEMALES	
300 ppm	9.8 (0.9)	16.6 (2.2)
30 ppm	10.3 (1.2)	16.6 (1.2)
3 ppm	10.1 (1.2)	17.7 (2.0)
0 ppm	10.3 (1.0)	18.8 (2.5)

() Standard deviation

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Table 21

Mean Results of Coagulation Determinations for CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

17-Week Results

Dosage	Prothrombin Time (Seconds)	Partial Thromboplastin Time (Seconds)
	MALES	
300 ppm	12.1 (0.9)	22.0 (1.9)
0 ppm	11.7 (1.1)	21.1 (2.2)
	FEMALES	
300 ppm	11.6 (0.6)	18.6 (1.3)
0 ppm	11.7 (0.8)	18.4 (1.4)

() Standard deviation

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Table 22

Mean Results of Cholinesterase Determinations for CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

7-Week Results

Dosage	Plasma	% Inhibition	RBC	% Inhibition
		MALES		
300 ppm	0.33[c] (0.04)	50.7	0.17[c] (0.02)	91.1
30 ppm	0.49[b] (0.06)	26.9	0.60[c] (0.12)	68.8
3 ppm	0.57 (0.11)	14.9	1.72[b] (0.10)	10.4
0 ppm	0.67 (0.16)		1.92 (0.18)	
		FEMALES		
300 ppm	0.64[c] (0.12)	77.1	0.19[c] (0.03)	90.7
30 ppm	1.02[c] (0.18)	63.4	0.53[c] (0.09)	74.1
3 ppm	1.73[b] (0.36)	38.0	1.77[c] (0.08)	13.7
0 ppm	2.79 (1.02)		2.05 (0.17)	

() Standard deviation
Superscript denotes level of significance vs. control:
a = 0.05 > p > 0.01; b = 0.01 > p > 0.001; c = p < 0.001
Plasma = Plasma cholinesterase (U/mL)
RBC = Erythrocyte cholinesterase (U/mL)

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Table 23

Mean Results of Cholinesterase Determinations for CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

13-Week Results

Dosage	Plasma	% Inhibition	RBC	% Inhibition	Brain	% Inhibition
			MALES			
300 ppm	0.35[c] (0.03)	53.9	0.14[c] (0.03)	93.1	3.20[c] (0.43)	26.4
30 ppm	0.52[b] (0.08)	31.6	0.66[c] (0.08)	67.5	3.91 (0.57)	10.1
3 ppm	0.62 (0.13)	18.4	1.82[a] (0.11)	10.3	4.16 (0.59)	4.4
0 ppm	0.76 (0.21)		2.03 (0.24)		4.35 (0.71)	
			FEMALES			
300 ppm	0.91[c] (0.16)	74.7	0.17[c] (0.03)	91.3	2.32[c] (0.34)	42.0
30 ppm	1.30[c] (0.24)	63.8	0.61[c] (0.16)	68.9	3.61 (0.32)	9.8
3 ppm	2.44[b] (0.70)	32.0	1.74[a] (0.20)	11.2	3.89 (0.54)	2.8
0 ppm	3.59 (0.91)		1.96 (0.22)		4.00 (0.66)	

() Standard deviation
Superscript denotes level of significance vs. control:
a = 0.05 > p > 0.01; b = 0.01 > p > 0.001; c = p < 0.001
Plasma = Plasma cholinesterase (U/mL)
RBC = Erythrocyte cholinesterase (U/mL)
Brain = Brain cholinesterase (U/mL)

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Table 24

Mean Results of Cholinesterase Determinations for CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

17-Week Results

Dosage	Plasma	% Inhibition	RBC	% Inhibition	Brain	% Inhibition
			MALES			
300 ppm	0.65 (0.21)	-	1.83 (0.17)	4.2	3.82 (0.15)	8.4
0 ppm	0.61 (0.08)		1.91 (0.18)		4.17 (0.52)	
			FEMALES			
300 ppm	3.24 (0.92)	-	1.86[b] (0.13)	12.3	2.85[b] (0.46)	17.6
0 ppm	3.23 (0.59)		2.12 (0.19)		3.46 (0.42)	

() Standard deviation
Superscript denotes level of significance vs. control:
b = 0.01 > p > 0.001
Plasma = Plasma cholinesterase (U/mL)
RBC = Erythrocyte cholinesterase (U/mL)
Brain = Brain cholinesterase (U/mL)
Dash denotes a value either greater than or equal to control.

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Table 25

Mean and Median Results of Clinical Chemistry Parameters for CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

7-Week Results

MALES

Dosage	Gluc*	UN*	AST*	ALT*	TP*	ALB*	Glob*	A/G Ratio*	TB*
300 ppm	1.02[b] (0.08)	117 (15)	61 (5)	18 (2)	62[c] (3)	36[c] (1)	27[b] (3)	1.3 (0.2)	4 (1)
30 ppm	1.18 (0.10)	113 (17)	59 (7)	19 (3)	66 (2)	37 (1)	29 (2)	1.2 (0.1)	4[a] (1)
3 ppm	1.16 (0.10)	107 (12)	69 (11)	21 (3)	68 (3)	38 (1)	30 (2)	1.2 (0.1)	3 (1)
0 ppm	1.14 (0.11)	112 (23)	64 (9)	20 (5)	68 (3)	38 (1)	31 (3)	1.2 (0.1)	3 (1)

Dosage	CPK*	LDH*	GGT**	Chol*	ALP*	CA*	P*	NA*	K*	CL*
300 ppm	108 (47)	113 (67)	0 [0]	0.56[c] (0.08)	67 (16)	101 (5)	71 (4)	144 (2)	5.3[b] (0.3)	105 (1)
30 ppm	70 (19)	86 (35)	0 [0]	0.46 (0.09)	81 (16)	102 (3)	70 (5)	144 (1)	5.3[a] (0.2)	105 (2)
3 ppm	128 (91)	194 (212)	0 [0]	0.44 (0.09)	82 (12)	102 (5)	69 (4)	144 (1)	5.2 (0.3)	105 (2)
0 ppm	145 (137)	174 (149)	0 [0]	0.40 (0.08)	85 (21)	102 (6)	71 (3)	144 (2)	5.0 (0.3)	104 (2)

*Mean
() Standard deviation
**Median
[] Quartile deviation
Superscript denotes level of significance vs. control:
a = 0.05 > p > 0.01; b = 0.01 > p > 0.001; c = p < 0.001

Gluc = Glucose (g/L)
UN = Urea nitrogen (mg/L)
AST = Aspartate aminotransferase (U/L)
ALT = Alanine aminotransferase (U/L)
TP = Total protein (g/L)
ALB = Albumin (g/L)
Glob = Globulin (g/L)
A/G Ratio = Albumin ÷ Globulin
TB = Total bilirubin (mg/L)
CPK = Creatine phosphokinase (U/L)
LDH = Lactic dehydrogenase (U/L)
GGT = γ-glutamyl transferase (U/L)
Chol = Cholesterol (g/L)
ALP = Alkaline phosphatase (U/L)
Ca = Calcium (mg/L)
P = Inorganic phosphorous(mg/L)
Na = Sodium (mmol/L)
K = Potassium (meq/L)
Cl = Chloride (mmol/L)

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Table 26

Mean and Median Results of Clinical Chemistry Parameters for CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

7-Week Results

Dosage	Gluc*	UN*	AST*	ALT*	TP*	ALB*	Glob*	A/G Ratio*	TB*
FEMALES									
300 ppm	1.01 (0.09)	127 (13)	58 (11)	15 (3)	57[c] (3)	33 (2)	24[c] (2)	1.4[b] (0.1)	5 (1)
30 ppm	1.02 (0.12)	135 (19)	56 (6)	17 (4)	63 (3)	34 (3)	29 (2)	1.2 (0.2)	5 (1)
3 ppm	1.06 (0.10)	125 (16)	56 (8)	15 (3)	64 (3)	34 (2)	30 (3)	1.2 (0.1)	5 (1)
0 ppm	1.07 (0.14)	131 (25)	56 (9)	17 (3)	64 (4)	35 (2)	29 (2)	1.2 (0.1)	4 (1)

Dosage	CPK*	LDH*	GGT**	Chol*	ALP*	CA*	P*	NA*	K*	CL*
300 ppm	138 (83)	87 (26)	0 [0]	0.49 (0.12)	44 (11)	101 (2)	65 (4)	144 (1)	5.4 (0.7)	108 (1)
30 ppm	100 (53)	89 (13)	0 [0]	0.52 (0.06)	44 (12)	103 (3)	62 (9)	144 (1)	5.1 (0.5)	108 (2)
3 ppm	164 (153)	109 (45)	0 [0]	0.49 (0.07)	44 (13)	102 (3)	59 (8)	145 (1)	4.9 (0.5)	108 (1)
0 ppm	130 (57)	108 (25)	0 [0]	0.51 (0.07)	50 (13)	102 (3)	60 (5)	145 (1)	5.1 (0.4)	108 (1)

*Mean
() Standard deviation
Superscript denotes level of significance vs. control:
a = 0.05 > p > 0.01; b = 0.01 > p > 0.001; c = p < 0.001
Gluc = Glucose (g/L)
UN = Urea nitrogen (mg/L)
AST = Aspartate aminotransferase (U/L)
ALT = Alanine aminotransferase (U/L)
TP = Total protein (g/L)
ALB = Albumin (g/L)
Glob = Globulin (g/L)
A/G Ratio = Albumin ÷ Globulin
TB = Total bilirubin (mg/L)

**Median
[] Quartile deviation
CPK = Creatine phosphokinase (U/L)
LDH = Lactic dehydrogenase (U/L)
GGT = γ-glutamyl transferase (U/L)
Chol = Cholesterol (g/L)
ALP = Alkaline phosphatase (U/L)
Ca = Calcium (mg/L)
P = Inorganic phosphorous(mg/L)
Na = Sodium (mmol/L)
K = Potassium (meq/L)
Cl = Chloride (mmol/L)

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Table 27

Mean and Median Results of Clinical Chemistry Parameters for CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

13-Week Results

MALES

Dosage	Gluc*	UN*	AST*	ALT*	TP*	ALB*	Glob*	A/G Ratio*	TB*
300 ppm	1.09 (0.12)	120 (19)	58 (10)	18 (4)	63[c] (3)	34[b] (1)	28[c] (3)	1.2[c] (0.1)	4 (1)
30 ppm	1.25 (0.12)	113 (12)	60 (8)	20 (2)	69 (3)	36 (1)	33 (2)	1.1 (0.1)	3 (1)
3 ppm	1.22 (0.11)	114 (18)	61 (15)	22 (7)	70 (4)	36 (2)	34 (3)	1.0 (0.1)	3 (1)
0 ppm	1.18 (0.09)	117 (21)	57 (7)	21 (4)	71 (5)	36 (1)	35 (4)	1.0 (0.1)	3 (1)

Dosage	CPK*	LDH*	GGT**	Chol*	ALP*	CA*	P*	NA*	K*	CL*
300 ppm	64 (13)	119 (27)	0 [0]	0.85 (0.16)	55 (18)	101 (2)	60 (5)	145 (1)	5.3 (0.5)	108 (1)
30 ppm	108 (111)	132 (39)	0 [0]	0.73 (0.11)	64 (16)	102 (2)	58 (4)	145 (1)	5.3 (0.7)	106 (1)
3 ppm	75 (18)	139 (58)	0 [0]	0.80 (0.20)	69 (16)	102 (3)	55 (6)	146 (1)	5.2 (0.4)	107 (2)
0 ppm	71 (17)	131 (33)	0 [0]	0.75 (0.12)	70 (17)	103 (3)	57 (4)	145 (1)	5.0 (0.4)	107 (1)

