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STUDY TITLE

Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl
Benzyl Ammonium Chloride (ADBAC) in Rats

TEST ARTICLE

Alkyl Dimethyl Benzyl Ammonium Chloride (ADBAC)

DATA REQUIREMENT

Section 82-1

AUTHORS

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PERFORMING LABORATORY

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LABORATORY PROJECT ID

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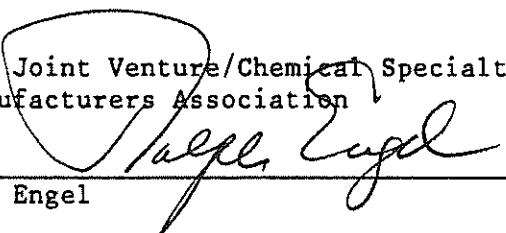
Statement of Confidentiality Claims

No claim of confidentiality is made for any information contained in this study on the basis of its falling within the scope of FIFRA S10(d)(1)(A), (B), or (C).

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Compliance with FIFRA Good Laboratory Practices

This study was conducted in accordance with Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Good Laboratory Practices (GLP), 40 CFR Part 160.

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Project Report 51-503

Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl Benzyl Ammonium Chloride (ADBAC) in Rats

Sponsor: ADBAC QUAT Joint Venture/
Chemical Specialties Manufacturers Association

* * * * *

SUMMARY

Sprague-Dawley CD® rats (15/sex/group) were exposed to ADBAC in the diet at concentrations of 0, 100, 500, 1000, 4000, or 8000 ppm for 95 (males) or 96 (females) days. The doses corresponded to approximate mean intake levels of 6, 31, and 62 mg/kg/day for the males and 8, 38, and 77 mg/kg/day for the females of the 100, 500, and 1000 ppm groups, respectively. Due to mortality in the 4000 and 8000 ppm groups, daily intakes could not be calculated. Three male rats and four female rats from the 4000 ppm group survived to the terminal sacrifice. No animals in the 8000 ppm group survived past day 8 of treatment. Clinical signs of toxicity, decreased food consumption and body weights, gross necropsy findings (principally ileus consisting of distended fluid- and gas-filled viscera), and histopathologic effects (related to the gastro-intestinal changes) were observed for animals in the 4000 and 8000 ppm dose groups. Other than a slight trend toward decreased food consumption and body weight for males in the 1000 ppm dose group, no treatment-related findings in any in-life, clinical pathology, gross pathology, organ weights, or histopathology evaluations were observed in males or females from any other dose group. The no observable effect level in this strain was considered to be at least 500 ppm.

INTRODUCTION

This report includes the procedures, results, and discussion for a study involving the dietary exposure of Sprague-Dawley CD® rats to ADBAC. The study was designed to evaluate the potential toxicity of ADBAC over a 13-week exposure period and to help establish dietary concentrations of ADBAC to be used in a chronic toxicity/oncogenicity study and a 2-generation reproduction study that are scheduled to be conducted. Evaluations for clinical signs,

food consumption, body weight, ophthalmic findings, clinical chemistry, hematology, organ weights, gross pathology, and histopathologic effects were made. Doses were selected based on a series of previous studies on similar or identical test materials and were designed to produce significant toxicity at the high dose(s) and no observable effects at one or more of the lower doses.

The study was initially conducted so as to comply with Good Laboratory Practice Regulations, FIFRA, 40CFR Part 160. Subsequently, the protocol was modified to comply with the following guidelines at termination: EPA Pesticide Assessment Guidelines (Subdivision F, Section 82-1, November 1984) and OECD Guidelines for Testing of Chemicals (No. 408, May 12, 1981). This report reflects these changes as designated in Protocol Amendment #2 (Appendix 9) where appropriate. The study was conducted under BRRC Project Number 87-37-97101.

MATERIALS AND METHODS

Test Substance

The test substance used in this study was identified as alkyl dimethyl benzyl ammonium chloride (ADBAC) 80% Manufacturing Use Product (MUP) (CAS Registry #68391-01-5). The test substance was a composite containing representative samples of commercial grade materials with an alkyl chain length distribution of 40% C-12, 50% C-14, and 10% C-16. An initial shipment was received on May 21, 1987 from the Sponsor. It consisted of five 5-gallon containers of a composite test material with the lot number 6158-59-60. The containers were assigned the BRRC Numbers 50-268 A through E. This material was used for weeks 1 through 4 of the study. Concurrent with the conduct of this study, the Sponsor undertook a detailed analysis of this composite material. During this detailed analysis, a higher than normal level of an impurity was identified in this original composite material. The Sponsor subsequently prepared a new composite material which contained normal levels of this impurity and authorized the use of the new composite for the remainder of this study (i.e. starting with the week 5 diet preparation). The low levels of the impurity actually in the treated diets (approximately 14 ppm in the diet for the high dose group) and the short exposure were not expected to have any impact on the results or interpretation of the findings in this study. The second shipment (approximately 900 grams) of test material was received from the Sponsor on July 7, 1987 and was identified as #SC 132-65. It was assigned the BRRC number 50-328. This material was used from Week 5 through termination of the study.

The test substance was a pale yellow, viscous liquid. It was stored at room temperature. The percentage of active ingredient in the material identified as lot number 6158-59-60 (BRRC #50-268) was determined by the Sponsor to be 80.51%. The percentage of active ingredient in the material identified as #SC 132-65 (BRRC #50-328) was determined to be 79.7%. All dietary concentrations of both materials were corrected for percentage of active ingredient. Based on information obtained from the Sponsor and measurements made during preliminary diet preparations, each material was assumed to contain 12% ethanol for purposes of determining loss during diet preparation. Complete details of the constituents in the test materials are on file with the Sponsor. Reserve samples were saved from both shipments.

Animals and Animal Care

Two hundred and fifty-two Sprague-Dawley CD® rats (126 males and 126 females) were purchased from Charles River Breeding Laboratories, Inc. (Portage, MI). The females were nulliparous and non-pregnant. The animals were received on June 2, 1987 and were approximately 32 days of age. The rats were approximately 7 weeks of age at first dose.

A pretest health screen utilizing 10 males and 10 females randomly selected from the population of rats received for the study was performed within two days after the receipt of the animals. This screen consisted of clinical laboratory studies, a viral screen, examinations for fecal parasites, gross necropsy examinations, and histopathological evaluations of selected tissues. The clinical laboratory studies and gross necropsy examinations were conducted on all 20 animals selected for the health screen. The viral screen was conducted on 5 animals/sex designated for the health screen. Fecal examination for parasites was conducted using a cellophane tape test on 5 animals/sex selected for the prestudy screen, and by zinc sulfate flotation of cecal contents obtained at necropsy on 5 animals/sex. Histopathology was performed on three sacrificed animals/sex. At least the following tissues were examined: liver, kidneys, trachea, lungs, heart, spleen, salivary glands, submandibular lymph nodes, and nasal cavities.

Upon arrival at BRRRC, the rats were housed two animals per side of divided stainless steel cages (solid sides with wire mesh floors) mounted in a stainless steel Maxi-Rack® (Hazleton Systems, Inc., Aberdeen, MD). The purpose of the double housing was to help acclimate the rats with the automatic watering system. Approximately one week later, the animals were individually housed in similar caging and remained housed one animal per cage side throughout the study. The animals were kept in room 101 of the Chemical Hygiene Fellowship (CHF) Building of BRRRC from receipt to termination of the study. A layer of Deotized Animal Cage Board® (Shepherd Specialty Papers, Inc., Kalamazoo, MI) was kept under each cage and changed at least three times per week. Other animal care procedures were performed regularly according to BRRRC Standard Operating Procedures. Water was available ad libitum. The water (Municipal Authority of Westmoreland County, Greensburg, PA) was provided by an automatic watering system with demand control valves mounted on each rack. Ground Purina Certified Rodent Chow® #5002 (Ralston Purina Co., St. Louis, MO) was available ad libitum. Room temperature and relative humidity were monitored continuously by a Cole-Parmer Hygrothermograph® Seven-Day Continuous Recorder, Model #8368-00 (Cole-Parmer Instrument Company, Chicago, IL). Temperature was routinely maintained at $22 \pm 3^{\circ}\text{C}$, relative humidity between 40 and 70%. A 12-hour light/dark cycle each day was used (0500 to 1700 light).

Animal Identification and Group Assignment

Each rat was uniquely numbered by an ear notch and toe-clipping procedure. Animals were assigned to test groups, based on body weight, by a computer generated weight stratified randomization procedure. Only rats with body weights within $\pm 20\%$ of the population mean for each sex were used in the study. Rats not selected for the study were removed from the room.

Diet Preparation

Test diets were prepared by direct addition of ADBAC 80% MUP to ground rodent feed. A concentrated premix was prepared to ensure maximal loss of the ethanol (approximately 12% by weight) from the test material during the original mixing time of 1 hour. The 8000 ppm diet was prepared by dilution of the premix and mixing in a Hobart mixer for 30 minutes. Diets of the lower concentrations were prepared by dilution of the appropriate amount of the diet of the next highest concentration and mixing for 15 minutes. Dietary concentrations were based on percent active ingredient of the test substance. Correction was made in the preparation of the premix for the alcohol lost during initial mixing. Diets were stored in polypropylene containers at room temperature. Fresh diet was prepared and offered to the animals each week.

Diet Analysis

Experimental diets were analysed using a liquid chromatography procedure developed by the Sponsor. The details of these procedures are included in Appendix 1. Homogeneity of ADBAC at each diet concentration was established prior to the start of the study. Stability of the test material in diets at the 8000 and 100 ppm concentrations was determined in open glass feed jars and in the polypropylene storage containers prior to dosing. Diet concentrations were verified for all dose levels for the first five weeks of the study prior to administration of the diets to the animals. In subsequent weeks, a sample of each test diet was retained from each preparation and analysed with one control sample in weeks 8 and 14. Additional diets beyond the 13th week were prepared to maintain the animals from Day 90 to Day 95 or 96 for the males and females, respectively.

Experimental Design and Observations

The following experimental design was used:

<u>Group</u>	<u>Number of Animals</u>		<u>Concentration of ADBAC (ppm)*</u>
	<u>Male</u>	<u>Female</u>	
1	15	15	0
2	15	15	100
3	15	15	500
4	15	15	1000
5	15	15	4000
6	15	15	8000

*Parts per million of active ingredient

During the exposure period, observations for mortality were made twice daily (a.m. and p.m.). Detailed clinical observations were performed once each week, and observations for overt clinical signs were made on all other days. Body weight and food consumption data were collected for all animals weekly. Ophthalmic examinations were performed, using an indirect ophthalmoscope, prior to final sacrifice. Blood was obtained just prior to sacrifice from 10 randomly selected animals/sex/group (or from the surviving animals in the 4000 ppm group) via the retroorbital sinus for clinical chemistry and hematology analyses. The animals selected for bleeding were anesthetized with methoxyflurane prior to the blood collection. All animals (including those not used for blood collection) were fasted overnight prior to the final procedures. Following bleeding, the animals were sacrificed as described below.

Clinical Pathology

The following hematologic and clinical chemistry parameters were measured or calculated:

Hematology

total leukocyte count	erythrocyte indices
erythrocyte count	platelet count
hemoglobin	differential leukocyte count
hematocrit	reticulocyte count

Clinical Chemistry

AST (SGPT)	A/G ratio (calculated)
ALT (SGOT)	total bilirubin
creatinine	direct bilirubin
alkaline phosphatase	indirect bilirubin (calculated)
gamma glutamyl transpeptidase	calcium
glucose	phosphorus
urea nitrogen	sodium
total protein	potassium
albumin	chloride
globulin (calculated)	

Details for the clinical pathology procedures are included in Appendix 3.

Anatomic and Histologic Pathology

After 95 (males) and 96 (females) days of treatment, the surviving rats were anesthetized with methoxyflurane and killed by severing the brachial vessels to permit exsanguination. Prior to sacrifice, body weights were obtained to allow expression of relative organ weights. A complete necropsy was performed on each animal. The liver, kidneys, spleen, heart, brain with stem, adrenals, testes (males), and ovaries (females) were weighed for all animals. The following tissues were harvested and saved in 10% neutral

buffered formalin. Just prior to the final sacrifice, the Sponsor added additional tissues to the original list to be harvested. These tissues are marked with an *. At the same time, the Sponsor requested that 3 lobes of the liver and the entire intestines be collected.

<u>Gross lesions</u>	<u>Spinal cord</u>
<u>Brain</u>	Cervical, Thoracic, Lumbar
<u>Cerebral cortex</u>	<u>Pancreas</u>
<u>Cerebellar cortex</u>	<u>Liver (3 lobes)</u>
<u>Medulla/pons</u>	<u>Kidneys</u>
<u>Eyes*</u>	<u>Urinary bladder*</u>
<u>Pituitary</u>	<u>Testes</u>
<u>Salivary gland*</u>	<u>Prostate</u>
<u>Heart</u>	<u>Epididymis</u>
<u>Aorta*</u>	<u>Ovaries</u>
<u>Thymic region</u>	<u>Vagina*</u>
<u>Thyroid - parathyroid complex</u>	<u>Uterus (corpus and cervix)*</u>
<u>Lungs with mainstem bronchi</u>	<u>Spleen</u>
<u>Adrenals</u>	<u>Lymph nodes (mesenteric & non-mesenteric)</u>
<u>Trachea*</u>	<u>Skeletal muscle*</u>
<u>Esophagus</u>	<u>Sciatic nerve*</u>
<u>Stomach</u>	<u>Mammary gland (female)*</u>
<u>Duodenum, Jejunum, Ileum,</u>	<u>Skin*</u>
<u>Cecum, Colon, Rectum*</u> (entire organs)	<u>Sternum (including marrow)</u>
<u>Exorbital lacrimal glands*</u>	<u>Femur*</u>
<u>Submandibular lymph node*</u> ¹	

Feet and ears were saved for identification purposes.

¹Effort was made to process the salivary glands such that the submandibular lymph nodes were available for microscopic examination. No additional sections were made, however, if the lymph node was not present on the final microscopic slide.

Histologic examinations were performed on all tissues underlined in the list above from 10 randomly selected animals/sex/group sacrificed in the control and 1000 ppm dose groups. The 1000 ppm dose level was selected for complete histologic examination since it was the highest dose level without significant mortality. The liver, kidneys, testes, stomach, lungs, duodenum, and gross lesions were examined for 10 animals/sex/group (which included all survivors from the 4000 ppm group) from the other groups.

Details for the anatomic and histologic pathology procedures are included in Appendix 2.

Statistical Evaluation of Data

Data for continuous, parametric variables were intercompared for the dose and control groups by use of Levene's test for homogeneity of variances, by analysis of variance, and by pooled variance t-tests. The t-tests were used, if the analysis of variance was significant, to delineate which groups differed from the control group. If Levene's test indicated heterogeneous variances, the groups were compared by an analysis of variance for unequal variances followed, if necessary, by separate variance t-tests. Non-parametric data were analyzed by the Kruskal-Wallis test or by the Wilcoxon rank sum test as modified by Mann-Whitney. Frequency data were compared using Fisher's exact tests where appropriate. All statistical tests, except the frequency comparisons were performed using BMDP Statistical Software (Dixon, 1985). The frequency data tests are described in Biometry (Sokal, R. R. and Rohlf, F. J., W. H. Freeman and Company: San Francisco, 1969). The fiducial limit of 0.05 was used as the critical level of significance for all tests.