*Mean
() Standard deviation
**Median
[] Quartile deviation
Superscript denotes level of significance vs. control:
a = 0.05 > p > 0.01; b = 0.01 > p > 0.001; c = p < 0.001

Gluc = Glucose (g/L)
UN = Urea nitrogen (mg/L)
AST = Aspartate aminotransferase (U/L)
ALT = Alanine aminotransferase (U/L)
TP = Total protein (g/L)
ALB = Albumin (g/L)
Glob = Globulin (g/L)
A/G Ratio = Albumin ÷ Globulin
TB = Total bilirubin (mg/L)
CPK = Creatine phosphokinase (U/L)
LDH = Lactic dehydrogenase (U/L)
GGT = γ-glutamyl transferase (U/L)
Chol = Cholesterol (g/L)
ALP = Alkaline phosphatase (U/L)
Ca = Calcium (mg/L)
P = Inorganic phosphorous(mg/L)
Na = Sodium (mmol/L)
K = Potassium (meq/L)
Cl = Chloride (mmol/L)

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Table 28

Mean and Median Results of Clinical Chemistry Parameters for CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

13-Week Results

Dosage	Gluc*	UN*	AST*	ALT*	TP*	ALB*	Glob*	A/G Ratio*	TB*
				FEMALES					
300 ppm	1.06 (0.15)	149 (44)	56 (10)	15[a] (2)	65[a] (6)	38 (3)	28[b] (4)	1.4[b] (0.1)	4 (1)
30 ppm	1.16 (0.12)	141 (35)	63 (19)	20 (5)	74 (6)	40 (4)	34 (4)	1.2 (0.2)	3 (1)
3 ppm	1.12 (0.10)	137 (31)	57 (5)	17 (3)	72 (4)	38 (2)	34 (3)	1.2 (0.1)	2 (1)
0 ppm	1.09 (0.14)	136 (26)	69 (27)	19 (2)	72 (5)	38 (2)	33 (3)	1.2 (0.1)	3 (1)

Dosage	CPK*	LDH*	GGT**	Chol*	ALP*	CA*	P*	NA*	K*	CL*
300 ppm	88 (50)	158 (74)	0 [0]	0.92 (0.24)	34 (13)	100 (2)	53 (8)	143 (2)	5.0[c] (0.3)	109 (2)
30 ppm	93 (46)	196 (54)	0 [0]	0.99 (0.18)	30 (9)	103 (4)	49 (7)	144 (1)	4.8 (0.2)	109 (2)
3 ppm	93 (16)	178 (51)	0 [0]	0.85 (0.10)	34 (14)	101 (3)	47 (6)	144 (2)	4.6 (0.2)	108 (2)
0 ppm	103 (24)	196 (66)	0 [0]	0.82 (0.22)	42 (13)	101 (3)	49 (9)	144 (1)	4.5 (0.3)	108 (2)

*Mean
() Standard deviation
**Median
[] Quartile deviation
Superscript denotes level of significance vs. control:
a = 0.05 > p > 0.01; b = 0.01 > p > 0.001; c = p < 0.001

Gluc = Glucose (g/L)
UN = Urea nitrogen (mg/L)
AST = Aspartate aminotransferase (U/L)
ALT = Alanine aminotransferase (U/L)
TP = Total protein (g/L)
ALB = Albumin (g/L)
Glob = Globulin (g/L)
A/G Ratio = Albumin ÷ Globulin
TB = Total bilirubin (mg/L)

CPK = Creatine phosphokinase (U/L)
LDH = Lactic dehydrogenase (U/L)
GGT = γ-glutamyl transferase (U/L)
Chol = Cholesterol (g/L)
ALP = Alkaline phosphatase (U/L)
Ca = Calcium (mg/L)
P = Inorganic phosphorous(mg/L)
Na = Sodium (mmol/L)
K = Potassium (meq/L)
Cl = Chloride (mmol/L)

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Table 29

Mean and Median Results of Clinical Chemistry Parameters for CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

17-Week Results

MALES

Dosage	Gluc*	UN*	AST*	ALT*	TP*	ALB*	Glob*	A/G Ratio*	TB*
300 ppm	1.11 (0.13)	117 (12)	58 (13)	18 (6)	65 (4)	34 (2)	31[a] (2)	1.1[b] (0.1)	4 (1)
0 ppm	1.11 (0.11)	109 (14)	60 (11)	20 (4)	66 (2)	33 (1)	33 (2)	1.0 (0.1)	4 (1)

Dosage	CPK*	LDH*	GGT**	Chol*	ALP*	CA*	P*	NA*	K*	CL*
300 ppm	106 (68)	148 (62)	0 [0]	0.77 (0.22)	44[a] (12)	100 (3)	57 (4)	144[a] (1)	5.2 (0.3)	106 (1)
0 ppm	91 (42)	162 (109)	0 [0]	0.71 (0.16)	61 (20)	99 (3)	53 (5)	145 (1)	5.1 (0.2)	107 (2)

FEMALES

Dosage	Gluc*	UN*	AST*	ALT*	TP*	ALB*	Glob*	A/G Ratio*	TB*
300 ppm	0.98 (0.09)	143 (25)	54 (12)	19 (7)	70 (4)	39 (3)	31 (2)	1.2 (0.1)	4 (1)
0 ppm	0.99 (0.11)	140 (26)	57 (8)	19 (6)	69 (5)	38 (4)	32 (2)	1.2 (0.1)	4 (1)

Dosage	CPK*	LDH*	GGT**	Chol*	ALP*	CA*	P*	NA*	K*	CL*
300 ppm	130 (59)	202 (91)	0 [0]	0.89 (0.18)	25 (13)	103 (3)	52 (12)	143 (1)	5.0 (0.4)	106 (2)
0 ppm	117 (82)	183 (90)	0 [0]	0.87 (0.23)	29 (6)	102 (3)	48 (13)	144 (1)	4.8 (0.4)	108 (2)

*Mean
() Standard deviation
Superscript denotes level of significance vs. control:
a = 0.05 > p > 0.01; b = 0.01 > p > 0.001
Gluc = Glucose (g/L)
UN = Urea nitrogen (mg/L)
AST = Aspartate aminotransferase (U/L)
ALT = Alanine aminotransferase (U/L)
TP = Total protein (g/L)
ALB = Albumin (g/L)
Glob = Globulin (g/L)
A/G Ratio = Albumin ÷ Globulin
TB = Total bilirubin (mg/L)

**Median
[] Quartile deviation
CPK = Creatine phosphokinase (U/L)
LDH = Lactic dehydrogenase (U/L)
GGT = γ-glutamyl transferase (U/L)
Chol = Cholesterol (g/L)
ALP = Alkaline phosphatase (U/L)
Ca = Calcium (mg/L)
P = Inorganic phosphorous(mg/L)
Na = Sodium (mmol/L)
K = Potassium (meq/L)
Cl = Chloride (mmol/L)

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Table 30

Mean and Median Results for Urinalysis Determinations for CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

6-Week Results

Dosage	Specific Gravity*	pH*	Total Volume* (ml)	Color	Turbidity	Protein** mg/dl	Glucose** g/dl	Ketone** mg/dl	Bilirubin**	Blood**	Urobilinogen** (Erhlich U/dl)
						MALES					
300 ppm	1.039 (0.008)	7 (0)	19.7 (3.5)	lt.yellow	sl.cloudy	30 [0]	0 [0]	5 [0]	0 [0]	0 [0]	1 [0]
30 ppm	1.046 (0.009)	7 (0)	16.8 (4.1)	yellow	mod.cloudy	30 [0]	0 [0]	15 [0]	0 [0]	0 [0]	1 [0]
3 ppm	1.044 (0.010)	7 (0)	17.9 (5.2)	lt.yellow	clear	30 [0]	0 [0]	15 [0]	0 [0]	0 [0]	1 [0]
0 ppm	1.043 (0.009)	7 (0)	18.8 (4.8)	lt.yellow	mod.cloudy	30 [0]	0 [0]	15 [5]	0 [0]	0 [0]	1 [0]
						FEMALES					
300 ppm	1.048 (0.009)	7 (0)	11.8 (2.8)	yellow	mod.cloudy	30 [0]	0 [0]	0 [2]	0 [0]	0 [0]	1 [0]
30 ppm	1.044 (0.011)	7 (0)	13.6 (4.1)	yellow	mod.cloudy	Tr	0 [0]	0 [0]	0 [0]	0 [0]	1 [0]
3 ppm	1.042 (0.011)	7 (0)	12.8 (3.7)	yellow	mod.cloudy	30 [14]	0 [0]	0 [2]	0 [0]	0 [0]	1 [0]
0 ppm	1.039 (0.008)	7 (0)	15.6 (4.0)	lt.yellow	mod.cloudy	30 [14]	0 [0]	0 [0]	0 [0]	0 [0]	1 [0]

*Mean
() Standard deviation
Tr = Trace

**Median
[] Quartile deviation

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Table 31

Results of Urine Microscopics for Male and Female CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

6-Week Results

Dosage	Red Blood Cell	White Blood Cell	Epithelial Cell	Triple Phosphate	Calcium Oxalate	Uric Acid	Amorphous Phosphate	Sperm	Casts	Bacteria	Debris
MALES											
300 ppm	none	none	none	few	none	none	none	few	none	moderate	few
30 ppm	none	none	none	few	none	none	none	few	none	many	moderate
3 ppm	none	none	none	few	none	none	none	few	none	moderate	few
0 ppm	none	none	none	few	none	none	none	moderate	none	many	few
FEMALES											
300 ppm	none	none	none	few	none	none	none	NA	none	few	few
30 ppm	none	none	none	few	none	none	none	NA	none	few	few
3 ppm	none	none	none	few	none	none	none	NA	none	many	moderate
0 ppm	none	none	none	few	none	none	none	NA	none	few	moderate

NA = Not applicable

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Table 32

Mean and Median Results for Urinalysis Determinations for CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

12-Week Results

Dosage	Specific Gravity*	pH*	Total Volume* (ml)	Color	Turbidity	Protein** mg/dl	Glucose** g/dl	Ketone** mg/dl	Bilirubin**	Blood**	Urobilinogen** (Erhlich U/dl)
						MALES					
300 ppm	1.031 (0.007)	7 (0)	21.0 (4.5)	yellow	mod.cloudy	30 [0]	0 [0]	5 [0]	0 [0]	0 [0]	0.1 [0]
30 ppm	1.041 (0.007)	7 (0)	17.4 (4.7)	yellow	mod.cloudy	30 [0]	0 [0]	5 [5]	0 [0]	0 [0]	0.1 [0]
3 ppm	1.038 (0.009)	7 (0)	18.0 (4.3)	yellow	mod. cloudy	30 [0]	0 [0]	5 [5]	0 [0]	0 [0]	0.1 [0]
0 ppm	1.039 (0.012)	7 (0)	18.4 (3.5)	yellow	mod.cloudy	30 [0]	0 [0]	5 [5]	0 [0]	0 [0]	0.1 [0]
						FEMALES					
300 ppm	1.042 (0.009)	7 (0)	12.0 (3.3)	yellow	mod.cloudy	30 [14]	0 [0]	0 [0]	0 [0]	0 [0]	0.1 [0]
30 ppm	1.041 (0.016)	7 (0)	13.8 (5.2)	yellow	mod.cloudy	Tr	0 [0]	0 [0]	0 [0]	0 [0]	0.1 [0]
3 ppm	1.029 (0.007)	7 (0)	16.9 (5.1)	yellow	mod.cloudy	Tr	0 [0]	0 [0]	0 [0]	0 [0]	0.1 [0]
0 ppm	1.037 (0.012)	7 (0)	14.8 (9.5)	yellow	mod.cloudy	30 [14]	0 [0]	0 [0]	0 [0]	0 [0]	0.1 [0]