RESULTS

Pre-study Information and Quality Control

The 126 male and 126 female animals arrived at BRRRC on June 2, 1987. The birth date for the animals was recorded as May 1, 1987.

Evaluations for fecal parasites, histology, serology, hematology, and clinical chemistry evaluations, that were conducted during the pretest period, indicated that the animals were free of infectious disease and parasites. The animals were, therefore, considered to be acceptable for use on the study. Feed contaminant analyses supplied by the Ralston Purina Company (St. Louis, MO) for the feed lots used in the study indicated that contaminants were below the acceptable levels. Water analysis was conducted by the NUS Corporation (Pittsburgh, PA) on samples collected on March 3, 1987 and August 27, 1987. EPA standards for maximum levels of contaminants were not exceeded. Furthermore, no notable differences from previous analyses of BRRRC water were evident.

Dosing was initiated on June 18, 1987. The final day of sacrifice was September 22, 1987. Body weight ranges at first dose were 221.6 to 250.9 grams for the males and 147.7 to 174.4 grams for the females.

Analytical Chemistry

Homogeneity studies performed on samples from all dietary concentrations indicated that the test material was uniformly distributed in the diet. The range of the analytical determinations (mean of duplicate assays) for the homogeneity tests are summarized below:

<u>Nominal Concentration</u>	<u>Actual Concentration (% of Nominal)</u>		
	<u>Low</u>	<u>High</u>	<u>Mean (\pm SD)</u>
8000 ppm	98.5	105.8	102.9 \pm 2.9
4000 ppm	99.6	106.9	102.2 \pm 2.6
1000 ppm	105.7	113.1	109.1 \pm 2.6
500 ppm	102.6	110.0	106.6 \pm 2.6
100 ppm	98.3	113.9	102.9 \pm 5.0

Stability studies were conducted on diets (8000 and 100 ppm) stored at room temperature in closed polypropylene containers (as stored during the study) and in open glass feeder jars. These analyses indicated that the test material was stable in the diets for at least 21 days under both storage conditions for all dose levels. The values of analyses for the stability tests for both diets ranged from 98.7 to 105.5% of nominal when assayed at 7, 14, and 21 days. Concentration verification analyses of the 70 diet analyses (mean of duplicate assays) for the diets prepared for the study ranged from 90.7 to 111.8% of nominal for all 5 concentrations. One retrospective assay (111.8% from the 500 ppm diet prepared in week 10) was out of the range specified in the protocol (90 to 110% of nominal) after reanalysis.

Details of the analytical results are in Appendix 1.

Clinical Observations and Mortality

A summary of the incidence of clinical findings observed during the study are presented in Tables 1 and 2 for males and females, respectively. All of the animals in the 8000 ppm group died from Day 4 to Day 8 of the study. Twelve of the 15 male rats from the 4000 ppm group were found dead or sacrificed in a moribund condition from Day 7 to Day 19 and 11 of the 15 females from this group were found dead or were sacrificed moribund from Day 7 to Day 11. All of these deaths were attributed to treatment with ADBAC.

Treatment-related clinical findings were restricted to the males and females from the 4000 and 8000 ppm groups. The observations for these groups were principally of two types, general cachexia (e.g. emaciation, unkempt appearance, etc.) and loose feces. Findings for animals that survived to termination of the study in the 4000 ppm group were similar to those for the animals that died.

Listings of the individual clinical observations are included in Appendix 4. Individual animal fate data are included in Appendix 5.

Food Consumption

Food consumption data for the male rats are included in Table 3. Food consumption data for the female rats are included in Table 4. The data for the animals with significant food spillage are removed from each test period. In several instances, therefore, there are no data for the surviving animals

in the 4000 ppm group since all animals were observed to have significant spillage. Food consumption was markedly reduced in the animals that survived from the two highest dose groups through the first week. Animals from the 4000 ppm group that survived beyond week 1 appeared to have reduced food intake although the excessive spillage observed for these animals makes interpretation of the food consumption data speculative.

Statistically significant reductions in food consumption compared to the controls were observed for the males from the 1000 ppm group for the second and third week of the study (7% and 8% reductions, respectively). Food consumption for the males in this group tended to be lower (although not statistically significant) than the controls through most of the study. No treatment-related differences in food consumption from control were seen for the males in the 100 and 500 ppm groups or for females in the 100, 500, or 1000 ppm dose groups.

The weekly test material consumption calculated as the mean mg ADBAC/kg body weight/day is presented in Table 5 for males and Table 6 for females. The mean ADBAC intake over the entire study was 6.3, 31.2, and 62.0 mg/kg/day for the males and 7.9, 38.3, and 76.7 mg/kg/day for the females from the 100, 500, and 1000 ppm groups, respectively. Due to the extensive mortality and food spillage in the 4000 and 8000 ppm groups, an accurate daily dosage could not be calculated for these animals.

Individual animal data for food consumption are included in Appendix 6.

Body Weights

The mean absolute body weights for the male rats are presented in Table 7, and the mean body weight gain data are presented in Table 8. The growth curves for the male rats are shown in Figure 1. Body weight loss was observed in the male rats surviving the first week of the study in the 4000 and 8000 ppm groups. The mean weight for the males that survived in the 4000 ppm group was below that of the mean group weight at the start of the study through week 3. Although these animals gained weight starting in the third week of the study, at 13 weeks the mean body weight of the three surviving males was 29% lower than the controls and the mean body weight gain calculated from Day 0 for these animals was 48% lower than controls. Statistically significant reductions in mean body weights for the males in the 1000 ppm group compared to the controls were observed in weeks 2 and 3 (4 to 5% reduction), and in mean body weight gain in weeks 1 through 6 (7 to 12% reductions) and week 10 (7% reduction). Statistically significant reductions in mean body weight gain were also observed in the males from the 500 ppm group in weeks 2 and 3 (8 to 9% reductions).

Mean female body weight data are presented in Table 9, and the mean weight gain data are given in Table 10. The growth curves for the females are shown in Figure 2. A mean weight loss of 29 grams (18% of their initial weight) was observed in the 13 females from the 4000 ppm group that survived to the first weighing period after initiation of dosing. The 4 females that survived to the end of treatment from this group began gaining weight in the second week of the study, and at termination the mean body weight for this group was 11.5% lower than the controls and the mean weight gain calculated from Day 0 was 33% less than the control group. No treatment-related differences were observed in body weight or weight gain for the females in the 100, 500, or 1000 ppm groups.

Individual animal data for body weights are included in Appendix 7.

Ophthalmic Examinations

The findings for the terminal ophthalmic examinations are included in Appendix 8. Approximately 80% of the animals (distributed across both sexes and all groups including control) were observed to have corneal crystals prior to final sacrifice. The lesion was considered minimal and there was no evidence that the lesions were related to treatment with the test material. Other lesions were infrequent and were not considered related to treatment with ADBAC.

Corneal crystals consist of fine granular mineralized deposits of calcium phosphate, located along the corneal epithelial basement membrane. The deposits are found within the epithelium and beneath it in the superficial stroma. The incidence of the lesion varies with the source of rats (Charles River has a higher incidence of more severely affected animals than some other suppliers), the technique used to evaluate the animals (slit lamp examination detects smaller lesions than direct or indirect ophthalmic examinations), and the experience of the individual conducting the exams. Approximately 10% incidence has been noted at our laboratory by simple gross examination of the eyes. Up to 90+% incidence has been found using both a slit lamp and an indirect ophthalmoscope. The cause of the condition is not known (Losco P. E. and Troup C. M., Lab. Anim. Science 36, 576, 1986).

Clinical Pathology

The summary and individual results of all hematology and clinical chemistry measurements are included in Appendix 3. No treatment-related changes were observed in any hematology measurements for males or females from any treatment group (4000 ppm or lower). Statistically significant decreases in glucose concentration were observed in males from all treated groups (10%, 10%, 12%, and 22% reductions for the 100, 500, 1000, and 4000 ppm groups, respectively). Due to the small magnitude of these changes and the lack of dose response, the differences in the 100, 500, and 1000 ppm groups were of questionable biological significance. In addition, statistically significant increases in ALT and phosphorus were observed for the 3 males from the 4000 ppm group. No changes related to treatment in other serum chemistry measurements for the males or females were observed.

Organ Weights and Final Body Weights

Table 11 includes the body weights obtained prior to sacrifice and the absolute organ weights for the male rats sacrificed at 13 weeks. Organ weights as percentage of body weight and as percentage of brain weight for male rats are presented in Tables 12 and 13, respectively. Corresponding values for females are presented in Tables 14-16.

No differences between treated animals and controls (males or females) were observed for body weight prior to sacrifice or organ weights in the 100, 500, or 1000 ppm treatment groups. For the surviving animals in the 4000 ppm groups, the final body weights were depressed consistently with the reduction observed during the study. Male absolute organ weights (liver, kidneys, spleen, and heart) for this group were statistically lower, and weights relative to body weight (brain and testes) were statistically higher. These differences were consistent with the depressed body weights. Female absolute weights tended to be similar to controls and organ weights relative to body weight (brain and liver) were statistically greater than control presumably due only to the lower body weights. The statistically lower liver weight as percent of brain weight for the males in the 100 ppm group was considered spurious due to the lack of dose response.

The individual body weights prior to sacrifice and absolute organ weights are included in Appendix 2.

Gross Necropsy Findings and Histopathology

Details of the findings for both gross and histologic pathology are included in Appendix 2. Gross lesions related to treatment with ADBAC were restricted to the animals that died in the 8000 and 4000 ppm groups and to a lesser degree in the animals that survived in the 4000 ppm group. Findings considered treatment-related included fecal staining of the perineal skin, emaciation, color changes of various organs, and marked intestinal ileus consisting of distended fluid- and gas-filled viscera extending from the stomach to the cecum. Microscopic lesions associated with ADBAC exposure were seen only in the females that died from the 4000 and 8000 ppm dose groups and in males that died as well as in 2 of the 3 sacrificed males from these dose groups. The principle lesions included congestion with or without hemorrhage of various organs and tissues, mucosal cell degeneration or necrosis affecting the villus tips of the small intestine and cecum, submucosal edema of the stomach, splenic contraction, and hepatocellular atrophy. Lesions observed in the males that survived to sacrifice were principally mucosal cell degeneration of the duodenum and congestion of the ileum.

DISCUSSION AND CONCLUSIONS


Treatment of male and female Sprague-Dawley rats with ADBAC in the diet for several days resulted in 100% mortality at a dietary concentration of 8000 ppm and approximately 80% mortality at a dietary concentration of 4000 ppm. Animals surviving to the end of treatment at the 4000 ppm level were cachectic and debilitated. Gross pathologic findings and microscopic lesions supported ileus and shock as the probable cause of death.

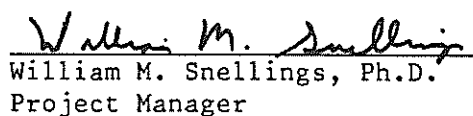
Treatment of rats with 1000 ppm or less of ADBAC in the diet for 95 or 96 days resulted in no overt toxic responses. Minor decreases from the controls in food consumption and body weights may have been evidenced in males from the 1000 ppm dose group temporally during the course of treatment. Although all treated male groups showed a statistically significant reduction in serum glucose concentration prior to final sacrifice, these reductions were of a small magnitude and not clearly dose related at the 100, 500, and 1000 ppm dose levels and were, therefore, considered of questionable significance. No other changes were observed in any measurements throughout the study in males or females from the 100, 500, or 1000 ppm dose groups. Females tended to show less aberrations in all measurements (including survivors from the 4000 ppm group) than did the males. The steep dose response from 80% mortality in the 4000 ppm group to minimal or no effects in the 1000 ppm group precluded a clear definition of a maximum tolerated dose from this study. The no observable effect level of ADBAC for this strain of rats was considered to be at least 500 ppm.


RECORDS TO BE RETAINED

All raw data, specimens, the final report, and the study protocol are stored in the BRRRC Archives.

Reviewed and Approved by:


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TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
CLINICAL OBSERVATIONS SUMMARY OF INCIDENCE^a

MALES

CATEGORY FINDING (LOCATION)	GRADE ^b	Dietary Concentration (ppm)					
		0 (Days) ^c	100 (Days)	500 (Days)	1000 (Days)	4000 (Days)	8000 (Days)
HYPOACTIVE	P	0	0	0	0	0	1 (7)
ATAXIA	P	0	0	0	0	0	1 (7)
PROSTRATION	P	0	0	0	0	0	1 (7)
BODY							
EMACIATED	P	0	0	0	0	11 (8- 38)	6 (6- 7)
DEHYDRATED	P	0	0	0	0	0	1 (7)
SWELLING		0	0	0	0	8	2
(ANUS)	P	0	0	0	0	8 (7- 35)	1 (7)
(PENIS)	P	0	0	0	0	0	1 (7)
ABDOMINAL DISTENSION	P	0	0	0	0	1 (21)	0
UNKEMPT	P	0	0	0	0	4 (7)	8 (7)
URINE STAINS	P	0	0	0	0	2 (14)	5 (7)
COLD EXTREMITIES (LEGS-ALL)	P	0	0	0	0	0	1 (7)
PALLOR (ENTIRE BODY)	P	0	0	0	0	0	2 (7)

^aNumber of animals exhibiting the finding at least once during the study.

^bGrades: P = present, 1 = mild, 2 = moderate, 3 = severe.

^cEarliest to latest day a finding of the specified grade was observed.

TABLE 1 (Continued)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
CLINICAL OBSERVATIONS SUMMARY OF INCIDENCE^a

MALES

CATEGORY FINDING (LOCATION)	GRADE ^b	Dietary Concentration (ppm)					
		0 (Days) ^c	100 (Days)	500 (Days)	1000 (Days)	4000 (Days)	8000 (Days)
BODY							
HUNCHED POSTURE	P	0	0	0	0	1 (14)	2 (7)
UROGENITAL DISCHARGE, RED	P	0	0	0	0	0	1 (7)
UROGENITAL WETNESS	P	0	0	0	0	0	1 (7)
PILOERECTION	P	0	0	0	0	0	3 (7)
CARDIO-PULMONARY GASPING	P	0	0	0	0	0	3(6- 7)
EYES/EARS/NOSE							
OCULAR DISCHARGE (EYE-BOTH)	P	0	0	1(49- 63)	0	0	0
PERIOcular ENCRUSTATION		0	1	2	1	0	0
(EYE-BOTH)	P	0	0	1 (77)	0	0	0
(EYE-LEFT)	P	0	1 (84)	0	0	0	0
(EYE-RIGHT)	P	0	0	1(70- 95)	1(91- 95)	0	0
EXCRETA							
LOOSE FECES	P	0	0	0	0	14(4- 95)	8 (7)

^aNumber of animals exhibiting the finding at least once during the study.

^bGrades: P = present, 1 = mild, 2 = moderate, 3 = severe.

^cEarliest to latest day a finding of the specified grade was observed.

TABLE 1 (Continued)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
CLINICAL OBSERVATIONS SUMMARY OF INCIDENCE^a

MALES

CATEGORY FINDING (LOCATION)	GRADE ^b	Dietary Concentration (ppm)					
		0 (Days) ^c	100 (Days)	500 (Days)	1000 (Days)	4000 (Days)	8000 (Days)
ORAL/DENTAL OVERGROWN INCISORS	P	0	0	2 (49- 91)	0	0	0
SKIN ALOPECIA		1	0	1	0	1	1
(LEG-FRONT-BOTH)	P	1 (49- 91)	0	1 (56- 95)	0	0	0
(MULTIPLE AREAS, NOS)	P	1 (95)	0	0	0	1 (14- 63)	1 (7)
ULCER(NECK)	P	0	1 (35- 63)	0	0	0	0
RED CUTIS		0	0	0	0	12	4
(ANUS)	P	0	0	0	0	12 (7- 35)	3 (7)
(PENIS)	P	0	0	0	0	0	1 (7)

^aNumber of animals exhibiting the finding at least once during the study.