*Mean
() Standard deviation
Tr = Trace

**Median
[] Quartile deviation

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Table 33

Results of Urine Microscopics for Male and Female CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

12-Week Results

Dosage	Red Blood Cell	White Blood Cell	Epithelial Cell	Triple Phosphate	Calcium Oxalate	Uric Acid	Amorphous Phosphate	Sperm	Casts	Bacteria	Debris
MALES											
300 ppm	none	none	none	few	none	none	none	few	none	packed	few
30 ppm	none	none	none	few	none	none	none	few	none	packed	few
3 ppm	none	none	none	few	none	none	none	few	none	packed	few
0 ppm	none	none	none	few	none	none	none	few	none	packed	few
FEMALES											
300 ppm	none	none	none	few	none	none	none	NA	none	moderate	few
30 ppm	none	none	none	none	none	none	none	NA	none	few	few
3 ppm	none	none	none	few	none	none	none	NA	none	packed	few
0 ppm	none	none	none	few	none	none	none	NA	none	few	few

NA = Not applicable

WPC/rkk/0547B-1
10-23-84

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Table 34

Mean and Median Results for Urinalysis Determinations for CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

16-Week Results

Dosage	Specific Gravity*	pH*	Total Volume* (ml)	Color	Turbidity	Protein** mg/dl	Glucose** g/dl	Ketone** mg/dl	Bilirubin**	Blood**	Urobilinogen** (Erhlich U/dl)
						MALES					
300 ppm	1.046 (0.010)	7 (0)	14.0 (4.0)	yellow	mod.cloudy	65 [35]	0 [0]	15 [5]	0 [0]	0 [0]	0.1 [0]
0 ppm	1.047 (0.013)	7 (0)	14.2 (5.6)	yellow	mod.cloudy	65 [35]	0 [0]	5 [5]	0 [0]	0 [0]	0.1 [0]
						FEMALES					
300 ppm	1.048 (0.017)	7 (0)	14.6 (5.0)	yellow	sl.cloudy	30 [0]	0 [0]	0 [0]	0 [0]	0 [0]	1 [0]
0 ppm	1.045 (0.012)	7 (0)	14.8 (5.6)	yellow	sl.cloudy	30 [0]	0 [0]	0 [0]	0 [0]	0 [0]	1 [0]

*Mean
() Standard deviation

**Median
[] Quartile deviation

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Table 35

Results of Urine Microscopics for Male and Female CD® Rats
UC 70480 Ninety-Day Dietary Inclusion Study in Rats

16-Week Results

Dosage	Red Blood Cell	White Blood Cell	Epithelial Cell	Triple Phosphate	Calcium Oxalate	Uric Acid	Amorphous Phosphate	Sperm	Casts	Bacteria	Debris
MALES											
300 ppm	none	none	none	few	none	none	none	few	none	moderate	few
0 ppm	none	none	none	none	none	none	none	moderate	none	moderate	few
FEMALES											
300 ppm	none	none	none	none	none	none	none	NA	none	few	moderate
0 ppm	none	none	none	none	none	none	none	NA	none	few	moderate

NA = Not applicable

WPC/rkk/0547B-3
11-14-84

TABLE 36
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS (G), SUMMARY OF MEANS AT 13-WEEK SACRIFICE
MALES

GROUP (PPM):		0	3	30	300
BRAIN	MEAN	2.033	2.096	2.085	2.076
	S.D.	0.0803	0.0623	0.1125	0.1033
	N	20	20	20	20
LIVER	MEAN	12.908	13.536	13.155	13.013
	S.D.	1.8714	1.6058	2.1735	1.5651
	N	20	20	20	20
KIDNEY	MEAN	3.105	3.109	3.118	2.926
	S.D.	0.3380	0.2574	0.3904	0.2772
	N	20	20	20	20
SPLEEN	MEAN	0.712	0.745	0.771	0.760
	S.D.	0.1161	0.1235	0.1777	0.1317
	N	20	20	20	20
HEART	MEAN	1.342	1.359	1.343	1.217**
	S.D.	0.1154	0.1146	0.1600	0.1340
	N	20	20	20	20

** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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TABLE 36 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS (G), SUMMARY OF MEANS AT 13-WEEK SACRIFICE
MALES

GROUP (PPM):		0	3	30	300
ADRENAL GLANDS					
	MEAN	0.0711	0.0698	0.0740	0.0717
	S.D.	0.01558	0.01347	0.01758	0.01759
	N	20	20	20	20
TESTES					
	MEAN	3.484	3.503	3.359	3.320
	S.D.	0.2952	0.2802	0.3642	0.2655
	N	20	20	20	20

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 37
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS AS % FINAL BODY WEIGHT AT 13-WEEK SACRIFICE
MALES

GROUP (PPM):		0	3	30	300
BRAIN	MEAN	0.448	0.437	0.444	0.480**
	S.D.	0.0260	0.0302	0.0439	0.0427
	N	20	20	20	20
LIVER	MEAN	2.834	2.809	2.770	2.994
	S.D.	0.3462	0.2445	0.2744	0.2560
	N	20	20	20	20
KIDNEY	MEAN	0.684	0.646	0.659	0.674
	S.D.	0.0748	0.0391	0.0498	0.0478
	N	20	20	20	20
SPLEEN	MEAN	0.157	0.155	0.162	0.175
	S.D.	0.0248	0.0232	0.0280	0.0294
	N	20	20	20	20
HEART	MEAN	0.295	0.283	0.284	0.280
	S.D.	0.0241	0.0208	0.0132	0.0246
	N	20	20	20	20

** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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TABLE 37 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS AS % FINAL BODY WEIGHT AT 13-WEEK SACRIFICE
MALES

GROUP (PPM):		0	3	30	300
ADRENAL GLANDS					
	MEAN	0.016	0.015	0.016	0.017
	S.D.	0.0033	0.0030	0.0029	0.0048
	N	20	20	20	20
TESTES					
	MEAN	0.768	0.729	0.716	0.768
	S.D.	0.0730	0.0567	0.1002	0.0795
	N	20	20	20	20

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 38
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS AS % BRAIN WEIGHT AT 13-WEEK SACRIFICE
MALES

GROUP (PPM):		0	3	30	300
LIVER	MEAN	635.387	646.362	630.737	628.389
	S.D.	93.7589	77.8294	98.4459	84.1224
	N	20	20	20	20
KIDNEY	MEAN	152.817	148.453	149.511	141.192
	S.D.	16.7731	12.9894	16.9404	14.4616
	N	20	20	20	20
SPLEEN	MEAN	35.065	35.646	37.017	36.773
	S.D.	5.8203	6.3408	8.8462	7.0694
	N	20	20	20	20
HEART	MEAN	66.108	64.905	64.447	58.701**
	S.D.	6.1254	5.7441	7.5420	6.6619
	N	20	20	20	20
ADRENAL GLANDS	MEAN	3.487	3.333	3.551	3.452
	S.D.	0.6975	0.6426	0.7889	0.8070
	N	20	20	20	20

** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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TABLE 38 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS AS % BRAIN WEIGHT AT 13-WEEK SACRIFICE
MALES

GROUP (PPM):	0	3	30	300
TESTES				
MEAN	171.627	167.325	161.681	160.009
S.D.	16.2326	15.0068	20.1134	11.5692
N	20	20	20	20

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 39
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FINAL BODY WEIGHTS (G), SUMMARY OF MEANS AT 13-WEEK SACRIFICE
MALES

GROUP (PPM):	0	3	30	300
FINAL BODY WT				
MEAN	454.8	481.1**	473.8	434.7
S.D.	27.21	26.15	55.13	35.04
N	20	20	20	20

** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

TABLE 40
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS (G), SUMMARY OF MEANS AT 17-WEEK SACRIFICE
MALES

GROUP (PPM):		0	3	30	300
BRAIN					
	MEAN	2.111	0.000	0.000	2.062
	S.D.	0.0646	0.0000	0.0000	0.0975
	N	10	0	0	10
LIVER					
	MEAN	13.486	0.000	0.000	15.099
	S.D.	1.6915	0.0000	0.0000	2.5456
	N	10	0	0	10
KIDNEY					
	MEAN	3.139	0.000	0.000	3.165
	S.D.	0.2512	0.0000	0.0000	0.3054
	N	10	0	0	10
SPLEEN					
	MEAN	0.778	0.000	0.000	0.761
	S.D.	0.1061	0.0000	0.0000	0.0847
	N	10	0	0	10
HEART					
	MEAN	1.387	0.000	0.000	1.363
	S.D.	0.1548	0.0000	0.0000	0.1223
	N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 40 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS (G), SUMMARY OF MEANS AT 17-WEEK SACRIFICE
MALES

GROUP (PPM):		0	3	30	300
ADRENAL GLANDS					
	MEAN	0.0588	0.0000	0.0000	0.0587
	S.D.	0.00942	0.00000	0.00000	0.01142
	N	10	0	0	10
TESTES					
	MEAN	3.419	0.000	0.000	3.400
	S.D.	0.3293	0.0000	0.0000	0.1773
	N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 41
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS AS % FINAL BODY WEIGHT AT 17-WEEK SACRIFICE
MALES

GROUP (PPM):		0	3	30	300
BRAIN	MEAN	0.420	0.000	0.000	0.412
	S.D.	0.0363	0.0000	0.0000	0.0445
	N	10	0	0	10
LIVER	MEAN	2.665	0.000	0.000	2.987*
	S.D.	0.2543	0.0000	0.0000	0.4010
	N	10	0	0	10
KIDNEY	MEAN	0.621	0.000	0.000	0.630
	S.D.	0.0353	0.0000	0.0000	0.0648
	N	10	0	0	10
SPLEEN	MEAN	0.153	0.000	0.000	0.151
	S.D.	0.0130	0.0000	0.0000	0.0114
	N	10	0	0	10
HEART	MEAN	0.274	0.000	0.000	0.270
	S.D.	0.0208	0.0000	0.0000	0.0061
	N	10	0	0	10

* = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.05 LEVEL

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TABLE 41 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS AS % FINAL BODY WEIGHT AT 17-WEEK SACRIFICE
MALES

GROUP (PPM):		0	3	30	300
ADRENAL GLANDS					
	MEAN	0.012	0.000	0.000	0.012
	S.D.	0.0021	0.0000	0.0000	0.0019
	N	10	0	0	10
TESTES					
	MEAN	0.676	0.000	0.000	0.679
	S.D.	0.0497	0.0000	0.0000	0.0633
	N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 42
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS AS % BRAIN WEIGHT AT 17-WEEK SACRIFICE
MALES

GROUP (PPM):		0	3	30	300
LIVER					
	MEAN	638.661	0.000	0.000	735.181
	S.D.	76.6983	0.0000	0.0000	135.6292
	N	10	0	0	10
KIDNEY					
	MEAN	148.643	0.000	0.000	153.519
	S.D.	10.1845	0.0000	0.0000	13.2248
	N	10	0	0	10
SPLEEN					
	MEAN	36.855	0.000	0.000	36.984
	S.D.	4.9559	0.0000	0.0000	4.5628
	N	10	0	0	10
HEART					
	MEAN	65.665	0.000	0.000	66.257
	S.D.	6.7384	0.0000	0.0000	6.7855
	N	10	0	0	10
ADRENAL GLANDS					
	MEAN	2.779	0.000	0.000	2.848
	S.D.	0.4093	0.0000	0.0000	0.5450
	N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 42 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS AS % BRAIN WEIGHT AT 17-WEEK SACRIFICE
MALES

GROUP (PPM):		0	3	30	300
TESTES	MEAN	161.888	0.000	0.000	165.123
	S.D.	13.8800	0.0000	0.0000	9.3255
	N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 43
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FINAL BODY WEIGHTS (G), SUMMARY OF MEANS AT 17-WEEK SACRIFICE
MALES

GROUP (PPM):	0	3	30	300
FINAL BODY WT				
MEAN	506.7	0.0	0.0	504.4
S.D.	52.04	0.00	0.00	46.82
N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 44
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS (G), SUMMARY OF MEANS AT 13-WEEK SACRIFICE
FEMALES

GROUP (PPM):		0	3	30	300
BRAIN	MEAN	1.933	1.961	1.945	1.915
	S.D.	0.0769	0.0886	0.0766	0.0896
	N	19	20	19	18
LIVER	MEAN	7.072	7.001	7.343	7.611
	S.D.	0.7684	0.8823	0.9147	1.0130
	N	19	20	19	18
KIDNEY	MEAN	1.904	1.895	1.920	1.872
	S.D.	0.1259	0.1462	0.1528	0.1728
	N	19	20	19	18
SPLEEN	MEAN	0.499	0.440	0.529	0.528
	S.D.	0.2061	0.0702	0.0677	0.0681
	N	19	20	19	18
HEART	MEAN	0.844	0.862	0.912	0.863
	S.D.	0.0694	0.0870	0.0865	0.0902
	N	19	20	19	18

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 44 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS (G), SUMMARY OF MEANS AT 13-WEEK SACRIFICE
FEMALES

GROUP (PPM):		0	3	30	300
ADRENAL GLANDS					
	MEAN	0.0886	0.0913	0.0862	0.0787
	S.D.	0.02080	0.01944	0.01642	0.01880
	N	19	20	19	18
OVARIES					
	MEAN	0.1585	0.1845	0.1540	0.1511
	S.D.	0.05547	0.04580	0.05922	0.04676
	N	19	20	19	18

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 45
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS AS % FINAL BODY WEIGHT AT 13-WEEK SACRIFICE
FEMALES

GROUP (PPM):		0	3	30	300
BRAIN	MEAN	0.747	0.756	0.731	0.761
	S.D.	0.0534	0.0779	0.0650	0.0774
	N	19	20	19	18
LIVER	MEAN	2.722	2.680	2.742	2.997**
	S.D.	0.1918	0.2484	0.2217	0.2111
	N	19	20	19	18
KIDNEY	MEAN	0.736	0.729	0.721	0.741
	S.D.	0.0639	0.0727	0.0655	0.0661
	N	19	20	19	18
SPLEEN	MEAN	0.193	0.169	0.199	0.208
	S.D.	0.0817	0.0283	0.0263	0.0204
	N	19	20	19	18
HEART	MEAN	0.326	0.331	0.342	0.340
	S.D.	0.0251	0.0297	0.0280	0.0213
	N	19	20	19	18

** = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01 LEVEL

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TABLE 45 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS AS % FINAL BODY WEIGHT AT 13-WEEK SACRIFICE
FEMALES

GROUP (PPM):		0	3	30	300
ADRENAL GLANDS					
	MEAN	0.034	0.035	0.032	0.031
	S.D.	0.0089	0.0073	0.0071	0.0076
	N	19	20	19	18
OVARIES					
	MEAN	0.061	0.071	0.058	0.060
	S.D.	0.0206	0.0180	0.0226	0.0182
	N	19	20	19	18

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 46
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS AS % BRAIN WEIGHT AT 13-WEEK SACRIFICE
FEMALES

GROUP (PPM):		0	3	30	300
LIVER	MEAN	366.210	357.177	378.249	399.278
	S.D.	39.9267	42.7898	50.3289	65.1781
	N	19	20	19	18
KIDNEY	MEAN	98.524	96.830	98.884	98.115
	S.D.	5.6033	8.3685	9.1820	11.9464
	N	19	20	19	18
SPLEEN	MEAN	25.770	22.511	27.214	27.706
	S.D.	9.9149	3.8945	3.3913	4.4670
	N	19	20	19	18
HEART	MEAN	43.746	43.994	46.962	45.178
	S.D.	4.0891	4.0915	4.6710	5.6844
	N	19	20	19	18
ADRENAL GLANDS	MEAN	4.589	4.646	4.441	4.136
	S.D.	1.1018	0.8999	0.8777	1.0727
	N	19	20	19	18

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 46 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS AS % BRAIN WEIGHT AT 13-WEEK SACRIFICE
FEMALES

GROUP (PPM):		0	3	30	300
OVARIES					
	MEAN	8.224	9.403	7.918	7.916
	S.D.	2.8917	2.2505	3.0261	2.5296
	N	19	20	19	18

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 47
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FINAL BODY WEIGHTS (G), SUMMARY OF MEANS AT 13-WEEK SACRIFICE
FEMALES

GROUP (PPM):	0	3	30	300
FINAL BODY WT				
MEAN	259.8	261.9	267.6	253.4
S.D.	19.75	30.34	23.54	21.52
N	19	20	19	18

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 48
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS (G). SUMMARY OF MEANS AT 17-WEEK SACRIFICE
FEMALES

GROUP (PPM):		0	3	30	300
BRAIN	MEAN	1.910	0.000	0.000	1.955
	S.D.	0.0808	0.0000	0.0000	0.0980
	N	10	0	0	10
LIVER	MEAN	8.141	0.000	0.000	8.652
	S.D.	1.0258	0.0000	0.0000	1.0196
	N	10	0	0	10
KIDNEY	MEAN	1.994	0.000	0.000	2.005
	S.D.	0.1524	0.0000	0.0000	0.1060
	N	10	0	0	10
SPLEEN	MEAN	0.499	0.000	0.000	0.546
	S.D.	0.0953	0.0000	0.0000	0.0833
	N	10	0	0	10
HEART	MEAN	0.952	0.000	0.000	0.963
	S.D.	0.1175	0.0000	0.0000	0.0785
	N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 48 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS (G), SUMMARY OF MEANS AT 17-WEEK SACRIFICE
FEMALES

GROUP (PPM):		0	3	30	300
ADRENAL GLANDS					
	MEAN	0.0754	0.0000	0.0000	0.0732
	S.D.	0.00884	0.00000	0.00000	0.01125
	N	10	0	0	10
OVARIES					
	MEAN	0.1606	0.0000	0.0000	0.1275
	S.D.	0.04459	0.00000	0.00000	0.03460
	N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 49
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS AS % FINAL BODY WEIGHT AT 17-WEEK SACRIFICE
FEMALES

GROUP (PPM):		0	3	30	300
BRAIN	MEAN	0.689	0.000	0.000	0.693
	S.D.	0.0602	0.0000	0.0000	0.0550
	N	10	0	0	10
LIVER	MEAN	2.920	0.000	0.000	3.049
	S.D.	0.2658	0.0000	0.0000	0.2161
	N	10	0	0	10
KIDNEY	MEAN	0.717	0.000	0.000	0.710
	S.D.	0.0426	0.0000	0.0000	0.0376
	N	10	0	0	10
SPLEEN	MEAN	0.179	0.000	0.000	0.193
	S.D.	0.0334	0.0000	0.0000	0.0319
	N	10	0	0	10
HEART	MEAN	0.342	0.000	0.000	0.340
	S.D.	0.0298	0.0000	0.0000	0.0170
	N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 49 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS AS % FINAL BODY WEIGHT AT 17-WEEK SACRIFICE
FEMALES

GROUP (PPM):		0	3	30	300
ADRENAL GLANDS					
	MEAN	0.027	0.000	0.000	0.026
	S.D.	0.0038	0.0000	0.0000	0.0040
	N	10	0	0	10
OVARIES					
	MEAN	0.058	0.000	0.000	0.045
	S.D.	0.0188	0.0000	0.0000	0.0129
	N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 50
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS AS % BRAIN WEIGHT AT 17-WEEK SACRIFICE
FEMALES

GROUP (PPM):		0	3	30	300
LIVER					
	MEAN	427.027	0.000	0.000	442.880
	S.D.	58.3015	0.0000	0.0000	52.1273
	N	10	0	0	10
KIDNEY					
	MEAN	104.456	0.000	0.000	102.617
	S.D.	8.0151	0.0000	0.0000	4.5492
	N	10	0	0	10
SPLEEN					
	MEAN	26.184	0.000	0.000	27.917
	S.D.	5.2050	0.0000	0.0000	4.2449
	N	10	0	0	10
HEART					
	MEAN	49.802	0.000	0.000	49.367
	S.D.	5.3850	0.0000	0.0000	4.6034
	N	10	0	0	10
ADRENAL GLANDS					
	MEAN	3.942	0.000	0.000	3.756
	S.D.	0.3880	0.0000	0.0000	0.6284
	N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 50 (Continued)
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
ORGAN WEIGHTS AS % BRAIN WEIGHT AT 17-WEEK SACRIFICE
FEMALES

GROUP (PPM):		0	3	30	300
OVARIES	MEAN	8.400	0.000	0.000	6.537
	S.D.	2.2825	0.0000	0.0000	1.8755
	N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 51
UC 70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
FINAL BODY WEIGHTS (G), SUMMARY OF MEANS AT 17-WEEK SACRIFICE
FEMALES

GROUP (PPM):	0	3	30	300
FINAL BODY WT				
MEAN	278.7	0.0	0.0	283.0
S.D.	23.98	0.00	0.00	16.68
N	10	0	0	10

NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

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TABLE 52

UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS

GROSS NECROPSY OBSERVATIONS - INCIDENCE SUMMARY

	MALE			
GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFRICED DURING KILL 1(WEEK 13)	20	20	20	20
EYES/OPTIC N.	1	0	0	0
-CLOUDY	1	0	0	0
-MISSHAPEN				
KIDNEY	3	1	0	1
-HYDRONEPHROSIS	0	0	0	1
-COLOR CHANGE				
LUNG/BRONCHI	0	0	1	1
-COLOR CHANGE				
NOSE/TURBINATES	0	0	1	0
-ENCRUSTATION				
PANCREAS	0	1	0	0
-CYST				
LYMPH NODE,CERV.	1	1	0	0
-SIZE CHANGE				

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30 PPM) 4-GROUP Y (300PPM)

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TABLE 53
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
GROSS NECROPSY OBSERVATIONS - INCIDENCE SUMMARY