^bGrades: P = present, 1 = mild, 2 = moderate, 3 = severe.

^cEarliest to latest day a finding of the specified grade was observed.

NOS = Not otherwise specified

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
CLINICAL OBSERVATIONS SUMMARY OF INCIDENCE^a

FEMALES

CATEGORY FINDING (LOCATION)	GRADE ^b	0 (Days) ^c	Dietary Concentration (ppm)				
			100 (Days)	500 (Days)	1000 (Days)	4000 (Days)	8000 (Days)
BEHAVIOR/CNS PARALYSIS (LEG-HIND-BOTH)	P	0	0	0	0	0	1 (5)
BODY EMACIATED	P	0	0	0	1 (42- 43)	9 (7- 96)	0
SWELLING (ANUS)	P	0	0	0	0	2 (7- 21)	0
ABDOMINAL DISTENSION	P	0	0	0	0	5 (7- 21)	0
UNKEMPT	P	0	0	0	0	8 (7- 14)	0
URINE STAINS	P	0	0	0	0	1 (21)	0
HUNCHED POSTURE	P	0	0	0	0	1 (7)	0
UROGENITAL DISCHARGE, RED	P	0	0	0	0	2 (7)	0
CARDIO-PULMONARY GASPING	P	0	0	0	0	0	1 (6)
EYES/EARS/NOSE LACRIMATION (EYE-RIGHT)	P	1 (96)	0	0	0	0	0
OCULAR DISCHARGE (EYE-RIGHT)	P	2 (63- 91)	0	0	0	0	0

^aNumber of animals exhibiting the finding at least once during the study.

^bGrades: P = present, 1 = mild, 2 = moderate, 3 = severe.

^cEarliest to latest day a finding of the specified grade was observed.

TABLE 2 (Continued)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
CLINICAL OBSERVATIONS SUMMARY OF INCIDENCE^a

FEMALES

CATEGORY FINDING (LOCATION)	GRADE ^b	Dietary Concentration (ppm)					
		0 (Days) ^c	100 (Days)	500 (Days)	1000 (Days)	4000 (Days)	8000 (Days)
EYES/EARS/NOSE							
PERIOcular ENCRUSTATION		2	0	0	0	0	0
(EYE-LEFT)	P	1 (96)	0	0	0	0	0
(EYE-RIGHT)	P	2(63- 96)	0	0	0	0	0
EXCRETA							
LOOSE FECES	P	0	0	0	3(40- 52)	13(4- 96)	0
ORAL/DENTAL							
OVERGROWN INCISORS	P	1(77- 91)	0	0	0	0	0
SKIN							
ALOPECIA		1	0	1	1	0	0
(LEG-HIND-BOTH)	P	0	0	0	1 (91)	0	0
(MULTIPLE AREAS, NOS)	P	1(91- 96)	0	1(91- 96)	1 (96)	0	0
EXCORIATED (BACK)	P	0	1(49- 77)	0	0	0	0
RED CUTIS (ANUS)	P	0	0	0	0	6(7- 21)	0

^aNumber of animals exhibiting the finding at least once during the study.

^bGrades: P = present, 1 = mild, 2 = moderate, 3 = severe.

^cEarliest to latest day a finding of the specified grade was observed.

NOS = Not otherwise specified

Table 3
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
FOOD CONSUMPTION (GRAMS/ANIMAL/DAY) SUMMARY OF MEANS

MALES						
GROUP: PPM	0	100	500	1000	4000	8000
WEEK 0 TO 1						
MEAN	24.9	24.6	24.1	24.2	6.7**	2.1**
S.D.	1.79	1.30	1.65	1.55	1.21	0.57
N	15	15	15	15	9	4
WEEK 1 TO 2						
MEAN	26.2	25.5	25.0	24.4*	16.1*	
S.D.	2.45	1.23	1.87	2.08	5.60	
N	15	15	15	15	4	
WEEK 2 TO 3						
MEAN	27.4	26.3	26.0	25.3**	17.8**	
S.D.	2.77	1.74	1.70	1.98	0.00	
N	15	15	15	15	1	
WEEK 3 TO 4						
MEAN	26.5	26.3	25.8	25.3		
S.D.	2.20	1.57	1.82	1.41		
N	15	15	15	15		
WEEK 4 TO 5						
MEAN	27.0	26.4	26.2	25.7	23.2	
S.D.	2.92	1.63	2.01	1.79	3.40	
N	15	15	15	15	2	
WEEK 5 TO 6						
MEAN	26.6	26.2	25.9	25.6		
S.D.	2.29	1.97	2.41	1.72		
N	15	15	15	15		
WEEK 6 TO 7						
MEAN	26.4	25.6	25.6	24.8		
S.D.	2.39	1.46	2.09	1.65		
N	15	15	15	15		
WEEK 7 TO 8						
MEAN	26.3	25.6	25.3	25.1		
S.D.	2.46	1.61	2.27	1.83		
N	15	15	15	15		
WEEK 8 TO 9						
MEAN	26.3	25.4	25.3	24.9		
S.D.	2.09	1.56	1.66	1.94		
N	15	15	15	15		
WEEK 9 TO 10						
MEAN	26.0	25.2	25.0	25.2		
S.D.	1.97	1.98	1.56	2.01		
N	15	15	15	15		
WEEK 10 TO 11						
MEAN	25.5	24.8	24.2	24.1		
S.D.	1.87	1.22	1.98	1.88		
N	15	15	15	15		
WEEK 11 TO 12						
MEAN	25.9	24.4	24.3	24.4		
S.D.	2.17	1.80	2.41	1.78		
N	15	15	15	15		
WEEK 12 TO 13						
MEAN	24.6	24.0	23.6	23.1	23.2	
S.D.	2.36	2.05	1.02	1.91	0.00	
N	15	15	14	15	1	

* Significantly different from control group ($p < .05$)

** Significantly different from control group ($p < .01$)

Data not included for animals with observed food spillage; No data for 4000 ppm group indicates that all remaining animals had observed food spillage

Table 4
 NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
 AMMONIUM CHLORIDE (ADBAC) IN RATS
 FOOD CONSUMPTION (GRAMS/ANIMAL/DAY) SUMMARY OF MEANS

FEMALES						
GROUP: PPM	0	100	500	1000	4000	8000
WEEK 0 TO 1						
MEAN	16.6	17.2	16.8	16.9	7.2**	
S.D.	1.58	1.70	1.22	0.96	2.05	
N	14	14	13	14	7	
WEEK 1 TO 2						
MEAN	17.6	17.6	17.2	17.5	12.8**	
S.D.	1.62	2.01	1.25	1.30	1.94	
N	15	15	15	15	4	
WEEK 2 TO 3						
MEAN	17.8	18.4	17.8	18.1	15.8	
S.D.	1.69	1.72	1.56	1.37	0.70	
N	13	15	12	14	3	
WEEK 3 TO 4						
MEAN	18.4	19.1	18.3	18.4	18.9	
S.D.	1.88	1.74	1.70	1.22	2.25	
N	14	15	15	15	4	
WEEK 4 TO 5						
MEAN	18.3	18.7	18.9	18.0	18.5	
S.D.	2.05	2.26	2.49	1.39	2.04	
N	15	15	15	15	3	
WEEK 5 TO 6						
MEAN	18.9	19.0	18.2	16.5		
S.D.	2.02	1.94	2.04	5.01		
N	15	15	15	14		
WEEK 6 TO 7						
MEAN	18.1	18.3	17.6	19.1	15.9	
S.D.	2.19	1.82	1.91	3.23	2.20	
N	14	15	15	15	2	
WEEK 7 TO 8						
MEAN	18.4	18.6	17.6	17.9		
S.D.	1.56	1.90	1.80	1.67		
N	14	15	15	15		
WEEK 8 TO 9						
MEAN	18.3	18.6	17.3	18.0	13.5**	
S.D.	1.64	1.85	2.15	1.36	4.22	
N	14	14	15	14	2	
WEEK 9 TO 10						
MEAN	17.6	18.2	17.1	17.5	12.0**	
S.D.	2.08	1.91	1.68	1.67	0.00	
N	15	15	15	15	1	
WEEK 10 TO 11						
MEAN	17.8	17.7	17.0	17.2		
S.D.	2.21	1.64	2.31	1.54		
N	15	14	14	15		
WEEK 11 TO 12						
MEAN	17.6	17.9	17.0	17.0		
S.D.	1.61	1.67	1.79	1.30		
N	15	15	14	15		
WEEK 12 TO 13						
MEAN	17.4	17.1	17.2	16.4		
S.D.	2.12	1.88	3.25	1.52		
N	15	15	14	15		

** Significantly different from control group ($p < .01$)
 Data not included for animals with observed food spillage; No data for 4000 ppm
 group indicates that all remaining animals had observed food spillage

Table 5
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
CALCULATED DOSAGE OF COMPOUND INGESTED (MG/KG BODYWEIGHT/DAY)

MALES						
GROUP: PPM	0	100	500	1000	4000	8000
WEEK 0 TO 1						
MEAN		9.4	46.5	93.2	126.9	81.5
S.D.		0.46	2.21	4.48	22.03	21.60
N		15	15	15	9	4
WEEK 1 TO 2						
MEAN		8.3	41.2	80.4	344.0	
S.D.		0.32	1.91	4.08	113.12	
N		15	15	15	4	
WEEK 2 TO 3						
MEAN		7.6	38.0	74.6	344.4	
S.D.		0.40	1.48	3.67	0.00	
N		15	15	15	1	
WEEK 3 TO 4						
MEAN		7.0	34.5	68.8		
S.D.		0.25	1.58	2.40		
N		15	15	15		
WEEK 4 TO 5						
MEAN		6.6	32.9	65.5	353.6	
S.D.		0.26	1.66	2.54	35.33	
N		15	15	15	2	
WEEK 5 TO 6						
MEAN		6.3	31.0	62.0		
S.D.		0.27	2.25	2.60		
N		15	15	15		
WEEK 6 TO 7						
MEAN		5.9	29.4	57.3		
S.D.		0.20	1.87	2.56		
N		15	15	15		
WEEK 7 TO 8						
MEAN		5.6	27.9	55.6		
S.D.		0.19	1.94	3.12		
N		15	15	15		
WEEK 8 TO 9						
MEAN		5.4	26.8	53.2		
S.D.		0.23	1.37	2.55		
N		15	15	15		
WEEK 9 TO 10						
MEAN		5.2	25.9	52.3		
S.D.		0.23	0.93	2.34		
N		15	15	15		
WEEK 10 TO 11						
MEAN		5.0	24.6	49.0		
S.D.		0.22	1.46	1.95		
N		15	15	15		
WEEK 11 TO 12						
MEAN		4.8	24.1	48.4		
S.D.		0.24	1.73	2.05		
N		15	15	15		
WEEK 12 TO 13						
MEAN		4.7	23.2	45.1	257.7	
S.D.		0.27	1.12	2.20	0.00	
N		15	14	15	1	

Data not included for animals with observed food spillage; No data for 4000 ppm group indicates that all remaining animals had observed food spillage

Table 6
 NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
 AMMONIUM CHLORIDE (ADBAC) IN RATS
 CALCULATED DOSAGE OF COMPOUND INGESTED (MG/KG BODYWEIGHT/DAY)

FEMALES						
GROUP: PPM	0	100	500	1000	4000	8000
WEEK 0 TO 1						
MEAN		10.2	50.0	99.4	197.3	
S.D.		0.66	2.25	5.94	54.37	
N		14	13	14	7	
WEEK 1 TO 2						
MEAN		9.5	46.3	93.3	345.2	
S.D.		1.01	2.69	6.58	35.45	
N		15	15	15	4	
WEEK 2 TO 3						
MEAN		9.1	44.4	89.2	377.8	
S.D.		0.60	2.59	6.55	24.46	
N		15	12	14	3	
WEEK 3 TO 4						
MEAN		8.9	43.1	85.5	401.8	
S.D.		0.57	3.25	4.67	30.75	
N		15	15	15	4	
WEEK 4 TO 5						
MEAN		8.4	42.2	79.5	364.0	
S.D.		0.79	5.10	4.97	14.32	
N		15	15	15	3	
WEEK 5 TO 6						
MEAN		8.2	39.3	69.8		
S.D.		0.63	3.51	18.85		
N		15	15	14		
WEEK 6 TO 7						
MEAN		7.6	36.6	81.4	282.2	
S.D.		0.58	3.36	19.31	10.61	
N		15	15	15	2	
WEEK 7 TO 8						
MEAN		7.4	35.3	72.1		
S.D.		0.52	2.70	7.25		
N		15	15	15		
WEEK 8 TO 9						
MEAN		7.3	33.8	70.5	239.0	
S.D.		0.47	4.08	4.59	42.48	
N		14	15	14	2	
WEEK 9 TO 10						
MEAN		6.9	32.8	67.3	252.3	
S.D.		0.50	2.54	5.05	0.00	
N		15	15	15	1	
WEEK 10 TO 11						
MEAN		6.6	32.0	65.0		
S.D.		0.67	4.45	3.84		
N		14	14	15		
WEEK 11 TO 12						
MEAN		6.5	31.4	63.3		
S.D.		0.52	3.54	4.30		
N		15	14	15		
WEEK 12 TO 13						
MEAN		6.2	31.3	60.2		
S.D.		0.52	6.70	3.81		
N		15	14	15		

Data not included for animals with observed food spillage; No data for 4000 ppm group indicates that all remaining animals had observed food spillage

Table 7
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
BODY WEIGHT (G) SUMMARY OF MEANS

		MALES					
GROUP: PPM		0	100	500	1000	4000	8000
WEEK 0							
MEAN		237.9	237.1	236.0	236.6	234.8	235.4
S.D.		8.73	5.54	6.58	6.69	7.66	6.65
N		15	15	15	15	15	15
WEEK 1							
MEAN		287.3	284.0	281.2	282.2	188.2**	159.5**
S.D.		12.86	7.39	10.63	9.93	8.88	4.97
N		15	15	15	15	14	8
WEEK 2							
MEAN		336.2	329.3	325.5	322.7*	181.7**	
S.D.		19.82	10.56	13.91	14.24	14.24	
N		15	15	15	15	4	
WEEK 3							
MEAN		372.6	362.6	359.6	354.7*	212.8**	
S.D.		23.87	13.02	15.51	16.90	10.41	
N		15	15	15	15	3	
WEEK 4							
MEAN		398.4	391.7	388.3	381.2	243.5**	
S.D.		29.18	18.46	15.85	18.14	12.78	
N		15	15	15	15	3	
WEEK 5							
MEAN		422.7	409.7	407.6	403.8	273.4**	
S.D.		33.38	17.58	19.91	21.12	10.44	
N		15	15	15	15	3	
WEEK 6							
MEAN		438.9	427.7	426.7	422.8	306.6**	
S.D.		30.37	20.93	21.81	22.54	6.10	
N		15	15	15	15	3	
WEEK 7							
MEAN		462.0	447.5	444.4	442.6	312.6**	
S.D.		37.37	21.06	23.38	23.59	10.92	
N		15	15	15	15	3	
WEEK 8							
MEAN		481.1	466.2	463.5	460.8	329.5**	
S.D.		39.18	25.04	22.85	24.09	15.09	
N		15	15	15	15	3	
WEEK 9							
MEAN		494.5	478.8	478.8	474.8	342.5**	
S.D.		41.15	25.15	21.10	26.67	13.73	
N		15	15	15	15	3	
WEEK 10							
MEAN		509.2	495.1	489.0	487.8	355.4**	
S.D.		40.63	29.34	23.44	29.97	23.16	
N		15	15	15	15	3	
WEEK 11							
MEAN		516.2	500.3	495.8	496.4	367.1**	
S.D.		42.12	27.03	25.28	31.45	25.39	
N		15	15	15	15	3	
WEEK 12							
MEAN		529.4	512.2	510.6	511.1	376.1**	
S.D.		44.67	29.27	26.01	32.71	26.23	
N		15	15	15	15	3	
WEEK 13							
MEAN		536.6	519.4	517.9	515.1	380.5**	
S.D.		46.32	31.41	26.66	35.62	20.92	
N		15	15	15	15	3	

* Significantly different from control group ($p < .05$)

** Significantly different from control group ($p < .01$)

Table 8
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
BODY WEIGHT GAINS (G) SUMMARY OF MEANS

MALES						
GROUP: PPM	0	100	500	1000	4000	8000
WEEK 0 TO 1						
MEAN	49.3	46.9	45.2	45.5*	-46.6**	-79.0**
S.D.	5.37	3.56	7.16	4.72	8.76	3.80
N	15	15	15	15	14	8
WEEK 0 TO 2						
MEAN	98.3	92.2	89.5*	86.1**	-46.1**	
S.D.	12.66	7.11	10.34	9.72	16.38	
N	15	15	15	15	4	
WEEK 0 TO 3						
MEAN	134.6	125.4	123.6*	118.1**	-13.9**	
S.D.	16.32	10.25	11.96	12.46	11.07	
N	15	15	15	15	3	
WEEK 0 TO 4						
MEAN	160.5	154.6	152.2	144.6*	16.8**	
S.D.	22.35	16.07	11.85	14.39	9.28	
N	15	15	15	15	3	
WEEK 0 TO 5						
MEAN	184.7	172.6	171.6	167.2*	46.7**	
S.D.	26.70	14.98	16.26	17.79	4.35	
N	15	15	15	15	3	
WEEK 0 TO 6						
MEAN	201.0	190.6	190.7	186.2*	79.9**	
S.D.	23.92	18.38	18.30	19.13	2.69	
N	15	15	15	15	3	
WEEK 0 TO 7						
MEAN	224.1	210.3	208.4	205.9	85.9**	
S.D.	30.77	18.88	20.34	19.90	5.83	
N	15	15	15	15	3	
WEEK 0 TO 8						
MEAN	243.1	229.1	227.5	224.2	102.8**	
S.D.	32.83	22.63	19.47	20.75	11.54	
N	15	15	15	15	3	
WEEK 0 TO 9						
MEAN	256.6	241.7	242.8	238.1	115.8**	
S.D.	34.89	22.53	17.28	23.95	10.47	
N	15	15	15	15	3	
WEEK 0 TO 10						
MEAN	271.3	258.0	253.0	251.2*	128.7**	
S.D.	34.53	26.89	19.97	27.49	19.30	
N	15	15	15	15	3	
WEEK 0 TO 11						
MEAN	278.3	263.2	259.8	259.8	140.4**	
S.D.	35.99	24.43	21.53	28.79	22.26	
N	15	15	15	15	3	
WEEK 0 TO 12						
MEAN	291.5	275.1	274.6	274.5	149.4**	
S.D.	38.50	26.55	21.77	30.04	20.66	
N	15	15	15	15	3	
WEEK 0 TO 13						
MEAN	298.6	282.2	281.8	278.5	153.8**	
S.D.	39.88	29.13	22.40	32.90	16.50	
N	15	15	15	15	3	

* Significantly different from control group ($p < .05$)

** Significantly different from control group ($p < .01$)

FIGURE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MEAN BODY WEIGHTS (GRAMS) VERSUS TIME
MALES

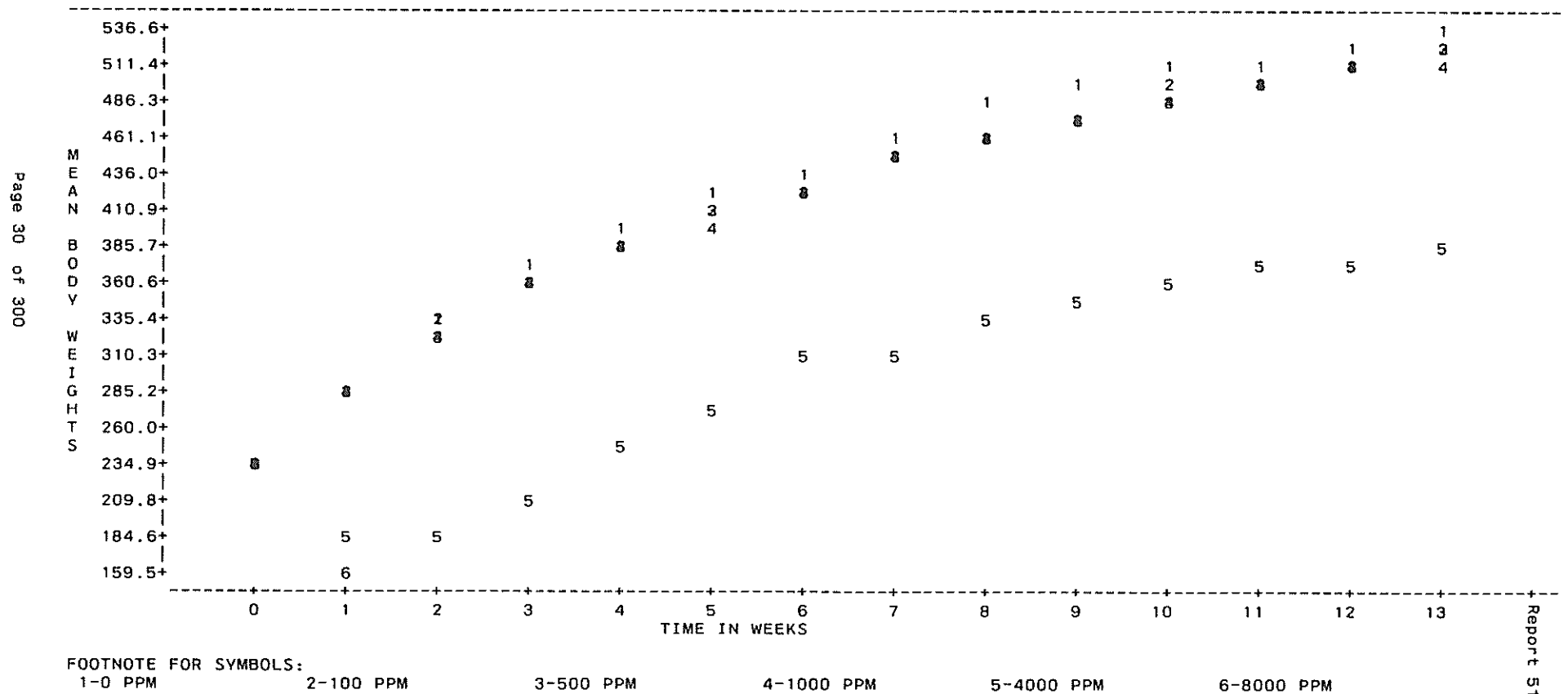


Table 9
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
BODY WEIGHT (G) SUMMARY OF MEANS

FEMALES						
GROUP: PPM	0	100	500	1000	4000	8000
WEEK 0						
MEAN	157.4	159.7	158.9	159.8	160.2	159.6
S.D.	5.74	7.55	7.14	7.22	6.26	7.53
N	15	15	15	15	15	15
WEEK 1						
MEAN	176.2	177.7	177.1	179.2	131.8**	
S.D.	7.53	10.00	7.08	7.11	9.26	
N	15	15	15	15	13	
WEEK 2						
MEAN	195.0	195.3	193.9	195.4	155.1**	
S.D.	10.57	11.42	9.36	10.39	13.82	
N	15	15	15	15	4	
WEEK 3						
MEAN	207.3	209.7	206.7	209.9	181.2**	
S.D.	11.52	13.99	13.85	13.06	7.54	
N	15	15	15	15	4	
WEEK 4						
MEAN	218.0	220.2	219.3	221.9	193.7**	
S.D.	12.83	17.45	13.54	11.85	10.91	
N	15	15	15	15	4	
WEEK 5						
MEAN	224.7	226.6	227.8	231.2	214.7	
S.D.	14.12	17.67	13.69	13.42	16.85	
N	15	15	15	15	4	
WEEK 6						
MEAN	234.6	236.6	235.9	230.2	225.8	
S.D.	16.15	18.98	15.95	26.66	14.40	
N	15	15	15	15	4	
WEEK 7						
MEAN	246.1	246.9	245.0	245.8	234.1	
S.D.	14.64	18.83	17.39	17.65	15.50	
N	15	15	15	15	4	
WEEK 8						
MEAN	252.9	255.0	252.8	251.7	235.9	
S.D.	14.42	20.73	18.26	17.08	17.06	
N	15	15	15	15	4	
WEEK 9						
MEAN	256.7	260.1	258.4	257.4	230.7	
S.D.	14.11	20.96	19.41	18.09	28.98	
N	15	15	15	15	4	
WEEK 10						
MEAN	262.1	267.5	264.1	262.8	237.4	
S.D.	13.96	24.98	19.19	18.33	31.27	
N	15	15	15	15	4	
WEEK 11						
MEAN	268.4	272.7	267.2	265.9	240.4	
S.D.	16.62	25.53	21.33	20.91	22.63	
N	15	15	15	15	4	
WEEK 12						
MEAN	274.6	276.9	275.4	271.7	247.2	
S.D.	15.94	23.79	21.63	20.52	21.31	
N	15	15	15	15	4	
WEEK 13						
MEAN	275.7	278.1	277.4	274.6	243.9	
S.D.	15.29	25.29	22.20	22.91	19.50	
N	15	15	15	15	4	

** Significantly different from control group ($p < .01$)

Table 10
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
BODY WEIGHT GAINS (G) SUMMARY OF MEANS

FEMALES						
GROUP: PPM	0	100	500	1000	4000	8000
WEEK 0 TO 1						
MEAN	18.7	18.1	18.2	19.4	-29.0**	
S.D.	4.00	5.03	3.63	3.23	6.76	
N	15	15	15	15	13	
WEEK 0 TO 2						
MEAN	37.6	35.6	35.0	35.6	-9.9**	
S.D.	6.34	5.67	5.60	5.54	9.95	
N	15	15	15	15	4	
WEEK 0 TO 3						
MEAN	49.9	50.1	47.8	50.1	16.2**	
S.D.	7.76	8.02	11.16	7.60	4.40	
N	15	15	15	15	4	
WEEK 0 TO 4						
MEAN	60.6	60.5	60.4	62.2	28.7**	
S.D.	9.63	11.38	10.64	6.61	2.58	
N	15	15	15	15	4	
WEEK 0 TO 5						
MEAN	67.3	67.0	69.0	71.4	49.7**	
S.D.	11.22	12.42	12.29	7.88	8.99	
N	15	15	15	15	4	
WEEK 0 TO 6						
MEAN	77.2	77.0	77.0	70.4	60.7	
S.D.	13.07	13.36	14.66	21.68	6.74	
N	15	15	15	15	4	
WEEK 0 TO 7						
MEAN	88.7	87.2	86.1	86.0	69.0	
S.D.	11.18	13.72	15.46	12.29	9.64	
N	15	15	15	15	4	
WEEK 0 TO 8						
MEAN	95.5	95.4	94.0	91.9	70.9**	
S.D.	10.89	15.10	16.38	12.21	9.86	
N	15	15	15	15	4	
WEEK 0 TO 9						
MEAN	99.3	100.4	99.5	97.6	65.7**	
S.D.	10.78	15.79	17.64	12.55	19.46	
N	15	15	15	15	4	
WEEK 0 TO 10						
MEAN	104.7	107.8	105.2	103.0	72.4**	
S.D.	10.81	19.78	17.43	12.59	21.80	
N	15	15	15	15	4	
WEEK 0 TO 11						
MEAN	111.0	113.0	108.3	106.2	75.4**	
S.D.	13.29	20.04	19.59	15.14	15.20	
N	15	15	15	15	4	
WEEK 0 TO 12						
MEAN	117.2	117.2	116.5	111.9	82.1**	
S.D.	12.36	18.74	20.00	15.49	14.03	
N	15	15	15	15	4	
WEEK 0 TO 13						
MEAN	118.2	118.5	118.5	114.9	78.9**	
S.D.	12.03	20.47	21.15	17.58	10.31	
N	15	15	15	15	4	

** Significantly different from control group (p < .01)

FIGURE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MEAN BODY WEIGHTS (GRAMS) VERSUS TIME
FEMALES

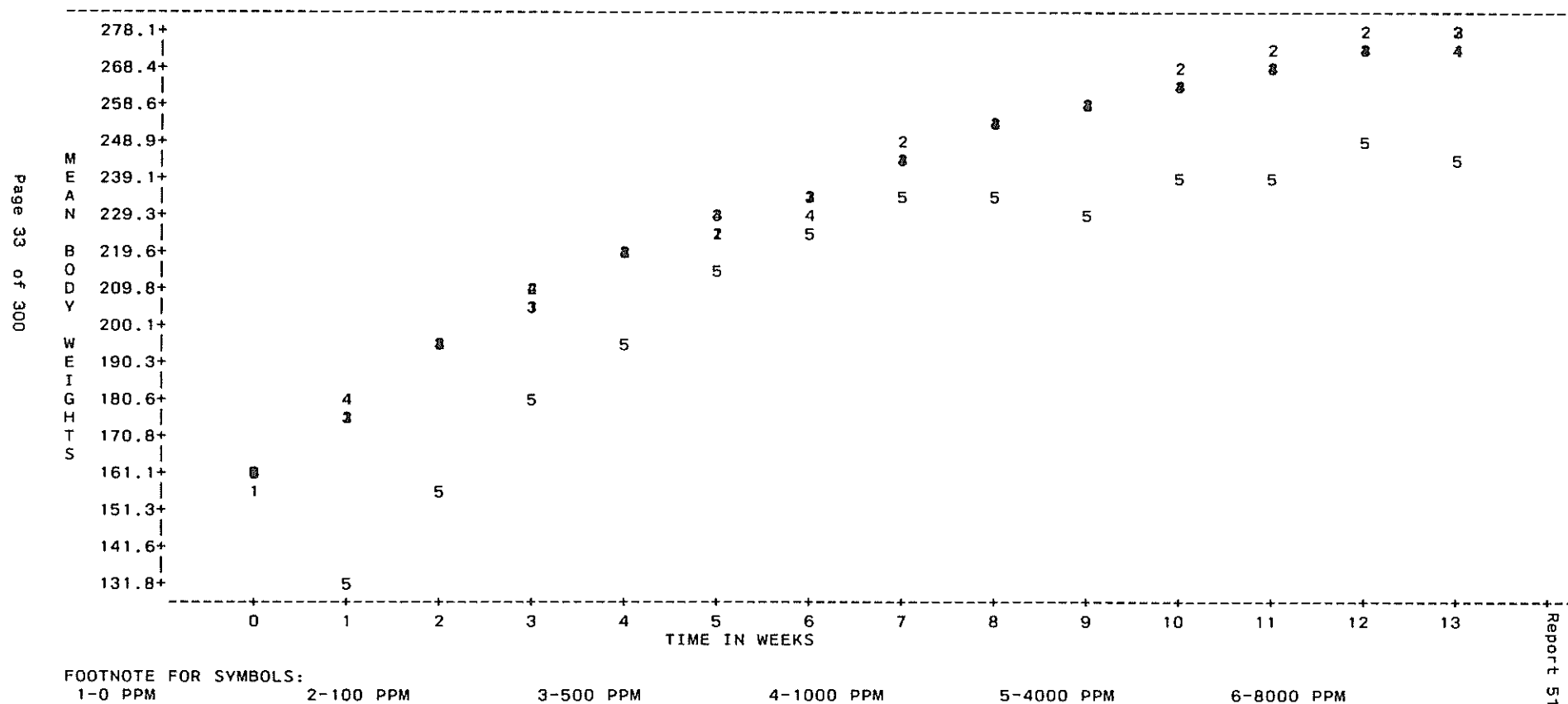


Table 11
 NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
 AMMONIUM CHLORIDE (ADBAC) IN RATS
 ORGAN WEIGHTS (G), SUMMARY OF MEANS
 ANIMALS SACRIFICED AT WEEK 13