	FEMALE			
GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFRICED DURING KILL 1(WEEK 13)	19	20	19	18
EYES/OPTIC N.				
-OPACITY	1	0	0	0
KIDNEY				
-HYDRONEPHROSIS	2	2	3	0
LYMPH NODE, RE.				
-COLOR CHANGE	0	1	0	0
OVARIES				
-CYST (S)	0	1	0	0
SPLEEN				
-SIZE CHANGE	1	0	0	0
THYMUS GLAND				
-SIZE CHANGE	1	0	0	0
UTERUS				
-SIZE CHANGE	1	1	0	0
LYMPH NODE,CERV.				
-SIZE CHANGE	1	0	3	0
-COLOR CHANGE	1	0	1	0

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30PPM) 4-GROUP Y (300PPM)

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TABLE 54

UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 1(WEEK 13)

----- MALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 1(WEEK 13)	20	20	20	20
ADRENAL GLANDS				
TOTAL NUMBER EXAMINED	20	0	0	20
EXAMINED, UNREMARKABLE	18	0	0	16
-CORTICAL VACUOLAR CHANGE	2	0	0	4
ANUS/RECTUM				
TOTAL NUMBER EXAMINED	20	0	0	20
EXAMINED, UNREMARKABLE	18	0	0	20
-NEMATODIASIS	2	0	0	0
BRAIN				
TOTAL NUMBER EXAMINED	20	0	0	20
EXAMINED, UNREMARKABLE	20	0	0	20
CECUM				
TOTAL NUMBER EXAMINED	20	0	0	20
EXAMINED, UNREMARKABLE	18	0	0	19
-SEROSAL GRANULOMA	0	0	0	1
-NEMATODIASIS	2	0	0	0
COLON				
TOTAL NUMBER EXAMINED	20	0	0	19
EXAMINED, UNREMARKABLE	19	0	0	19
NOT EXAMINED	0	0	0	1
-NEMATODIASIS	1	0	0	0

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30 PPM) 4-GROUP Y (300PPM)

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Table 54 (Continued)

UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 1(WEEK 13)

----- MALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 1(WEEK 13)	20	20	20	20
DUODENUM				
TOTAL NUMBER EXAMINED	20	0	0	20
EXAMINED, UNREMARKABLE	20	0	0	20
EPIDIDYMIS				
TOTAL NUMBER EXAMINED	20	0	0	20
EXAMINED, UNREMARKABLE	19	0	0	20
-EPIDIDYMITIS	1	0	0	0
EYES/OPTIC N.				
TOTAL NUMBER EXAMINED	20	0	0	20
EXAMINED, UNREMARKABLE	19	0	0	20
-CATARACT	1	0	0	0
-CORNEAL VASCULARIZATION	1	0	0	0
-KERATITIS	1	0	0	0
-CONJUNCTIVITIS	1	0	0	0
HEART				
TOTAL NUMBER EXAMINED	20	0	0	20
EXAMINED, UNREMARKABLE	18	0	0	17
-EPICARDITIS	0	0	0	1
-MYOCARDITIS	2	0	0	3

1-GROUP F (0 PPM) 2-GROUP S(33PPM) 3-GROUP T(300PPM) 4-GROUP Y(300PPM)

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Table 54 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 1(WEEK 13)

----- MALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 1(WEEK 13)	20	20	20	20
ILEUM				
TOTAL NUMBER EXAMINED	20	0	0	20
EXAMINED, UNREMARKABLE	20	0	0	20
KIDNEY				
TOTAL NUMBER EXAMINED	20	20	20	20
EXAMINED, UNREMARKABLE	9	14	12	13
-INTERSTITIAL NEPHRITIS	8	5	8	6
-TUBULAR HYALIN DROPLET DEGENERATION	0	0	0	1
-TUBULAR CELL HYPERPLASIA	5	2	1	1
-PAPILLARY HYPERPLASIA	1	0	0	0
-PELVIC MINERALIZATION	1	0	0	0
-UROLITHIASIS	1	0	0	0
-HYDRONEPHROSIS	3	1	0	0
-MINERALIZATION	1	0	0	0
-INTERSTITIAL FIBROSIS	0	0	1	0
LIVER				
TOTAL NUMBER EXAMINED	20	20	20	20
EXAMINED, UNREMARKABLE	6	5	7	8
-LYMPHOID FOCI	9	11	10	10
-EXTRAMEDULLARY HEMATOPOIESIS	1	3	6	2
-HEPATOCELLULAR DEGENERATION	2	3	2	1
-CHOLANGITIS	5	3	0	1

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30 PPM) 4-GROUP Y (300PPM)

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Table 54 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 1(WEEK 13)

----- MALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 1(WEEK 13)	20	20	20	20
-HEPATITIS	4	0	0	0
-VACUOLAR DEGENERATION	1	0	0	0
LYMPH NODE, ME.				
TOTAL NUMBER EXAMINED	19	0	0	20
NOT EXAMINED	1	0	0	0
-SINUS ERYTHROCYTOSIS	2	0	0	1
-SINUS HISTIOCYTOSIS	19	0	0	19
-HEMOSIDEROSIS	0	0	0	1
-LYMPHOID HYPERPLASIA	8	0	0	5
-LYMPHATIC ECTASIA	6	0	0	2
-GRANULOMA	1	0	0	0
-PLASMACYTOSIS	1	0	0	0
LUNG/BRONCHI				
TOTAL NUMBER EXAMINED	20	20	20	20
EXAMINED, UNREMARKABLE	18	15	16	15
-ALVEOLAR HISTIOCYTOSIS	0	1	0	5
-MINERALIZATION	1	0	0	0
-PERIBRONCHIOLAR LYMPHOID HYPERPLASIA	1	2	1	0
-GRANULOMA	0	0	1	0
-ATELECTASIS	0	0	3	0
-PERIVASCULAR LYMPHOID CUFFS	0	0	1	0
-HEMORRHAGE	0	3	2	0
-INTERSTITIAL PNEUMONIA, GRANULOMATOUS	12	[illegible]	0	0
	0	[illegible]	[illegible]	[illegible]

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) [illegible]

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Table 54 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 1(WEEK 13)

----- MALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 1(WEEK 13)	20	20	20	20
-SUBMUCOSAL LYMPHOID HYPERPLASIA	1	0	0	0
MAMMARY GLAND				
TOTAL NUMBER EXAMINED	12	0	0	14
EXAMINED, UNREMARKABLE	12	0	0	14
NOT EXAMINED	8	0	0	6
PANCREAS				
TOTAL NUMBER EXAMINED	20	1	0	20
EXAMINED, UNREMARKABLE	16	0	0	19
-PANCREATITIS	3	0	0	1
-ACINAR CELL ATROPHY	1	0	0	0
-SEROSAL CYST	0	1	0	0
-SEROSITIS	0	1	0	0
PITUITARY				
TOTAL NUMBER EXAMINED	20	0	0	19
EXAMINED, UNREMARKABLE	20	0	0	16
NOT EXAMINED	0	0	0	1
-CYST(S)	0	0	0	3
PROSTATE				
TOTAL NUMBER EXAMINED	20	0	0	20
EXAMINED, UNREMARKABLE	20	0	0	19
-PROSTATITIS	0	0	0	1

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30 PPM) 4-GROUP Y (300PPM)

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Table 54 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 1(WEEK 13)

----- MALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 1(WEEK 13)	20	20	20	20
SALIVARY GLANDS				
TOTAL NUMBER EXAMINED	20	1	0	20
EXAMINED, UNREMARKABLE	15	1	0	19
-FATTY INFILTRATION	5	0	0	0
-SIALOADENITIS	1	0	0	1
SKIN				
TOTAL NUMBER EXAMINED	20	0	0	20
EXAMINED, UNREMARKABLE	13	0	0	18
-HYPERKERATOSIS	4	0	0	2
-ACANTHOSIS	6	0	0	0
SPINAL CORD				
TOTAL NUMBER EXAMINED	20	0	0	20
EXAMINED, UNREMARKABLE	20	0	0	18
-VACUOLAR DEGENERATION	0	0	0	2
SPLEEN				
TOTAL NUMBER EXAMINED	20	0	0	20
EXAMINED, UNREMARKABLE	10	0	0	18
-HEMOSIDEROSIS	10	0	0	2
-SEROSITIS	1	0	0	0
-EXTRAMEDULLARY HEMATOPOIESIS	2	0	0	0
-LYMPHOID NECROSIS	1	0	0	0

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30 PPM) 4-GROUP U (300 PPM)

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Table 54 (Continued)

UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 1(WEEK 13)

----- MALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 1(WEEK 13)	20	20	20	20
THYMUS GLAND				
TOTAL NUMBER EXAMINED	19	0	0	20
EXAMINED, UNREMARKABLE	16	0	0	20
NOT EXAMINED	1	0	0	0
-PHYSIOLOGIC ATROPHY	3	0	0	0
THYROID GLAND				
TOTAL NUMBER EXAMINED	20	0	0	20
EXAMINED, UNREMARKABLE	16	0	0	17
-THYROGLOSSAL DUCT CYST(S)	4	0	0	3
TRACHEA				
TOTAL NUMBER EXAMINED	20	0	0	20
EXAMINED, UNREMARKABLE	19	0	0	19
-TRACHEITIS	1	0	0	1
URINARY BLADDER				
TOTAL NUMBER EXAMINED	20	0	0	20
EXAMINED, UNREMARKABLE	20	0	0	20
LYMPH NODE,CERV.				
TOTAL NUMBER EXAMINED	20	1	0	20
EXAMINED, UNREMARKABLE	0	0	0	2
-LYMPHOID HYPERPLASIA	15	1	0	14

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30 PPM) 4-GROUP Y (300PPM)

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Table 54 (Continued)

UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 1(WEEK 13)

----- MALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 1(WEEK 13)	20	20	20	20
-SINUS HISTIOCYTOSIS	16	1	0	16
-PLASMACYTOSIS	15	1	0	13
-LYMPHATIC ECTASIA	5	0	0	4
PREPUTIAL GLAND				
TOTAL NUMBER EXAMINED	1	0	0	0
-ABSCESS	1	0	0	0

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30 PPM) 4-GROUP Y (300PPM)

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TABLE 55
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 1(WEEK 13)

----- FEMALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 1(WEEK 13)	19	20	19	18
ADRENAL GLANDS				
TOTAL NUMBER EXAMINED	19	0	0	18
EXAMINED, UNREMARKABLE	19	0	0	18
ANUS/RECTUM				
TOTAL NUMBER EXAMINED	19	0	0	16
EXAMINED, UNREMARKABLE	18	0	0	16
NOT EXAMINED	0	0	0	2
-SUBMUCOSAL LYMPHOID INFILTRATE(S)	1	0	0	0
COLON				
TOTAL NUMBER EXAMINED	19	0	0	18
EXAMINED, UNREMARKABLE	19	0	0	18
DUODENUM				
TOTAL NUMBER EXAMINED	19	0	0	17
EXAMINED, UNREMARKABLE	18	0	0	17
NOT EXAMINED	0	0	0	1
-PLASMACYTIC ENTERITIS	1	0	0	0
EYES/OPTIC N.				
TOTAL NUMBER EXAMINED	19	0	0	18
EXAMINED, UNREMARKABLE	19	0	0	17
-CORNEAL VASCULARIZATION	0	0	0	1

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30PPM) 4-GROUP Y (300PPM)

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Table 55 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 1(WEEK 13)

----- FEMALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 1(WEEK 13)	19	20	19	18
HEART				
TOTAL NUMBER EXAMINED	19	0	0	18
EXAMINED, UNREMARKABLE	19	0	0	18
ILEUM				
TOTAL NUMBER EXAMINED	19	0	0	17
EXAMINED, UNREMARKABLE	19	0	0	17
NOT EXAMINED	0	0	0	1
JEJUNUM				
TOTAL NUMBER EXAMINED	19	0	0	17
EXAMINED, UNREMARKABLE	19	0	0	17
NOT EXAMINED	0	0	0	1
KIDNEY				
TOTAL NUMBER EXAMINED	19	20	19	18
EXAMINED, UNREMARKABLE	13	9	16	13
-MINERALIZATION	1	3	0	2
-HYDRONEPHROSIS	4	3	3	3
-PELVIC CALCULI	0	0	0	2
-INTERSTITIAL NEPHRITIS	3	5	2	0
-TUBULAR ECTASIA	0	1	0	0
-SUPPURATIVE NEPHRITIS	1	0	0	0

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30PPM) 4-GROUP Y (300PPM)

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Table 55 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 1(WEEK 13)

----- FEMALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 1(WEEK 13)	19	20	19	18
LIVER				
TOTAL NUMBER EXAMINED	19	20	19	18
EXAMINED, UNREMARKABLE	6	5	8	7
-CHOLANGITIS	2	9	5	4
-LYMPHOID FOCI	8	13	10	10
-HEPATITIS	0	0	0	1
-HEPATOCELLULAR VACUOLATION	0	0	1	0
-HEPATOCELLULAR DEGENERATION	0	0	1	0
-EXTRAMEDULLARY HEPATOPOIESIS	5	0	0	0
LYMPH NODE, ME.				
TOTAL NUMBER EXAMINED	19	0	0	18
-LYMPHATIC ECTASIA	2	0	0	4
-LYMPHOID HYPERPLASIA	6	0	0	4
-SINUS HISTIOCYTOSIS	19	0	0	18
-SINUS ERYTHROCYTOSIS	1	0	0	1
-PLASMACYTOSIS	2	0	0	3
LUNG/BRONCHI				
TOTAL NUMBER EXAMINED	19	20	19	18
EXAMINED, UNREMARKABLE	18	15	17	18
-ALVEOLAR HISTIOCYTOSIS	0	2	0	0
-HEMORRHAGE	0	1	0	0
-ATELECTASIS	0	1	2	0

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30PPM) 4-GROUP Y (300PPM)

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Table 55 (Continued)

UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 1(WEEK 13)

----- FEMALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 1(WEEK 13)	19	20	19	18
-LYMPHOID HYPERPLASIA	0	1	2	0
-$M LYMPHOBLASTIC LYMPHOMA	1	0	0	0
OVARIES				
TOTAL NUMBER EXAMINED	19	2	0	18
EXAMINED, UNREMARKABLE	18	1	0	18
-EPITHELIAL CYST	0	1	0	0
-FOLLICULAR CYST(S)	1	0	0	0
PANCREAS				
TOTAL NUMBER EXAMINED	19	0	0	17
EXAMINED, UNREMARKABLE	18	0	0	17
NOT EXAMINED	0	0	0	1
-PANCREATITIS	1	0	0	0
SALIVARY GLANDS				
TOTAL NUMBER EXAMINED	19	0	0	18
EXAMINED, UNREMARKABLE	18	0	0	18
-SUPPURATIVE SIALOADENITIS	1	0	0	0
SKIN				
TOTAL NUMBER EXAMINED	19	0	0	18
EXAMINED, UNREMARKABLE	19	0	0	15
-ACANTHOSIS	0	0	0	3

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30PPM) 4-GROUP V (300PPM)

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Table 55 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 1(WEEK 13)

----- FEMALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 1(WEEK 13)	19	20	19	18
SPINAL CORD				
TOTAL NUMBER EXAMINED	19	0	0	18
EXAMINED, UNREMARKABLE	19	0	0	17
-VACUOLIZATION	0	0	0	1
SPLEEN				
TOTAL NUMBER EXAMINED	19	0	0	18
EXAMINED, UNREMARKABLE	8	0	0	9
-HEMOSIDEROSIS	8	0	0	8
-EXTRAMEDULLARY HEMATOPOIESIS	4	0	0	2
-$M LYMPHOBLASTIC LYMPHOMA	1	0	0	0
THYMUS GLAND				
TOTAL NUMBER EXAMINED	19	0	0	18
EXAMINED, UNREMARKABLE	18	0	0	18
-$M LYMPHOBLASTIC LYMPHOMA	1	0	0	0
THYROID GLAND				
TOTAL NUMBER EXAMINED	19	0	0	18
EXAMINED, UNREMARKABLE	16	0	0	14
-THYROGLOSSAL DUCT CYST(S)	2	0	0	4
-THYROIDITIS	1	0	0	0

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30PPM) 4-GROUP Y (300PPM)
$ = NEOPLASM, M = MALIGNANT

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Table 55 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 1(WEEK 13)

----- FEMALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 1(WEEK 13)	19	20	19	18
URINARY BLADDER				
TOTAL NUMBER EXAMINED	18	0	0	18
EXAMINED, UNREMARKABLE	18	0	0	18
NOT EXAMINED	1	0	0	0
UTERUS				
TOTAL NUMBER EXAMINED	19	1	0	17
EXAMINED, UNREMARKABLE	13	0	0	14
NOT EXAMINED	0	0	0	1
-LUMINAL ECTASIA, UNILATERAL	2	0	0	2
-LUMINAL ECTASIA, BILATERAL	4	1	0	1
LYMPH NODE,CERV.				
TOTAL NUMBER EXAMINED	19	0	3	18
-SINUS HISTIOCYTOSIS	19	0	3	18
-LYMPHATIC ECTASIA	4	0	0	4
-LYMPHOID HYPERPLASIA	16	0	3	16
-PLASMACYTOSIS	14	0	2	16
-SINUS ERYTHROCYTOSIS	2	0	1	2
-HEMOSIDEROSIS	0	0	0	1
HARDERIAN GLAND				
TOTAL NUMBER EXAMINED	5	0	0	7
EXAMINED, UNREMARKABLE	5	0	0	6
-GLANDULAR ECTASIA	0	0	0	1

1 GROUP [illegible]

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Table 56
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
GROSS NECROPSY OBSERVATIONS - INCIDENCE SUMMARY

	FEMALE			
GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS FOUND DEAD OR SACRIFICED MORIBUND	1	0	1	2
LUNG/BRONCHI				
-COLOR CHANGE	1	0	0	2

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30PPM) 4-GROUP Y (300PPM)

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TABLE 57
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
FOUND DEAD OR SACRIFICED MORIBUND

----- FEMALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS FOUND DEAD OR SACRIFICED MORIBUND	1	0	1	2
ADRENAL GLANDS				
TOTAL NUMBER EXAMINED	1	0	1	2
EXAMINED, UNREMARKABLE	1	0	1	2
ANUS/RECTUM				
TOTAL NUMBER EXAMINED	1	0	1	1
EXAMINED, UNREMARKABLE	1	0	1	1
NOT EXAMINED	0	0	0	1
COLON				
TOTAL NUMBER EXAMINED	1	0	1	2
EXAMINED, UNREMARKABLE	1	0	1	2
DUODENUM				
TOTAL NUMBER EXAMINED	1	0	1	2
EXAMINED, UNREMARKABLE	1	0	1	2
EYES/OPTIC N.				
TOTAL NUMBER EXAMINED	1	0	1	2
EXAMINED, UNREMARKABLE	1	0	1	2
HEART				
TOTAL NUMBER EXAMINED	1	0	1	2

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Table 57 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
FOUND DEAD OR SACRIFICED MORIBUND

----- FEMALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS FOUND DEAD OR SACRIFICED MORIBUND	1	0	1	2
ILEUM				
TOTAL NUMBER EXAMINED	1	0	1	2
EXAMINED, UNREMARKABLE	0	0	1	2
-AUTOLYSIS	1	0	0	0
JEJUNUM				
TOTAL NUMBER EXAMINED	1	0	1	2
EXAMINED, UNREMARKABLE	1	0	1	1
-AUTOLYSIS	0	0	0	1
KIDNEY				
TOTAL NUMBER EXAMINED	1	0	1	2
EXAMINED, UNREMARKABLE	0	0	1	2
-MINERALIZATION	1	0	0	0
LIVER				
TOTAL NUMBER EXAMINED	1	0	1	2
EXAMINED, UNREMARKABLE	0	0	1	2
-LYMPHOID FOCI	1	0	0	0
LYMPH NODE, ME.				
TOTAL NUMBER EXAMINED	1	0	1	2
-LYMPHOID HYPERPLASIA	1	0	1	1
-SINUS HISTIOCYTOSIS	1	0	1	2

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30PPM) 4-GROUP Y (300PPM)

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Table 57 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
FOUND DEAD OR SACRIFICED MORIBUND

----- FEMALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS FOUND DEAD OR SACRIFICED MORIBUND	1	0	1	2
LUNG/BRONCHI				
TOTAL NUMBER EXAMINED	1	0	1	2
-CONGESTION	1	0	1	2
OVARIES				
TOTAL NUMBER EXAMINED	1	0	1	2
EXAMINED, UNREMARKABLE	1	0	1	2
PANCREAS				
TOTAL NUMBER EXAMINED	1	0	1	2
EXAMINED, UNREMARKABLE	1	0	1	2
SALIVARY GLANDS				
TOTAL NUMBER EXAMINED	1	0	1	2
EXAMINED, UNREMARKABLE	1	0	1	2
SKIN				
TOTAL NUMBER EXAMINED	0	0	1	2
EXAMINED, UNREMARKABLE	0	0	1	2
NOT EXAMINED	1	0	0	0
SPINAL CORD				
TOTAL NUMBER EXAMINED	1	0	1	2
EXAMINED, UNREMARKABLE	1	0	1	2

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30PPM) 4-GROUP Y (300PPM)

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Table 57 (Continued)

UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
FOUND DEAD OR SACRIFICED MORIBUND

----- FEMALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS FOUND DEAD OR SACRIFICED MORIBUND	1	0	1	2
SPLEEN				
TOTAL NUMBER EXAMINED	1	0	1	2
EXAMINED, UNREMARKABLE	0	0	1	1
-HEMOSIDEROSIS	1	0	0	0
-LYMPHOID NECROSIS	0	0	0	1
-LYMPHOID HYPERPLASIA	0	0	0	1
THYMUS GLAND				
TOTAL NUMBER EXAMINED	1	0	1	2
EXAMINED, UNREMARKABLE	1	0	1	2
THYROID GLAND				
TOTAL NUMBER EXAMINED	1	0	1	2
EXAMINED, UNREMARKABLE	1	0	1	1
-AUTOLYSIS	0	0	0	1
URINARY BLADDER				
TOTAL NUMBER EXAMINED	1	0	1	2
EXAMINED, UNREMARKABLE	1	0	1	2
UTERUS				
TOTAL NUMBER EXAMINED	1	0	1	2
EXAMINED, UNREMARKABLE	1	0	1	2

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30PPM) 4-GROUP Y (300PPM)

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Table 57 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
FOUND DEAD OR SACRIFICED MORIBUND

----- FEMALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS FOUND DEAD OR SACRIFICED MORIBUND	1	0	1	2
LYMPH NODE,CERV.				
TOTAL NUMBER EXAMINED				
NOT EXAMINED	1	0	0	2
-SINUS HISTIOCYTOSIS	0	0	1	0
-LYMPHOID HYPERPLASIA	1	0	0	2
-PLASMACYTOSIS	1	0	0	0
	1	0	0	0
HARDERIAN GLAND				
TOTAL NUMBER EXAMINED				
EXAMINED, UNREMARKABLE	1	0	1	2
	1	0	1	2

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30PPM) 4-GROUP Y (300PPM)

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Table 58
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
GROSS NECROPSY OBSERVATIONS - INCIDENCE SUMMARY

	MALE			
GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFRICED DURING KILL 2(WEEK 17)	10	0	0	10
EYES/OPTIC N.	1	0	0	0
-COLOR CHANGE	0	0	0	1
-HEMORRHAGE				
KIDNEY	1	0	0	2
-HYDRONEPHROSIS				
SEMINAL VESICLE	1	0	0	0
-SIZE CHANGE				
LYMPH NODE,CERV.	2	0	0	0
-SIZE CHANGE	1	0	0	0
-COLOR CHANGE				

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30 PPM) 4-GROUP Y (300PPM)

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TABLE 59
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
GROSS NECROPSY OBSERVATIONS - INCIDENCE SUMMARY

GROUP:	FEMALE 1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFRICED DURING KILL 2(WEEK 17)	10	0	0	10
DUODENUM				
-COLOR CHANGE	0	0	0	1
ILEUM				
-COLOR CHANGE	0	0	0	1
JEJUNUM				
-COLOR CHANGE	0	0	0	1
KIDNEY				
-HYDRONEPHROSIS	1	0	0	0
OVARIES				
-CYST (S)	2	0	0	0
UTERUS				
-SIZE CHANGE	1	0	0	1

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30PPM) 4-GROUP Y (300PPM)

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TABLE 60

UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 2(WEEK 17)

----- MALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 2(WEEK 17)	10	0	0	10
ADRENAL GLANDS				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	10
ANUS/RECTUM				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	10
BRAIN				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	8
-WHITE MATTER VACUOLATION OF CEREBELLUM	0	0	0	2
CECUM				
TOTAL NUMBER EXAMINED	9	0	0	10
EXAMINED, UNREMARKABLE	9	0	0	10
NOT EXAMINED	1	0	0	0
COLON				
TOTAL NUMBER EXAMINED	9	0	0	10
EXAMINED, UNREMARKABLE	7	0	0	10
NOT EXAMINED	1	0	0	0
-NEMATODIASIS	2	0	0	0

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30 PPM) 4-GROUP Y (300PPM)

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Table 60 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 2(WEEK 17)

----- MALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 2(WEEK 17)	10	0	0	10
DUODENUM				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	9	0	0	10
-LYMPHOID HYPERPLASIA	1	0	0	0
EPIDIDYMIS				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	10
EYES/OPTIC N.				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	9	0	0	9
-CATARACT	1	0	0	1
-KERATITIS	1	0	0	0
-ANTERIOR SYNECHIA	0	0	0	1
-VITREOUS HEMORRHAGE	0	0	0	1
-CHRONIC FIBROSIS OF CILIARY BODY	0	0	0	1
-INTRAOCULAR HEMORRHAGE	1	0	0	0
-RETINAL DETACHMENT	1	0	0	0
-POSTERIOR SYNECHIA	1	0	0	0
HEART				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	9	0	0	10

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Table 60 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 2(WEEK 17)

----- MALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 2(WEEK 17)	10	0	0	10
-MYOCARDIAL DEGENERATION	1	0	0	0
ILEUM				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	7	0	0	9
-LYMPHOID HYPERPLASIA	3	0	0	1
-ENTERITIS	1	0	0	0
KIDNEY				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	4	0	0	3
-INTERSTITIAL NEPHRITIS	4	0	0	5
-TUBULAR CELL HYPERPLASIA	0	0	0	3
-HYDRONEPHROSIS	1	0	0	2
-MINERALIZATION	1	0	0	0
-PYELITIS	0	0	0	1
-CYST(S)	1	0	0	0
LIVER				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	1	0	0	2
-LYMPHOID FOCI	5	0	0	8
-EXTRAMEDULLARY HEMATOPOIESIS	5	0	0	0
-HEPATOCELLULAR DEGENERATION	1	0	0	1
-CHOLANGITIS	0	0	0	3

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30 PPM) 4-GROUP Y (300PPM)

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Table 60 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 2(WEEK 17)

----- MALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 2(WEEK 17)	10	0	0	10
-HEPATITIS	2	0	0	0
LYMPH NODE, ME.				
TOTAL NUMBER EXAMINED	10	0	0	10
-SINUS ERYTHROCYTOSIS	0	0	0	3
-SINUS HISTIOCYTOSIS	10	0	0	10
-LYMPHOID HYPERPLASIA	3	0	0	1
-LYMPHATIC ECTASIA	0	0	0	2
-PLASMACYTOSIS	2	0	0	1
LUNG/BRONCHI				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	7
-PERIBRONCHIOLAR LYMPHOID HYPERPLASIA	0	0	0	2
-FOREIGN MATERIAL	0	0	0	1
MAMMARY GLAND				
TOTAL NUMBER EXAMINED	7	0	0	8
EXAMINED, UNREMARKABLE	6	0	0	8
NOT EXAMINED	3	0	0	2
-HYPERPLASIA	1	0	0	0
PANCREAS				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	5	0	0	3
-PANCREATITIS	4	0	0	5

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Table 60 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 2(WEEK 17)

----- MALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 2(WEEK 17)	10	0	0	10
-ACINAR CELL ATROPHY	1	0	0	0
-DUCT FIBROSIS	0	0	0	2
-LOBULAR ATROPHY	0	0	0	1
-ISLET CELL HYPERPLASIA	0	0	0	1
-HEMOSIDEROSIS	0	0	0	1
-PANCREATIC DUCT SCLEROSIS	0	0	0	1
-PANCREATIC DUCT ADENITIS	0	0	0	1
-ACINAR FIBROSIS	2	0	0	0
PITUITARY				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	10
PROSTATE				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	9	0	0	9
-PROSTATITIS	1	0	0	1
SALIVARY GLANDS				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	10
SKIN				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	9
-HYPERKERATOSIS	0	0	0	1

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30 PPM) 4-GROUP Y (300PPM)

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Table 60 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 2(WEEK 17)

----- MALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 2(WEEK 17)	10	0	0	10
-ACANTHOSIS	0	0	0	1
SPINAL CORD				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	10
SPLEEN				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	1	0	0	0
-HEMOSIDEROSIS	9	0	0	7
-EXTRAMEDULLARY HEMATOPOIESIS	4	0	0	7
THYMUS GLAND				
TOTAL NUMBER EXAMINED	9	0	0	10
EXAMINED, UNREMARKABLE	6	0	0	9
NOT EXAMINED	1	0	0	0
-PHYSIOLOGIC ATROPHY	1	0	0	0
-HEMORRHAGE	0	0	0	1
-LYMPHOID HYPERPLASIA	2	0	0	0
-SINUS ERYTHROCYTOSIS	1	0	0	0
THYROID GLAND				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	8
-THYROGLOSSAL DUCT CYST(S)	[illegible]			

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Table 60 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
SACRIFICED DURING KILL 2(WEEK 17)

----- MALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS SACRIFICED DURING KILL 2(WEEK 17)	10	0	0	10
TRACHEA				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	10
URINARY BLADDER				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	9
-FOLLICULAR CYSTITIS	0	0	0	1
LYMPH NODE,CERV.				
TOTAL NUMBER EXAMINED	10	0	0	9
NOT EXAMINED	0	0	0	1
-LYMPHOID HYPERPLASIA	8	0	0	5
-SINUS HISTIOCYTOSIS	5	0	0	9
-PLASMACYTOSIS	8	0	0	6
-LYMPHATIC ECTASIA	0	0	0	1
-CONGESTION	0	0	0	1
-SINUS ERYTHROCYTOSIS	1	0	0	0
LYMPH NODE,PANC.				
TOTAL NUMBER EXAMINED	1	0	0	0
-SINUS ERYTHROCYTOSIS	1	0	0	0
-HEMOSIDEROSIS	1	0	0	0

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30 PPM) 4-GROUP Y (300PPM)

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TABLE 61
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
AT RISK FOR KILL 2(WEEK 17)

----- FEMALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS AT RISK FOR KILL 2(WEEK 17)	10	0	0	10
ADRENAL GLANDS				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	9	0	0	9
-CORTICAL NODULAR HYPERPLASIA	1	0	0	1
ANUS/RECTUM				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	9	0	0	10
-NEMATODIASIS	1	0	0	0
COLON				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	8	0	0	10
-NEMATODIASIS	2	0	0	0
DUODENUM				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	10
EYES/OPTIC N.				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	10

1-GROUP R (0 PPM) 2-GROUP S (7 PPM) 3-GROUP T (70PPM) 4-GROUP Y (300PPM)

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Table 61 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
AT RISK FOR KILL 2(WEEK 17)
----- FEMALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS AT RISK FOR KILL 2(WEEK 17)	10	0	0	10
HEART				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	9
-PAPILLARY MUSCLE FIBROSIS	0	0	0	1
ILEUM				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	7
-LYMPHOID HYPERPLASIA	0	0	0	3
JEJUNUM				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	9
-CONGESTION	0	0	0	1
KIDNEY				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	7	0	0	8
-MINERALIZATION	2	0	0	1
-HYDRONEPHROSIS	1	0	0	1
-INTERSTITIAL NEPHRITIS	1	0	0	0

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30PPM) 4-GROUP Y (300PPM)

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Table 61 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
AT RISK FOR KILL 2(WEEK 17)
----- FEMALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS AT RISK FOR KILL 2(WEEK 17)	10	0	0	10
LIVER				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	1	0	0	4
-CHOLANGITIS	4	0	0	2
-LYMPHOID FOCI	6	0	0	5
-HEPATITIS	1	0	0	0
LYMPH NODE, ME.				
TOTAL NUMBER EXAMINED	10	0	0	10
-LYMPHATIC ECTASIA	1	0	0	0
-LYMPHOID HYPERPLASIA	1	0	0	4
-SINUS HISTIOCYTOSIS	10	0	0	9
-SINUS ERYTHROCYTOSIS	0	0	0	1
-HEMOSIDEROSIS	0	0	0	1
LUNG/BRONCHI				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	9	0	0	7
-LYMPHOID HYPERPLASIA OF BRONCHI	1	0	0	0
-ALVEOLAR HISTIOCYTOSIS	0	0	0	3
OVARIES				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	10

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30PPM) 4-GROUP Y (300PPM)

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Table 61 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
AT RISK FOR KILL 2(WEEK 17)
----- FEMALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS AT RISK FOR KILL 2(WEEK 17)	10	0	0	10
PANCREAS				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	8	0	0	10
-ACINAR DEGENERATION	1	0	0	0
-FATTY INFILTRATION	1	0	0	0
SALIVARY GLANDS				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	10
SKIN				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	10
SPINAL CORD				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	10
SPLEEN				
TOTAL NUMBER EXAMINED	10	0	0	10
-HEMOSIDEROSIS	10	0	0	10
-EXTRAMEDULLARY HEMATOPOIESIS	1	0	0	6