MALES						
GROUP: PPM	0	100	500	1000	4000	8000
FINAL BODY WEIGHT						
MEAN	509.1	489.7	491.7	490.8	341.2**	
S.D.	45.80	33.27	25.80	37.30	22.42	
N	15	15	15	15	3	
LIVER						
MEAN	13.252	12.326	13.083	12.739	9.117**	
S.D.	1.4683	1.1699	1.2368	1.6891	0.3711	
N	15	15	15	15	3	
KIDNEYS						
MEAN	3.323	3.284	3.314	3.332	2.350**	
S.D.	0.3190	0.3496	0.2978	0.2370	0.1867	
N	15	15	15	15	3	
SPLEEN						
MEAN	0.699	0.661	0.659	0.702	0.522**	
S.D.	0.0704	0.0918	0.0841	0.0520	0.0617	
N	15	15	15	15	3	
HEART						
MEAN	1.453	1.409	1.421	1.415	1.126**	
S.D.	0.1425	0.1368	0.1838	0.1088	0.0748	
N	15	15	15	15	3	
BRAIN						
MEAN	2.090	2.124	2.085	2.090	2.000	
S.D.	0.0882	0.1016	0.1131	0.0558	0.0639	
N	15	15	15	15	3	
ADRENAL GL						
MEAN	0.058	0.058	0.058	0.055	0.065	
S.D.	0.0116	0.0064	0.0105	0.0082	0.0139	
N	15	15	15	15	3	
TESTES						
MEAN	3.467	3.406	3.490	3.521	3.343	
S.D.	0.3087	0.2090	0.2925	0.2580	0.0659	
N	15	15	15	15	3	

** Significantly different from control group (p < .01)

Table 12
 NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
 AMMONIUM CHLORIDE (ADBAC) IN RATS
 ORGAN WEIGHTS AS % OF FINAL BODY WEIGHTS
 ANIMALS SACRIFICED AT WEEK 13

MALES						
GROUP: PPM	0	100	500	1000	4000	8000
LIVER						
MEAN	2.603	2.516	2.661	2.594	2.676	
S.D.	0.1742	0.1522	0.2132	0.2434	0.0897	
N	15	15	15	15	3	
KIDNEYS						
MEAN	0.655	0.674	0.675	0.681	0.689	
S.D.	0.0646	0.0928	0.0596	0.0566	0.0222	
N	15	15	15	15	3	
SPLEEN						
MEAN	0.138	0.136	0.134	0.143	0.153	
S.D.	0.0146	0.0207	0.0181	0.0123	0.0225	
N	15	15	15	15	3	
HEART						
MEAN	0.286	0.288	0.289	0.289	0.331	
S.D.	0.0169	0.0205	0.0293	0.0230	0.0323	
N	15	15	15	15	3	
BRAIN						
MEAN	0.413	0.435	0.425	0.428	0.587**	
S.D.	0.0357	0.0335	0.0309	0.0302	0.0238	
N	15	15	15	15	3	
ADRENAL GL						
MEAN	0.011	0.012	0.012	0.011	0.019	
S.D.	0.0023	0.0013	0.0022	0.0016	0.0053	
N	15	15	15	15	3	
TESTES						
MEAN	0.687	0.697	0.711	0.720	0.982**	
S.D.	0.0913	0.0489	0.0640	0.0590	0.0484	
N	15	15	15	15	3	
** Significantly different from control group (p < .01)						

Table 13
 NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
 AMMONIUM CHLORIDE (ADBAC) IN RATS
 ORGAN WEIGHTS AS % OF BRAIN WEIGHT
 ANIMALS SACRIFICED AT WEEK 13

MALES						
GROUP: PPM	0	100	500	1000	4000	8000
LIVER						
MEAN	634.176	581.396*	628.562	609.272	455.674**	
S.D.	67.5782	60.5626	60.6316	77.2896	4.0092	
N	15	15	15	15	3	
KIDNEYS						
MEAN	158.992	154.755	158.945	159.376	117.380**	
S.D.	14.2516	16.2423	10.7433	10.1263	5.4905	
N	15	15	15	15	3	
SPLEEN						
MEAN	33.441	31.224	31.670	33.556	26.075**	
S.D.	3.3992	4.7181	4.1849	2.1522	2.9689	
N	15	15	15	15	3	
HEART						
MEAN	69.539	66.417	68.355	67.703	56.312**	
S.D.	6.4360	6.3755	9.6457	4.9869	3.4620	
N	15	15	15	15	3	
ADRENAL GL						
MEAN	2.770	2.718	2.759	2.649	3.260	
S.D.	0.5378	0.3300	0.4782	0.3758	0.7598	
N	15	15	15	15	3	
TESTES						
MEAN	166.182	160.652	168.170	168.398	167.165	
S.D.	16.8560	11.6942	20.3739	11.4819	2.0068	
N	15	15	15	15	3	

* Significantly different from control group ($p < .05$)

** Significantly different from control group ($p < .01$)

Table 14
 NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
 AMMONIUM CHLORIDE (ADBAC) IN RATS
 ORGAN WEIGHTS (G), SUMMARY OF MEANS
 ANIMALS SACRIFICED AT WEEK 13

FEMALES						
GROUP: PPM	0	100	500	1000	4000	8000
FINAL BODY WEIGHT						
MEAN	257.4	260.1	259.5	256.9	210.8**	
S.D.	15.53	23.01	22.10	21.42	20.39	
N	15	15	15	15	4	
LIVER						
MEAN	6.597	6.530	6.546	6.568	6.593	
S.D.	0.3920	0.5088	0.4646	0.6841	0.4652	
N	15	15	15	15	4	
KIDNEYS						
MEAN	1.883	1.875	1.844	1.874	1.980	
S.D.	0.1754	0.1558	0.1847	0.1598	0.4625	
N	15	15	15	15	4	
SPLEEN						
MEAN	0.453	0.447	0.421	0.423	0.425	
S.D.	0.0705	0.1084	0.0528	0.0407	0.0939	
N	15	15	15	15	4	
HEART						
MEAN	0.935	0.884	0.905	0.879	0.850	
S.D.	0.0817	0.0724	0.0938	0.0979	0.1392	
N	15	15	15	15	4	
BRAIN						
MEAN	1.900	1.873	1.853	1.853	1.858	
S.D.	0.0910	0.0579	0.0895	0.0855	0.1035	
N	15	15	15	15	4	
ADRENAL GL						
MEAN	0.061	0.060	0.063	0.059	0.063	
S.D.	0.0094	0.0115	0.0085	0.0100	0.0112	
N	15	15	15	15	4	
OVARIES						
MEAN	0.115	0.108	0.106	0.103	0.089	
S.D.	0.0164	0.0238	0.0187	0.0200	0.0292	
N	15	15	15	15	4	

** Significantly different from control group ($p < .01$)

Table 15
 NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
 AMMONIUM CHLORIDE (ADBAC) IN RATS
 ORGAN WEIGHTS AS % OF FINAL BODY WEIGHTS
 ANIMALS SACRIFICED AT WEEK 13

FEMALES						
GROUP: PPM	0	100	500	1000	4000	8000
LIVER						
MEAN	2.567	2.519	2.531	2.562	3.147**	
S.D.	0.1474	0.1797	0.1788	0.2354	0.3272	
N	15	15	15	15	4	
KIDNEYS						
MEAN	0.733	0.726	0.714	0.731	0.964	
S.D.	0.0663	0.0842	0.0827	0.0496	0.3444	
N	15	15	15	15	4	
SPLEEN						
MEAN	0.176	0.172	0.163	0.165	0.207	
S.D.	0.0285	0.0417	0.0196	0.0169	0.0705	
N	15	15	15	15	4	
HEART						
MEAN	0.363	0.341	0.349	0.343	0.411	
S.D.	0.0259	0.0237	0.0309	0.0283	0.1097	
N	15	15	15	15	4	
BRAIN						
MEAN	0.740	0.725	0.719	0.725	0.885**	
S.D.	0.0478	0.0635	0.0770	0.0600	0.0542	
N	15	15	15	15	4	
ADRENAL GL						
MEAN	0.024	0.023	0.025	0.023	0.030	
S.D.	0.0036	0.0051	0.0042	0.0042	0.0065	
N	15	15	15	15	4	
OVARIES						
MEAN	0.045	0.041	0.041	0.040	0.042	
S.D.	0.0065	0.0081	0.0081	0.0076	0.0118	
N	15	15	15	15	4	

** Significantly different from control group ($p < .01$)

Table 16
 NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
 AMMONIUM CHLORIDE (ADBAC) IN RATS
 ORGAN WEIGHTS AS % OF BRAIN WEIGHT
 ANIMALS SACRIFICED AT WEEK 13

FEMALES						
GROUP: PPM	0	100	500	1000	4000	8000
LIVER						
MEAN	347.607	348.826	353.841	354.979	354.956	
S.D.	21.7023	26.1782	26.4551	39.0188	17.5660	
N	15	15	15	15	4	
KIDNEYS						
MEAN	99.228	100.193	99.740	101.278	107.766	
S.D.	9.5947	8.2424	10.8742	9.2874	31.6428	
N	15	15	15	15	4	
SPLEEN						
MEAN	23.862	23.850	22.709	22.853	23.128	
S.D.	3.6897	5.5950	2.6157	2.1412	6.4661	
N	15	15	15	15	4	
HEART						
MEAN	49.292	47.204	48.989	47.483	46.030	
S.D.	4.5857	3.2849	6.2762	5.0696	9.3472	
N	15	15	15	15	4	
ADRENAL GL						
MEAN	3.217	3.186	3.421	3.207	3.392	
S.D.	0.5310	0.5827	0.4887	0.4895	0.6535	
N	15	15	15	15	4	
OVARIES						
MEAN	6.089	5.763	5.737	5.576	4.777	
S.D.	0.9459	1.2763	1.0796	0.9993	1.6138	
N	15	15	15	15	4	
None significantly different from control group						



BUSHY RUN RESEARCH CENTER

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Quality Assurance Unit Study Inspection Summary

Test Substance: Alkyl Dimethyl Benzyl
Ammonium Chloride (ADBAC)


Study: Ninety-Day Dietary Toxicity in Rats

Study Director: J. P. Van Miller, Ph.D., D.A.B.T.

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.

<u>Date</u>	<u>Inspection Type</u>	<u>Date QAU Report Issued</u>	
		<u>To Study Director</u>	<u>To Management</u>
5-14-87	Protocol	5-18-87	5-19-87
6-2-87	Event-Animal Receipt	6-2-87	7-8-87
6-12-87	Protocol Amendment #1	6-12-87	6-18-87
6-18-87	Event-Study Initiation	6-18-87	7-8-87
8-4 to 8-7-87	Ongoing	8-7-87	9-3-87
9-17-87	Event-Ophthalmic Exam	9-17-87	9-23-87
9-22-87	Event-Sacrifice	9-23-87	11-6-87
10-5-87	Protocol Amendment #2	10-5-87	10-30-87
12-8-87 to 2-2-88	Raw Data and Report	2-2-88	4-22-88
1-8 to 1-26-88	Anatomic Pathology Raw Data, Report	1-26-88	4-22-88
1-14 to 1-19-88	Analytical Raw Data, Report	1-19-88	2-8-88

<u>Date</u>	<u>Inspection</u> <u>Type</u>	<u>Date QAU Report Issued</u>	
		<u>To Study Director</u>	<u>To Management</u>
1-20 to 1-26-88	Clinical Pathology Raw Data and Report	1-26-88	4-22-88
3-24-88	Protocol Amendment #3	3-24-88	4-6-88
4-20-88	Archives	4-20-88	4-22-88

 6/17/88
 Linda J. Calisti, Group Leader Date
 Good Laboratory Practices/Quality Assurance

APPENDIX 1

TITLE: Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl
Benzyl Ammonium Chloride (ADBAC) in Rats

Analytical Chemistry Report

(12 Pages)

APPENDIX 1Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl
Benzyl Ammonium Chloride (ADBAC) in Rats

Analytical Chemistry Report

SUMMARY

The concentration of ADBAC in rodent diet was determined using liquid chromatography. The concentrations of ADBAC (as the active ingredient, alkyl dimethyl benzyl ammonium chloride) were 0, 100, 500, 1000, 4000, and 8000 ppm. A stability study indicated that ADBAC was stable in rodent diet stored at ambient temperatures at concentrations of 8000 and 100 ppm for at least 14 days in open rat feed jars and stable for at least 21 days in closed polyethylene containers. The results from a homogeneity study indicated that the distribution of ADBAC in the test diet was uniform. Concentration verification analyses for the five dose levels used in the 90-day study diets showed analytical values ranging between 90.7 and 111.8 percent of nominal.

INTRODUCTION

A ninety-day dietary toxicity study with ADBAC in albino rats was conducted at the Bushy Run Research Center (BRRRC). The concentrations of ADBAC for this study were 8000, 4000, 1000, 500, 100, and 0 ppm. In conjunction with this study, the stability, homogeneity, and concentration verification of the ADBAC test diets were determined.

CHEMICAL

Five 5-gallon containers of a composite test material were received from the Sponsor on May 21, 1987 and used for all stability, homogeneity, and concentration verification analyses for the first four weeks of the study. The sample bore the Lot 6158-59-60 and was assigned BRRRC Sample Number 50-268 A through E. The material was a pale yellow, viscous liquid. Related correspondence stated the test material to be 80.51 percent active ingredient.

Approximately 900 g of a composite test material was received from the Sponsor on July 7, 1987 and was used for all concentration verification analyses for study weeks 5 through 14. The sample bore the Lot Number SC-132-65 (new composite) and was assigned BRRRC Sample Number 50-328. The material was a pale yellow, viscous liquid. Related correspondence stated this sample of the test material to be 79.7 percent active ingredient. All weights of the test material were corrected for percent active ingredient.

EQUIPMENT

A Water's High Pressure Liquid Chromatograph (HPLC) equipped with a Water's Model 481 Lambda Max Variable Wavelength Detector, Water's Automated Gradient Controller, WISP (Water's Intelligent Sample Processor), and a Hewlett-Packard 3392A Integrator was used for all analyses. The HPLC operating parameters are listed in Table 1.

METHODS

The following procedure for the determination of ADBAC in rodent diets is a modification of the method provided by Ecolabs Inc. (dated October 1986).

Mobile Phase Preparation

A 0.9 N phosphoric acid solution in Millipore® water was prepared and used throughout the study. Mobile phase was prepared fresh for each analysis session as follows. Approximately 2000 ml of methanol and 500 ml of Millipore® water were filtered using a glass Millipore® filtering apparatus and a Millipore® HA 0.45 um filter. Sodium perchlorate (28.0920 g) was weighed into a 50 ml beaker, then transferred to a 600 ml beaker with 400 ml of the filtered water. The solution was mixed and the final pH adjusted to 2.5 with 0.9 N phosphoric acid. The solution was filtered and transferred to a 2000 ml volumetric flask and diluted to volume with the filtered methanol. After mixing, additional methanol was added to bring the solution to volume. The contents of the flask was transferred to a 2 liter Erlenmeyer flask containing a stir bar and mixed continuously during each analysis session.

Spiking solutions and spiked diets

Spiking solutions were prepared fresh for each analysis period by dissolving the appropriate amount of ADBAC in methanol. Five grams of control diet was weighed into a 125 ml Erlenmeyer flask and spiked with 2 ml of the appropriate spiking solution for determination of extraction efficiency. The spiked diet was allowed to incubate open at room temperature for 1 hour prior to extraction.

Extraction Procedures

Five grams of each test diet was weighed into a 125 ml glass Erlenmeyer flask equipped with a stopper. Each spiked and test diet was extracted with 25 ml of methanol for 15 minutes on a mechanical shaker. The extracts were filtered into 25 ml graduated cylinders using a glass funnel and Whatman 15 cm course filter paper. If necessary, each extract was appropriately diluted with methanol:Millipore® water (8:2).

Standard solutions

A standard stock solution of ADBAC in methanol (1 mg/ml) was prepared fresh for each analysis session by weighing 0.0313 g of ADBAC into a 25 ml volumetric flask and diluting to volume with methanol. A 20 ng/ul and a 160 ng/ul standard were prepared by diluting the stock solution with methanol:Millipore® water (8:2).

The concentration of each sample was determined by obtaining a value calculated by comparing the peak area or peak height of the sample to the peak area or peak height of the appropriate standard and correcting for extraction efficiency.

Miscellaneous

After each analysis session, the HPLC column was flushed with approximately 30 ml of a 0.02% sodium azide solution in Millipore® water.

RESULTS

Stability Study

Table 2 contains a summary of results from the stability study of ADBAC in rodent diet. Test diets (8000 and 100 ppm) were analyzed for ADBAC concentration at 0, 7, and 14 days in open rat feed jars and 0, 7, 14, and 21 days in closed polyethylene containers. These diets were stored at ambient temperatures. The actual concentrations over the 4 sampling periods for the 8000 and 100 ppm diets ranged from 98.7 to 103.4 and 98.8 to 105.5 percent of nominal, respectively. These results indicated that ADBAC was stable in the diet for at least 14 days in open rat feed jars and stable for at least 21 days in closed polyethylene containers.


Homogeneity Study

The homogeneity of the test diets was evaluated to ensure that ADBAC was uniformly distributed throughout the diet by the proposed mixing procedure. Three samples were taken from three separate areas (top, middle, and bottom) of the mixing bowl for the 8000 and 100 ppm diets. One sample, analysed in duplicate, was taken from three separate areas (top, middle, and bottom) of the mixing bowl for the 4000, 1000, and 500 ppm diets. The mean (SD) concentrations of ADBAC in the 8000, 4000, 1000, 500, and 100 ppm diet preparations were 102.9 (2.9), 102.2 (2.6), 109.1 (2.6), 106.6 (2.6), and 102.9 (5.0) percent of nominal, respectively. These results are presented in Table 3.

Concentration Verification

Table 4 contains a summary of the results for the concentration verification analyses of ADBAC test diets. The actual mean concentrations for all test diets ranged from 90.7 to 111.8 percent of nominal. Except for the 500 ppm diet from study week 10, all analytical values obtained for each analysis session were within the range of the nominal concentrations specified by the protocol. The mean concentration of four analyses for the 500 ppm diet (study week 10) was 111.8 percent of nominal. The mean concentrations of the other test diets from study week 10 ranged from 96.2 to 106.8 percent of nominal. No ADBAC was detected in any of the control diet samples.

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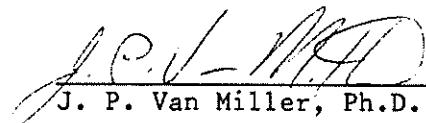
 4-13-88
J. P. Van Miller, Ph.D., DABT Date
Manager

Table 1

Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl
Benzyl Ammonium Chloride (ADBAC) in Rats

HPLC Operating Parameters

Instrument:	Water's High Pressure Liquid Chromatograph
Detector:	Water's Lambda Max 481 Variable Wavelength
Column:	Water's uBondapak C-18, i.d. # P70781C05
Column Temperature:	Ambient
Mobile Phase:	0.1 M NaClO ₄ in methanol/Millipore® water (8:2) pH = 2.5, (acidified with 0.9 N phosphoric acid in Millipore® water)
Flowrate:	2.0 ml/min
Wavelength:	220 nm
Sensitivity:	0.05 AUFS

Table 2

Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl
Benzyl Ammonium Chloride (ADBAC) in Rats

Results of Stability Studies

<u>Nominal Concentration = 8000 ppm</u>				
<u>Date of Analysis</u>	<u>Stability Day</u>	<u>Storage Condition</u>	<u>Actual Concentration (ppm)</u>	<u>% of Nominal</u>
05-27-87	0	Room Temperature	8231 \pm 229 (n=9)	102.9
06-03-87	7	Closed	8181 \pm 119	102.2
		Open	8269 \pm 90	103.4
06-10-87	14	Closed	8003 \pm 134	100.0
		Open	7894 \pm 220	98.7
06-17-87	21	Closed	8112 \pm 132	101.4
<u>Nominal Concentration = 100 ppm</u>				
<u>Date of Analysis</u>	<u>Stability Day</u>	<u>Storage Condition</u>	<u>Actual Concentration (ppm)</u>	<u>% of Nominal</u>
05-27-87	0	Room Temperature	102.9 \pm 5.0 (n=9)	102.9
06-03-87	7	Closed	105.5 \pm 7.6	105.5
		Open	104.6 \pm 2.3	104.6
06-10-87	14	Closed	98.8 \pm 4.4	98.8
		Open	103.9 \pm 0.0	103.9
06-17-87	21	Closed	100.0 \pm 0.0	100.0

Table 3

Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl
Benzyl Ammonium Chloride (ADBAC) in Rats

Results of Homogeneity Studies^a

<u>Area of Sampling</u>	<u>Nominal Concentration (ppm)</u>	<u>Actual Concentration (ppm)</u>	<u>% of Nominal</u>
Top-1	8000	8422	105.3
Top-2	8000	8413	105.2
Top-3	8000	8393	104.9
Middle-1	8000	8265	103.3
Middle-2	8000	7905	98.8
Middle-3	8000	8465	105.8
Bottom-1	8000	8039	100.5
Bottom-2	8000	8291	103.6
Bottom-3	8000	7882	98.5
Mean		8231	102.9
Standard Deviation		229	2.9
Top-1	100	113.9	113.9
Top-2	100	98.3	98.3
Top-3	100	98.3	98.3
Middle-1	100	101.7	101.7
Middle-2	100	104.6	104.6
Middle-3	100	98.3	98.3
Bottom-1	100	101.7	101.7
Bottom-2	100	104.6	104.6
Bottom-3	100	104.6	104.6
Mean		102.9	102.9
Standard Deviation		5.0	5.0

^aDate of analysis: 05-27-87

Table 3 (Continued)
Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl
Benzyl Ammonium Chloride (ADBAC) in Rats
Results of Homogeneity Studies^a

<u>Area of Sampling</u>	<u>Nominal Concentration (ppm)</u>	<u>Actual Concentration (ppm)</u>	<u>% of Nominal</u>
Top-1	4000	4094	102.4
Top-2	4000	4120	103.0
Middle-1	4000	4275	106.9
Middle-2	4000	4009	100.2
Bottom-1	4000	4046	101.2
Bottom-2	4000	3982	99.6
Mean		4088	102.2
Standard Deviation		105	2.6

<u>Area of Sampling</u>	<u>Nominal Concentration (ppm)</u>	<u>Actual Concentration (ppm)</u>	<u>% of Nominal</u>
Top-1	1000	1131	113.1
Top-2	1000	1080	108.0
Middle-1	1000	1073	107.3
Middle-2	1000	1057	105.7
Bottom-1	1000	1103	110.3
Bottom-2	1000	1100	110.0
Mean		1091	109.1
Standard Deviation		26	2.6

^aDate of analysis: 06-01-87

Table 3 (Continued)

Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl
Benzyl Ammonium Chloride (ADBAC) in Rats

Results of Homogeneity Studies^a

<u>Area of Sampling</u>	<u>Nominal Concentration (ppm)</u>	<u>Actual Concentration (ppm)</u>	<u>% of Nominal</u>
Top-1	500	513	102.6
Top-2	500	537	107.4
Middle-1	500	550	110.0
Middle-2	500	537	107.4
Bottom-1	500	537	107.4
Bottom-2	500	524	104.8
Mean		533	106.6
Standard Deviation		12.8	2.6

^aDate of analysis: 06-01-87

Table 4

Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl
Benzyl Ammonium Chloride (ADBAC) in Rats

Results of Concentration Verifications^a

<u>Date of Analysis</u>	<u>Study Week</u>	<u>Nominal Concentration (ppm)</u>	<u>Actual Concentration (ppm)</u>	<u>% of Nominal</u>
06-11-87	1	8000	8420	105.2
		4000	4245	106.1
		1000	1026	102.6
		500	494	98.7
		100	96	96.0
06-18-87	2	8000	8096	101.2
		4000	4078	102.0
		1000	913	91.3
		500	492	98.4
		100	104	104.0
06-25-87	3	8000	8438	105.5
		4000	4352	108.8
		1000	1048	104.8
		500	524	104.9
		100	100	100.0
07-02-87	4 ^b	4000	3837	95.9
		1000	1045	104.5
		500	506	101.2
		100	97	97.0
07-09-87	5 ^c	4000	3808	95.2
		1000	964	96.4
		500	496	99.2
		100	96	96.0
07-29-87	6	4000	4310	107.7
		1000	1000	100.0
		500	498	99.6
		100	98	98.0

^aActual concentration reported as a mean of duplicate analyses.

^bAll animals from the 8000 ppm dose group died prior to Week 4 analyses, and no diet was prepared at the high concentration after Week 3.

^cDiets analyzed after preparation to verify the assay using the second lot of test material (BRRC # 50-328.)

Table 4 (continued)

Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl
Benzyl Ammonium Chloride (ADBAC) in Rats

Results of Concentration Verifications^a

<u>Date of Analysis</u>	<u>Study Week</u>	<u>Nominal Concentration (ppm)</u>	<u>Actual Concentration (ppm)</u>	<u>% of Nominal</u>
07-29-87	7	4000	4231	105.8
		1000	1022	102.2
		500	516	103.3
		100	104	104.0
07-29-87	8	4000	4402	110.0
		1000	986	98.6
		500	486	97.3
		100	97	97.0
09-09-87	9	4000	4028	100.7
		1000	907	90.7
		500	551	110.0
		100	100	100.0
09-09-87	10	4000	4272	106.8
		1000	962	96.2
		500	559 ^d	111.8
		100	100	100.0
09-09-87	11	4000	4274	106.9
		1000	907	90.7
		500	526	105.0
		100	103	103.0
09-09-87	12	4000	4138	103.4
		1000	940	94.0
		500	538	107.5
		100	100	100.0
09-09-87	13	4000	4283	107.1
		1000	958	95.8
		500	519	103.8
		100	103	103.0

^aActual concentration reported as a mean of duplicate analyses.

^dActual concentration reported as a mean of 4 analyses.

Table 4 (continued)
Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl
Benzyl Ammonium Chloride (ADBAC) in Rats

Results of Concentration Verifications^a

<u>Date of Analysis</u>	<u>Study Week</u>	<u>Nominal Concentration (ppm)</u>	<u>Actual Concentration (ppm)</u>	<u>% of Nominal</u>
09-11-87	14	4000	4100	102.5
		1000	1070	107.0
		500	525	104.9
		100	103	103.0

^aActual concentration reported as a mean of duplicate analyses.

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APPENDIX 2

Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl Benzyl
Ammonium Chloride (ADBAC) in Rats

Anatomic Pathology Report

(108 pages)

APPENDIX 2

Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl Benzyl
Ammonium Chloride (ADBAC) in Rats

ANATOMIC PATHOLOGY REPORT

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SUMMARY AND CONCLUSIONS

Male and female Sprague-Dawley CD® rats were exposed to 0, 100, 500, 1000, 4000 or 8000 ppm of alkyl dimethyl benzyl ammonium chloride (ADBAC) mixed in their food for 13 weeks. All rats which survived the exposure period were sacrificed during the 13th week of the study. A complete gross necropsy was performed on all rats (both sacrificed animals and those which died or were euthanized moribund during the exposure period), and selected tissues were collected and stored in fixative. Histologic examination of selected tissues was performed on 10 rats/sex/group.

All rats of both sexes receiving 8000 ppm ADBAC and 12 of 15 males and 11 of 15 females receiving 4000 ppm either died or were euthanized moribund during the study. No rats receiving less than 4000 ppm died. Significant gross lesions in dead rats included fecal staining of the perineal skin, emaciation, color changes of various organs associated with both congestion and autolysis, and marked intestinal ileus consisting of distended fluid- and gas-filled viscera extending from the stomach to the cecum. Hemorrhage on the surface of the brain was observed in several dead rats as well. Similar but less severe lesions, particularly affecting the intestines, were seen in the 4000 ppm group rats which survived until sacrifice. There were no significant treatment-related gross lesions in rats receiving less than 4000 ppm ADBAC.

Significant microscopic lesions occurred in rats of both sexes in the 4000 and 8000 ppm groups. They consisted of congestion with or without hemorrhage of various organs and tissues, mucosal cell degeneration or necrosis affecting the villus tips of the small intestine and cecum, submucosal edema of the stomach, splenic contraction, and hepatocellular atrophy. A reduced frequency of mononuclear infiltrates in the livers of rats in the two highest dose groups was also noted compared to control rats. Some of the above changes, particularly congestion, and mucosal cell degeneration may be due, in part, to artifact (rats which died were not exsanguinated before necropsy) or early autolysis. The lesions seen in affected rats are supportive of a mechanism of death of ileus and hypovolemic shock. There were no significant microscopic findings in control rats or in rats receiving less than 4000 ppm ADBAC.

INTRODUCTION

Male and female Sprague-Dawley rats, obtained from Charles River Breeding Laboratories, Portage, MI, were randomly assigned to six groups, 15 rats/sex/group, and were exposed to 0, 100, 500, 1000, 4000, or 8000 ppm of ADBAC mixed in their feed, for a minimum of ninety days to determine possible toxic effects. Rats which survived the feeding period were sacrificed in the 13th week of the study. All rats, both those sacrificed and those which died or were euthanized moribund during the study, received a gross necropsy. Selected tissues of selected animals were examined histologically.

METHODS

Necropsy

Euthanasia was performed by severing the brachial blood vessels to permit exsanguination following anesthesia with methoxyfluorane. Dead rats were necropsied as they were found. A complete gross examination was performed on each rat. The following tissues were collected and preserved in 10% neutral buffered formalin:

adrenals	pancreas
bone marrow (sternum)	pituitary
brain	spinal cord
ovaries (females)	spleen
<u>testes</u> and epididymides (males)	thymic region
heart	thyroid with parathyroids
<u>kidneys</u>	esophagus
<u>liver</u>	<u>stomach</u>
<u>lungs</u>	<u>duodenum</u>
mediastinal and mesenteric lymph nodes	jejunum
salivary glands (with submandibular lymph nodes)	ileum
prostate (males)	cecum
sciatic nerve	colon
aorta	rectum
trachea	urinary bladder
<u>gross lesions</u>	uterus (females)
femur*	vagina (females)*
skeletal muscle*	mammary gland (females)*
skin*	lacrymal gland*
	eyes*

The liver, kidneys, adrenals, heart, testes (from males), ovaries (from females), brain and spleen were weighed for all sacrificed rats.

The lungs were inflated with fixative before storage. The left kidneys were transected longitudinally and the right kidneys crosswise before placing in fixative.

Histopathology

Histologic examination was performed on the above-listed tissues (except those marked with an asterisk) for 10 randomly selected rats/sex in the 1000 ppm and 0 ppm groups. The submandibular lymph nodes were evaluated as well if they were attached to the salivary glands. Histopathology of the underlined tissues was performed on 10 rats/sex from the 8000, 4000, 500 and 100 ppm groups. Tissues denoted with an asterisk were collected but not examined microscopically unless they possessed gross lesions. Tissues were paraffin embedded, sectioned at 5 microns, and stained with hematoxylin and eosin.

The frequency of histologic lesions was compared between each exposure group and the control group using the Fisher's exact test. The fiducial limit of 0.05 (two tailed) was used as the critical level of significance.

RESULTS AND DISCUSSION

The gross lesions found are listed in Tables 1 through 4. Only tissues with lesions are listed. The tables are arranged to show separately the lesions of sacrificed rats and the lesions of those which died or were euthanized moribund during the study. All rats receiving 8000 ppm ADBAC, and most rats (11 of 15 females and 12 of 15 males) receiving 4000 ppm died or were euthanized during the study. No rats receiving less than 4000 ppm died. The only lesions deemed treatment related in sacrificed rats were seen in rats which survived from the 4000 ppm group. These included thin body condition, fecal staining of the perineum, color change (congestion) of the intestines, dilatation/distention of the cecum, fluid contents in the cecum and colon, and color change and size increase of the mesenteric lymph nodes. The lesions in rats which died were similar but more severe. Animals were emaciated. Their intestines from the stomach to the cecum were markedly distended with fluid. Color change or hemorrhage was noted in several organs including thymus, lungs, brain, mesenteric and mediastinal lymph nodes. One female and six males were noted to have abnormally small spleens. Several rats from various groups were found to have hydronephrosis with or without urinary calculi. The latter lesion is relatively common in Sprague-Dawley rats and is considered an incidental finding.

The microscopic findings are listed in Tables 5 through 10. Only tissues with microscopic lesions are listed in the tables. Tables 5 through 8 are arranged to show separately the lesions of sacrificed rats and the lesions of those which died or were euthanized on study. Tables 9 and 10 list microscopic findings of all deaths combined for statistical comparisons. As with gross lesions, treatment-related microscopic lesions were found only in rats in the 4000 and 8000 ppm groups with the lesions being more severe and more frequent in rats which died on study. Most lesions involved congestion or hemorrhage of various organs including stomach, liver, intestines, lungs, brain, thymic region, and spleen. While congestion, particularly of the intestines, is an expected lesion in animals with ileus, a portion of what was seen in rats which died on study must be attributed to artifact since these animals were not exsanguinated before death as were the sacrificed rats. The hemorrhage seen in various tissues may have multiple causes including agonal death, a possible terminal coagulation disorder (diffuse intravascular coagulation) which can occur in animals in shock, or even autolytic degeneration of blood vessels permitting blood leakage into the tissues. Several 4000 and 8000 ppm group rats described grossly to have hemorrhage on the brain surface were not found to have any hemorrhage within the brain nor any other brain lesion except vascular congestion. Splenic contraction (seen grossly as small size) was noted in 5 males and 1 female which died on study. This lesion is most likely a response to hypovolemic shock due to fluid pooling in the intestines and is supportive of the theory that shock was the immediate cause of death. Treatment related microscopic lesions were not seen in the 4 sacrificed female rats from the 4000 ppm group, but they (mucosal cell degeneration of the duodenum, and congestion of the ileum) were seen 2 of the 3 sacrificed males from that group.

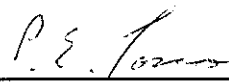
In spite of the severe ileus noted grossly in the two highest dose group animals, lesions of the intestinal wall were minimal or mild. There was submucosal edema of the stomach wall, congestion of various portions of the intestine, and sporadic foci of mucosal cell degeneration or necrosis of either the small intestine or cecum. These lesions consisted of chromatolysis and disintegration of cell nuclei and individual cell necrosis of the epithelial cells of either the villus tips or the intestinal glands. As the intestines of most dead rats were at least partially autolyzed, a complete evaluation of mucosal lesions is not possible. The above lesions may represent early autolytic artifact. They were not seen in the tissues of control rats, however, even if slight autolysis was present. Tissue necrosis does not appear to be a major mechanism of toxic action of this chemical on the intestine.

The livers of rats in the 4000 and 8000 ppm groups had a high incidence of mild hepatocellular atrophy as well as the congestion discussed previously. This lesion is probably due to inanition and is reflected in the emaciated or thin body conditions observed. Mononuclear cell infiltrates in the liver were seen less frequently in the two high dose group male rats and the 8000 ppm group females as compared to controls. These infiltrates have no biologic significance. The reason for their reduced incidence in these rats (most of which died on study) is not known.

Tubular basophilia of the kidneys, a regenerative change, was also seen less frequently in the 4000 and 8000 ppm group male rats than in controls. The reduced incidence may be due to mild autolysis altering the tinctorial properties of the organ, thus making it difficult to identify the lesion.

A few lesions were inappropriately identified as occurring in significantly increased frequency in the 4000 ppm or 8000 ppm group rats due to the fact that only tissues from rats with gross lesions of these organs were examined histologically. These include congestion of the jejunum (8000 ppm group males), histiocytic aggregates of the mesenteric lymph nodes (4000 ppm group males), mastocytosis (4000 ppm group females), and congestion of the brain (8000 ppm group males).

ADBAC, fed at levels of 4000 ppm and higher, was found to have a severe toxic effect on rats in this test system. The primary lesion involved ileus of the intestinal tract resulting in hypovolemic shock and death in treated animals. There were no sex-related differences in the effect noted. There were no significant gross or microscopic lesions in rats fed less than 4000 ppm ADBAC.


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4-13-88
Date

PATH/esk/1186P-7
03-23-88

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Report Preparation

E. S. Kwasny

WPC/esk/1186P-4
03-23-88

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS OBSERVATIONS - INCIDENCE SUMMARY

ANIMALS SACRIFICED AT WEEK 13
MALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS SACRIFICED	15	15	15	15	3	0
TOTAL BODY						
-THIN	0	0	0	0	2	0
STOMACH						
-DIVERTICULUM	0	0	1	0	0	0
-COLOR CHANGE, FOCAL/MULTIFOCAL	0	0	1	0	1	0
-CONTENTS ABNORMAL	1	0	0	0	0	0
-SURFACE CHANGE	1	0	0	1	0	0
LIVER						
-COLOR CHANGE, FOCAL/MULTIFOCAL	0	0	0	1	0	0
ILEUM						
-COLOR CHANGE, DIFFUSE	0	0	0	0	1	0
CECUM						
-FLUID	0	0	0	0	2	0
-DILATATION/DISTENTION	0	0	0	0	2	0
COLON						
-COLOR CHANGE, FOCAL/MULTIFOCAL	0	0	0	0	1	0
ADRENAL GL						
-COLOR CHANGE, DIFFUSE	0	0	0	0	2	0
-SIZE DECREASE	0	0	1	0	0	0
-COLOR CHANGE, FOCAL/MULTIFOCAL	0	0	0	1	0	0
SKIN, UNTREATED						
-STAINED	0	0	0	0	2	0
-ALOPECIA	1	0	1	0	0	0
PAWS/FEET						
-MISTAKE IN CLIPPING TOES	1	2	0	0	0	0
LYMPH ND, S-MAN						
-COLOR CHANGE, DIFFUSE	2	1	1	0	0	0
-COLOR CHANGE, FOCAL/MULTIFOCAL	0	0	0	1	0	0
1= 0 PPM	2= 100 PPM	3= 500 PPM	4= 1000 PPM	5= 4000 PPM	6= 8000 PPM	

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS OBSERVATIONS - INCIDENCE SUMMARY

ANIMALS SACRIFICED AT WEEK 13
MALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS SACRIFICED	15	15	15	15	3	0
-SIZE INCREASE	0	1	0	0	0	0
LYMPH ND, MED						
-COLOR CHANGE, DIFFUSE	0	1	3	2	0	0
-SIZE INCREASE	1	0	2	2	0	0
LYMPH ND, MES						
-COLOR CHANGE, DIFFUSE	0	0	0	0	2	0
LYMPH ND, REN						
-COLOR CHANGE, DIFFUSE	0	0	0	1	0	0
LYMPH ND, PANC						
-SIZE INCREASE	0	0	1	0	0	0
-COLOR CHANGE, DIFFUSE	0	0	1	0	0	0
LYMPH ND, OTHER						
-SIZE INCREASE	0	1	0	0	0	0
THYMIC REGION						
-COLOR CHANGE, FOCAL/MULTIFOCAL	0	0	2	0	0	0
BRAIN						
-HEMORRHAGE	0	1	0	0	0	0
EYE						
-CRUST	0	0	0	1	0	0
LUNGS						
-COLOR CHANGE, FOCAL/MULTIFOCAL	1	1	0	2	1	0
KIDNEYS						
-HYDRONEPHROSIS	1	1	0	2	0	0
-DIMPLED/PITTED	0	1	4	0	0	0
-COLOR CHANGE, FOCAL/MULTIFOCAL	0	0	0	0	2	0
-CYST	0	0	0	1	0	0
URETER						
-DILATATION/DISTENTION	0	1	0	0	0	0
1= 0 PPM	2= 100 PPM	3= 500 PPM	4= 1000 PPM	5= 4000 PPM	6= 8000 PPM	

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS OBSERVATIONS - INCIDENCE SUMMARY

ANIMALS SACRIFICED AT WEEK 13
MALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS SACRIFICED	15	15	15	15	3	0
URINARY BLADDER						
-CALCULUS	0	1	1	1	0	0
-THICKER THAN NORMAL	0	1	0	0	0	0
1= 0 PPM	2= 100 PPM	3= 500 PPM	4= 1000 PPM	5= 4000 PPM	6= 8000 PPM	

PATH/ESK/GMRADB9.TB1/*P

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS OBSERVATIONS - INCIDENCE SUMMARY

ANIMALS SACRIFICED AT WEEK 13
FEMALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS SACRIFICED	15	15	15	15	4	0
TOTAL BODY						
-THIN	0	1	0	0	4	0
SALIVARY GL						
-COLOR CHANGE, FOCAL/MULTIFOCAL	0	0	0	1	0	0
ESOPHAGUS						
-CONTENTS ABNORMAL	1	0	0	0	0	0
STOMACH						
-CONTENTS ABNORMAL	1	0	0	0	0	0
-DIVERTICULUM	1	0	1	0	0	0
DUODENUM						
-CONTENTS ABNORMAL	1	0	0	0	0	0
CECUM						
-FLUID	0	0	0	0	3	0
-DILATATION/DISTENTION	0	0	0	0	3	0
COLON						
-CONTENTS ABNORMAL	0	0	0	0	2	0
SKIN, UNTREATED						
-STAINED	1	0	0	1	2	0
-CRUST	1	0	0	0	0	0
-ALOPECIA	1	0	0	1	0	0
PAWS/FEET						
-ERROR IN TOE CLIPPING	3	1	0	1	0	0
LYMPH ND, S-MAN						
-SIZE INCREASE	0	0	2	0	0	0
-COLOR CHANGE, FOCAL/MULTIFOCAL	2	0	0	1	0	0
-COLOR CHANGE, DIFFUSE	0	0	1	0	0	0
LYMPH ND, MED						
-SIZE INCREASE	2	1	1	3	0	0

1= 0 PPM 2= 100 PPM 3= 500 PPM 4= 1000 PPM 5= 4000 PPM 6= 8000 PPM

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS OBSERVATIONS - INCIDENCE SUMMARY

ANIMALS SACRIFICED AT WEEK 13

FEMALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS SACRIFICED	15	15	15	15	4	0
-COLOR CHANGE, DIFFUSE	1	0	2	0	0	0
LYMPH ND, MES						
-COLOR CHANGE, DIFFUSE	1	0	1	1	3	0
-SIZE INCREASE	0	0	0	0	1	0
LYMPH ND, REN						
-COLOR CHANGE, DIFFUSE	0	2	0	0	0	0
-SIZE INCREASE	0	1	0	0	0	0
LYMPH ND, PANC						
-COLOR CHANGE, DIFFUSE	0	1	0	0	0	0
-SIZE INCREASE	1	1	0	0	0	0
THYMIC REGION						
-COLOR CHANGE, DIFFUSE	2	1	0	0	0	0
-COLOR CHANGE, FOCAL/MULTIFOCAL	2	1	2	2	1	0
OVARIES						
-SIZE DECREASE	0	0	0	1	0	0
UTERUS						
-DILATATION/DISTENTION	0	1	1	1	0	0
LUNGS						
-COLOR CHANGE, FOCAL/MULTIFOCAL	2	1	1	2	0	0
-COLOR CHANGE, DIFFUSE	0	0	0	1	0	0
KIDNEYS						
-HYDRONEPHROSIS	1	2	1	0	0	0
-CALCULUS	0	0	1	0	1	0
-COLOR CHANGE, FOCAL/MULTIFOCAL	0	0	0	0	1	0
-CVST	0	0	1	0	0	0
URETER						
-CALCULUS	0	0	0	0	1	0
-HYDROURETER	0	0	0	0	1	0
URINARY BLADDER						
-CALCULUS	0	1	0	0	1	0

1= 0 PPM

2= 100 PPM

3= 500 PPM

4= 1000 PPM

5= 4000 PPM

6= 8000 PPM

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS OBSERVATIONS - INCIDENCE SUMMARY

ANIMALS SACRIFICED AT WEEK 13
FEMALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS SACRIFICED	15	15	15	15	4	0
-THICKER THAN NORMAL	0	0	0	0	1	0
-DILATATION/DISTENTION	0	0	0	0	1	0
1= 0 PPM	2= 100 PPM	3= 500 PPM	4= 1000 PPM	5= 4000 PPM	6= 8000 PPM	

PATH/ESK/GFRADB9.TB2/*P

TABLE 3
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS OBSERVATIONS - INCIDENCE SUMMARY