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30PPM) 4-GROUP Y (300PPM)

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Table 61 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
AT RISK FOR KILL 2(WEEK 17)
----- FEMALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS AT RISK FOR KILL 2(WEEK 17)	10	0	0	10
THYMUS GLAND				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	10
THYROID GLAND				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	6	0	0	7
-THYROGLOSSAL DUCT CYST(S)	4	0	0	3
URINARY BLADDER				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	10	0	0	9
-FOLLICULAR CYSTITIS	0	0	0	1
UTERUS				
TOTAL NUMBER EXAMINED	10	0	0	10
EXAMINED, UNREMARKABLE	7	0	0	8
-LUMINAL ECTASIA, UNILATERAL	2	0	0	2
-LUMINAL ECTASIA, BILATERAL	1	0	0	0
LYMPH NODE,CERV.				
TOTAL NUMBER EXAMINED	10	0	0	9
NOT EXAMINED	0	0	0	1
-SINUS HISTIOCYTOSIS	10	0	0	7

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30PPM) 4-GROUP Y (300PPM)

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Table 61 (Continued)
UC70480 NINETY-DAY DIETARY INCLUSION STUDY IN RATS
HISTOMORPHOLOGICAL DIAGNOSIS -- SUMMARY INCIDENCE
AT RISK FOR KILL 2(WEEK 17)
----- FEMALE -----

GROUP:	1	2	3	4
NUMBER OF ANIMALS IN DOSE GROUP	30	20	20	30
NUMBER OF ANIMALS AT RISK FOR KILL 2(WEEK 17)	10	0	0	10
-LYMPHATIC ECTASIA	1	0	0	0
-LYMPHOID HYPERPLASIA	10	0	0	8
-PLASMACYTOSIS	10	0	0	7
HARDERIAN GLAND				
TOTAL NUMBER EXAMINED	0	0	0	5
EXAMINED, UNREMARKABLE	0	0	0	5
OVIDUCT				
TOTAL NUMBER EXAMINED	2	0	0	0
-CYSTIC OVIDUCT	2	0	0	0

1-GROUP P (0 PPM) 2-GROUP S (3 PPM) 3-GROUP T (30PPM) 4-GROUP Y (300PPM)

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BUSHY RUN RESEARCH CENTER
R. D. 4, Mellon Road, Export, Pennsylvania 15632
Telephone (412) 733-520

Quality Assurance Unit Study Inspection Summary

Test Substance: UC 70480

Study: Ninety-Day Dietary Inclusion in Rats

Study Director: J. P. Van Miller, Ph.D.

The Quality Assurance Unit of BRRC conducted the inspections listed below and reported the results to the study director and to management on the dates indicated. It is the practice of this Quality Assurance Unit to report the results of each inspection to both the study director and management.

Inspection Date	Inspection Type	Date QAU Report Issued To Study Director	Date QAU Report Issued To Management
6-21-84	Protocol	6-21-84	6-25-84
7-3-84	Event - Start of Dosing	7-3-84	9-13-84
8-13-84	Event - Clinical Chemistry, Hematology, and CHE	8-13-84	9-13-84
8-21-84	Protocol Amendment 1	8-21-84	8-23-84
9-27-84	Event - Urinalysis	9-28-84	11-28-84
10-4-84	Event - Cholinesterase, Hematology, Clinical Chemistry, and Necropsy	10-4-84	11-28-84
10-23-84	Event - Urinalysis	10-23-84	11-28-84
10-29-84	Event - Necropsy, CHE, Clinical Chemistry, and Hematology	11-2-84	11-28-84
2-7 to 2-11-85	Analytical Raw Data and Report	2-14-85	2-15-85
2-18- to 2-20-85	Raw Data and Report Tables	3-26-85	8-19-86
3-15 to 3-25-85	Clinical Pathology Raw Data and Report	3-26-85	4-9-85

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Inspection ate	Type	Date QAU Report Issued To Study Director	To Management
-3 to 4-30-85	Anatomic Pathology Raw Data and Report	4-30-85	5-28-85
-19-85	Protocol Amendment 2	4-19-85	5-1-85
-3-85	Protocol Amendment 3	6-3-85	6-4-85
-4-85	Protocol Amendment 4	9-6-85	9-10-85
-4 to 8-19-86	Final Report	8-19-86	1-13-87
1-19-86	Archives	11-20-86	1-13-87

Linda J. Calisti 1-13-87

Linda J. Calisti, Group Leader Date
Good Laboratory Practices/
Quality Assurance

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

William C. Kuryla, Ph.D.
Associate Director, Product Safety
Union Carbide Corporation
39 Old Ridgebury Road
Danbury, Connecticut 06817-0001

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MAR 30 1995

EPA acknowledges the receipt of information submitted by your organization under Section 8(e) of the Toxic Substances Control Act (TSCA). For your reference, copies of the first page(s) of your submission(s) are enclosed and display the TSCA §8(e) Document Control Number (e.g., 8EHQ-00-0000) assigned by EPA to your submission(s). Please cite the assigned 8(e) number when submitting follow-up or supplemental information and refer to the reverse side of this page for "EPA Information Requests".

All TSCA 8(e) submissions are placed in the public files unless confidentiality is claimed according to the procedures outlined in Part X of EPA's TSCA §8(e) policy statement (43 FR 11110, March 16, 1978). Confidential submissions received pursuant to the TSCA §8(e) Compliance Audit Program (CAP) should already contain information supporting confidentiality claims. This information is required and should be submitted if not done so previously. To substantiate claims, submit responses to the questions in the enclosure "Support Information for Confidentiality Claims". This same enclosure is used to support confidentiality claims for non-CAP submissions.

Please address any further correspondence with the Agency related to this TSCA 8(e) submission to:

Document Processing Center (7407)
Attn: TSCA Section 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
Washington, D.C. 20460-0001

EPA looks forward to continued cooperation with your organization in its ongoing efforts to evaluate and manage potential risks posed by chemicals to health and the environment.

Sincerely,

Terry R. O'Bryan

Terry R. O'Bryan
Risk Analysis Branch

Enclosure 12131A

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Triage of 8(e) Submissions

Date sent to triage: _____

NON-CAP CAP

Submission number: 12131A

TSCA Inventory: Y N D

Study type (circle appropriate):

Group 1 - Dick Clements (1 copy total)

ECO AQUATO

Group 2 - Ernie Falke (1 copy total)

ATOX SBTOX SEN w/NEUR

Group 3 - Elizabeth Margosches (1 copy each)

STOX CTOX EPI RTOX GTOX

STOX/ONCO CTOX/ONCO IMMUNO CYTO NEUR

Other (FATE, EXPO, MET, etc.): _____

Notes:

THIS IS THE ORIGINAL 8(e) SUBMISSION; PLEASE REFILE AFTER TRIAGE DATABASE ENTRY

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entire document: 0 1 2 **pages** 1, 2 **pages** 1-3, tab

Notes:

Contractor reviewer : LPS **Date:** 2/16/95

CECATS\TRIAGE TRACKING DBASE ENTRY FORM

CECATS DATA:
Submission # 8EHQ- 0992 -12131 SEQ. A

TYPE: INT SUPP FLWP

SUBMITTER NAME: Union Carbide Corporation

INFORMATION REQUESTED: FLWP DATE:
0501 NO INFO REQUESTED
0502 INFO REQUESTED (TECH)
0503 INFO REQUESTED (VOL ACTIONS)
0504 INFO REQUESTED (REPORTING RATIONALE)

DISPOSITION:
0639 REFER TO CHEMICAL SCREENING
0678 CAP NOTICE

VOLUNTARY ACTIONS:
0401 NO ACTION REPORTED
0402 STUDIES PLANNED/UNDERWAY
0403 NOTIFICATION OF WORKERS/USERS
0404 LABEL/MSDS CHANGES
0405 PROCESS/HANDLING CHANGES
0406 APP/USE DISCONTINUED
0407 PRODUCTION DISCONTINUED
0408 CONFIDENTIAL

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SUB. DATE: 08/26/92 OTS DATE: 09/01/92 CSRAD DATE: 01/31/95

CHEMICAL NAME: Phosphorothioate, (o-(1-cyano-2-methylpropyl)-O-ethyl-S-propyl- UC 70480

CAS#: unknown

INFORMATION TYPE:		P F C
0201	ONCO (HUMAN)	01 02 04
0202	ONCO (ANIMAL)	01 02 04
0203	CELL TRANS (IN VITRO)	01 02 04
0204	MUTA (IN VITRO)	01 02 04
0205	MUTA (IN VIVO)	01 02 04
0206	REPRO/TERATO (HUMAN)	01 02 04
0207	REPRO/TERATO (ANIMAL)	01 02 04
0208	NEURO (HUMAN)	01 02 04
0209	NEURO (ANIMAL)	01 02 04
0210	ACUTE TOX. (HUMAN)	01 02 04
0211	CHR. TOX. (HUMAN)	01 02 04
0212	ACUTE TOX. (ANIMAL)	01 02 04
0213	SUB ACUTE TOX (ANIMAL)	01 02 04
0214	SUB CHRONIC TOX (ANIMAL)	01 02 04
0215	CHRONIC TOX (ANIMAL)	01 02 04

INFORMATION TYPE:		P F C
0216	EPI/CLIN	01 02 04
0217	HUMAN EXPOS (PROD CONTAM)	01 02 04
0218	HUMAN EXPOS (ACCIDENTAL)	01 02 04
0219	HUMAN EXPOS (MONITORING)	01 02 04
0220	ECO/AQUA TOX	01 02 04
0221	ENV. OCCC/REL/FATE	01 02 04
0222	EMER INCI OF ENV CONTAM	01 02 04
0223	RESPONSE REQEST DELAY	01 02 04
0224	PROD/COMP/CHEM ID	01 02 04
0225	REPORTING RATIONALE	01 02 04
0226	CONFIDENTIAL	01 02 04
0227	ALLERG (HUMAN)	01 02 04
0228	ALLERG (ANIMAL)	01 02 04
0239	METAB/PHARMACO (ANIMAL)	01 02 04
0240	METAB/PHARMACO (HUMAN)	01 02 04

INFORMATION TYPE:		P F C
0241	IMMUNO (ANIMAL)	01 02 04
0242	IMMUNO (HUMAN)	01 02 04
0243	CHEM/PHYS PROP	01 02 04
0244	CLASTO (IN VITRO)	01 02 04
0245	CLASTO (ANIMAL)	01 02 04
0246	CLASTO (HUMAN)	01 02 04
0247	DNA DAM/REPAIR	01 02 04
0248	PROD/USE/PROC	01 02 04
0251	MSDS	01 02 04
0299	OTHER	01 02 04

[redacted]

TRIAGE DATA:	NON-CBI INVENTORY	ONGOING REVIEW	SPECIES	TOXICOLOGICAL CONCERN:	USE:	PRODUCTION:
	YES	YES (DROP/REFER)	RAT	LOW		
CAS SR	NO	NO (CONTINUE)		MED		
	IN INVENTORY	REFER		HIGH		

COMMENTS: Rats (SD) received in dietary concentrations of 0, 3, 30 or 300 ppm of the pesticide for 90 days. Inhibition of cholinesterase activity (erythrocyte, plasma, brain) and changes in hematologic and clinical chemistry of animals treated with 30 and 300 ppm. The NOAEL was 3 ppm, in this study.