ALL ANIMALS FOUND DEAD/SACRIFICED MORIBUND
MALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS FOUND DEAD/SACRIFICED MORIBUND	0	0	0	0	12	15
TOTAL BODY						
-EMACIATION	0	0	0	0	10	14
-AUTOLYSIS	0	0	0	0	4	5
PERICARDIAL CAV						
-ADHESION	0	0	0	0	1	1
STOMACH						
-COLOR CHANGE, DIFFUSE	0	0	0	0	4	8
-FLUID	0	0	0	0	3	11
DUODENUM						
-CONTENTS ABNORMAL	0	0	0	0	1	2
JEJUNUM						
-CONTENTS ABNORMAL	0	0	0	0	7	14
-FLUID	0	0	0	0	2	1
ILEUM						
-CONTENTS ABNORMAL	0	0	0	0	7	14
-FLUID	0	0	0	0	2	1
CECUM						
-FLUID	0	0	0	0	11	13
SKIN, UNTREATED						
-STAINED	0	0	0	0	2	5
-CRUST	0	0	0	0	0	1
SPLEEN						
-SIZE DECREASE	0	0	0	0	5	1
LYMPH ND, MED						
-COLOR CHANGE, DIFFUSE	0	0	0	0	1	0
LYMPH ND, MES						
-COLOR CHANGE, DIFFUSE	0	0	0	0	1	0
1= 0 PPM	2= 100 PPM	3= 500 PPM	4= 1000 PPM	5= 4000 PPM	6= 8000 PPM	

TABLE 3
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS OBSERVATIONS - INCIDENCE SUMMARY

ALL ANIMALS FOUND DEAD/SACRIFICED MORIBUND
MALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS FOUND DEAD/SACRIFICED MORIBUND	0	0	0	0	12	15
BRAIN						
-HEMORRHAGE	0	0	0	0	2	3
EYE						
-OPACITY	0	0	0	0	0	1
LUNGS						
-COLOR CHANGE, FOCAL/MULTIFOCAL	0	0	0	0	6	7
-COLOR CHANGE, DIFFUSE	0	0	0	0	0	2
-ADHESION	0	0	0	0	1	0
KIDNEYS						
-COLOR CHANGE, DIFFUSE	0	0	0	0	0	5
-HYDRONEPHROSIS	0	0	0	0	2	0
URINARY BLADDER						
-FLUID	0	0	0	0	2	9
1= 0 PPM	2= 100 PPM	3= 500 PPM	4= 1000 PPM	5= 4000 PPM	6= 8000 PPM	

PATH/ESK/GMRADB9.TB3/*P

TABLE 4
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS OBSERVATIONS - INCIDENCE SUMMARY

ALL ANIMALS FOUND DEAD/SACRIFICED MORIBUND
FEMALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS FOUND DEAD/SACRIFICED MORIBUND	0	0	0	0	11	15
TOTAL BODY						
-AUTOLYSIS	0	0	0	0	1	2
-EMACIATION	0	0	0	0	8	13
STOMACH						
-FLUID	0	0	0	0	1	6
-COLOR CHANGE, DIFFUSE	0	0	0	0	3	4
DUODENUM						
-FLUID	0	0	0	0	1	1
JEJUNUM						
-CONTENTS ABNORMAL	0	0	0	0	5	7
-FLUID	0	0	0	0	5	1
ILEUM						
-CONTENTS ABNORMAL	0	0	0	0	5	7
-FLUID	0	0	0	0	5	2
CECUM						
-FLUID	0	0	0	0	11	12
COLON						
-FLUID	0	0	0	0	0	2
ADRENAL GL						
-SIZE INCREASE	0	0	0	0	1	2
SKIN, UNTREATED						
-STAINED	0	0	0	0	3	4
HEAD						
-CRUST	0	0	0	0	1	1
PAWS/FEET						
-ERROR IN TOE CLIPPING	0	0	0	0	0	1
SPLEEN						
-SIZE DECREASE	0	0	0	0	0	1

1= 0 PPM 2= 100 PPM 3= 500 PPM 4= 1000 PPM 5= 4000 PPM 6= 8000 PPM

TABLE 4
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS OBSERVATIONS - INCIDENCE SUMMARY

ALL ANIMALS FOUND DEAD/SACRIFICED MORIBUND
FEMALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS FOUND DEAD/SACRIFICED MORIBUND	0	0	0	0	11	15
THYMIC REGION						
-COLOR CHANGE, DIFFUSE	0	0	0	0	0	1
BRAIN						
-HEMORRHAGE	0	0	0	0	4	8
EYE						
-OPACITY	0	0	0	0	0	1
LUNGS						
-COLOR CHANGE, FOCAL/MULTIFOCAL	0	0	0	0	1	10
KIDNEYS						
-HYDRONEPHROSIS	0	0	0	0	0	2
URINARY BLADDER						
-FLUID	0	0	0	0	1	1
1= 0 PPM	2= 100 PPM	3= 500 PPM	4= 1000 PPM	5= 4000 PPM	6= 8000 PPM	
PATH/ESK/GFRADB9.TB4/*P						

TABLE 5
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ANIMALS SACRIFICED AT WEEK 13
MALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS SACRIFICED	15	15	15	15	3	0
HEART						
TOTAL NUMBER EXAMINED	10	0	0	10	0	0
EXAMINED, UNREMARKABLE	7	0	0	8	0	0
MYOCARDIAL DEGENERATION/FIBROSIS	1	0	0	0	0	0
MYOCARDITIS	2	0	0	2	0	0
STOMACH						
TOTAL NUMBER EXAMINED	10	10	10	10	2	0
EXAMINED, UNREMARKABLE	10	8	10	10	2	0
GLAND ECTASIA	0	2	0	0	0	0
LIVER						
TOTAL NUMBER EXAMINED	10	10	10	10	3	0
EXAMINED, UNREMARKABLE	2	1	2	2	3	0
MONONUCLEAR CELL INFILTRATE(S)	8	9	8	8	0	0
CHOLANGITIS	1	0	0	0	0	0
PANCREAS						
TOTAL NUMBER EXAMINED	10	1	1	10	0	0
EXAMINED, UNREMARKABLE	7	0	1	7	0	0
HEMOSIDEROSIS	1	0	0	0	0	0
LYMPHOID INFILTRATES	2	0	0	2	0	0
PANCREATITIS	1	1	0	1	0	0
ACINAR ATROPHY	1	0	0	1	0	0
LIPOMATOSIS	0	0	0	1	0	0
FIBROSIS	1	0	0	1	0	0
NESIDIOBLASTOSIS	1	0	0	0	0	0
DUODENUM						
TOTAL NUMBER EXAMINED	10	10	10	10	3	0
EXAMINED, UNREMARKABLE	10	10	10	10	2	0
MUCOSAL CELL DEGENERATION	0	0	0	0	1	0

1= 0 PPM 2= 100 PPM 3= 500 PPM 4= 1000 PPM 5= 4000 PPM 6= 8000 PPM

TABLE 5
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ANIMALS SACRIFICED AT WEEK 13
MALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS SACRIFICED	15	15	15	15	3	0
JEJUNUM						
TOTAL NUMBER EXAMINED	10	0	0	10	0	0
EXAMINED, UNREMARKABLE	10	0	0	10	0	0
ILEUM						
TOTAL NUMBER EXAMINED	10	0	0	10	1	0
EXAMINED, UNREMARKABLE	9	0	0	10	0	0
CONGESTION	0	0	0	0	1	0
LYMPHOID HYPERPLASIA	1	0	0	0	0	0
CECUM						
TOTAL NUMBER EXAMINED	10	0	0	10	3	0
EXAMINED, UNREMARKABLE	10	0	0	10	3	0
COLON						
TOTAL NUMBER EXAMINED	10	0	0	10	1	0
EXAMINED, UNREMARKABLE	10	0	0	10	0	0
LYMPHOID HYPERPLASIA	0	0	0	0	1	0
RECTUM						
TOTAL NUMBER EXAMINED	10	0	0	10	0	0
EXAMINED, UNREMARKABLE	10	0	0	8	0	0
LYMPHOID HYPERPLASIA	0	0	0	2	0	0
THYROID GL						
TOTAL NUMBER EXAMINED	10	0	0	10	0	0
EXAMINED, UNREMARKABLE	10	0	0	8	0	0
THYROGLOSSAL DUCT CYST	0	0	0	2	0	0
ADRENAL GL						
TOTAL NUMBER EXAMINED	10	0	1	10	2	0
EXAMINED, UNREMARKABLE	8	0	1	7	2	0
FIBROSIS	2	0	0	2	0	0

1= 0 PPM 2= 100 PPM 3= 500 PPM 4= 1000 PPM 5= 4000 PPM 6= 8000 PPM

TABLE 5
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ANIMALS SACRIFICED AT WEEK 13

MALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS SACRIFICED	15	15	15	15	3	0
ADRENAL GL (CONTINUED)						
FOAM CELL HYPERPLASIA	0	0	0	1	0	0
SKIN, UNTREATED						
TOTAL NUMBER EXAMINED	0	0	1	0	2	0
EXAMINED, UNREMARKABLE	0	0	0	0	2	0
HYPERKERATOSIS	0	0	1	0	0	0
SPLEEN						
TOTAL NUMBER EXAMINED	10	0	0	10	0	0
EXAMINED, UNREMARKABLE	10	0	0	8	0	0
HEMOSIDEROSIS	0	0	0	1	0	0
CONGESTION	0	0	0	1	0	0
LYMPH ND, S-MAN						
TOTAL NUMBER EXAMINED	9	1	1	10	0	0
EXAMINED, UNREMARKABLE	2	0	0	4	0	0
SINUS ERYTHROCYTOSIS	6	1	1	4	0	0
LYMPHOID HYPERPLASIA	5	0	0	3	0	0
PLASMACYTOSIS	3	0	1	3	0	0
LYMPH ND, MED						
TOTAL NUMBER EXAMINED	10	1	4	9	0	0
EXAMINED, UNREMARKABLE	5	0	0	0	0	0
MISSING	0	0	0	1	0	0
SINUS ERYTHROCYTOSIS	4	1	4	8	0	0
MASTOCYTOSIS	1	0	0	0	0	0
SINUS HISTIOCYTOSIS	2	0	0	2	0	0
HEMOSIDEROSIS	1	0	0	3	0	0
LYMPHOID HYPERPLASIA	1	0	0	1	0	0
LYMPH ND, MES						
TOTAL NUMBER EXAMINED	10	0	0	10	2	0
EXAMINED, UNREMARKABLE	8	0	0	8	0	0
SINUS ERYTHROCYTOSIS	2	0	0	2	2	0

1= 0 PPM 2= 100 PPM 3= 500 PPM 4= 1000 PPM 5= 4000 PPM 6= 8000 PPM

TABLE 5
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ANIMALS SACRIFICED AT WEEK 13						
MALE						
GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS SACRIFICED	15	15	15	15	3	0
LYMPH ND, MES (CONTINUED)						
HEMOSIDEROSIS	0	0	0	0	2	0
HISTIOCYTIC AGGREGATES	0	0	0	0	2	0
MASTOCYTOSIS	0	0	0	0	2	0
LYMPH ND, REN						
TOTAL NUMBER EXAMINED	0	0	0	1	0	0
SINUS ERYTHROCYTOSIS	0	0	0	1	0	0
HEMOSIDEROSIS	0	0	0	1	0	0
LYMPH ND, PANC						
TOTAL NUMBER EXAMINED	1	0	0	0	0	0
MISSING	0	0	1	0	0	0
SINUS ERYTHROCYTOSIS	1	0	0	0	0	0
HEMOSIDEROSIS	1	0	0	0	0	0
LYMPH ND, OTHER						
TOTAL NUMBER EXAMINED	0	1	0	0	0	0
LYMPHOID HYPERPLASIA	0	1	0	0	0	0
PLASMACYTOSIS	0	1	0	0	0	0
THYMIC REGION						
TOTAL NUMBER EXAMINED	10	1	4	10	0	0
EXAMINED, UNREMARKABLE	5	0	0	2	0	0
HEMORRHAGE	4	1	4	8	0	0
INVOLUTIONAL ATROPHY	1	0	0	0	0	0
BRAIN						
TOTAL NUMBER EXAMINED	10	1	0	10	0	0
EXAMINED, UNREMARKABLE	10	1	0	10	0	0
TESTES						
TOTAL NUMBER EXAMINED	10	9	9	10	3	0
EXAMINED, UNREMARKABLE	9	6	8	10	2	0
SEMINIFEROUS TUBULAR ATROPHY	1	3	0	0	1	0

1= 0 PPM 2= 100 PPM 3= 500 PPM 4= 1000 PPM 5= 4000 PPM 6= 8000 PPM

TABLE 5
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ANIMALS SACRIFICED AT WEEK 13

MALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS SACRIFICED	15	15	15	15	3	0
TESTES (CONTINUED)						
MINERALIZATION	0	0	1	0	0	0
PROSTATE						
TOTAL NUMBER EXAMINED	10	0	0	10	0	0
EXAMINED, UNREMARKABLE	8	0	0	9	0	0
PROSTATITIS	2	0	0	1	0	0
TRACHEA						
TOTAL NUMBER EXAMINED	10	0	0	10	0	0
EXAMINED, UNREMARKABLE	9	0	0	10	0	0
TRACHEITIS	1	0	0	0	0	0
LUNGS						
TOTAL NUMBER EXAMINED	10	10	9	10	3	0
EXAMINED, UNREMARKABLE	8	8	6	8	3	0
EPIDERMAL CYST	0	0	1	0	0	0
ALVEOLAR HISTIOCYTOSIS	1	1	0	1	0	0
HEMORRHAGE	1	1	1	1	0	0
LYMPHOID INFILTRATE(S)	0	0	0	1	0	0
PNEUMONITIS, INTERSTITIAL	0	0	1	0	0	0
PLEURAL FIBROSIS	0	0	0	1	0	0
KIDNEYS						
TOTAL NUMBER EXAMINED	10	10	10	10	2	0
EXAMINED, UNREMARKABLE	3	4	6	3	2	0
CYST(S)	0	1	0	2	0	0
HYDRONEPHROSIS	2	1	1	1	0	0
INFARCTION	0	1	0	0	0	0
PYELONEPHRITIS	0	1	0	0	0	0
TUBULAR DILATION	0	0	1	0	0	0
TUBULAR PROTEINOSIS	0	0	1	0	0	0
NEPHRITIS, INTERSTITIAL	4	5	1	3	0	0
FIBROSIS, INTERSTITIAL	1	3	0	1	0	0
TUBULAR PIGMENTATION	0	0	0	1	0	0

1= 0 PPM 2= 100 PPM 3= 500 PPM 4= 1000 PPM 5= 4000 PPM 6= 8000 PPM

TABLE 5
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ANIMALS SACRIFICED AT WEEK 13
MALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS SACRIFICED	15	15	15	15	3	0
KIDNEYS (CONTINUED)						
TUBULAR BASOPHILIA	5	3	1	5	0	0
URETER						
TOTAL NUMBER EXAMINED	0	1	0	0	0	0
MUCOSAL HYPERPLASIA	0	1	0	0	0	0
URETERITIS	0	1	0	0	0	0
URINARY BLADDER						
TOTAL NUMBER EXAMINED	10	1	1	10	0	0
EXAMINED, UNREMARKABLE	10	0	1	10	0	0
HEMORRHAGE	0	1	0	0	0	0
CYSTITIS	0	1	0	0	0	0
TRANSITIONAL CELL HYPERPLASIA	0	1	0	0	0	0
CALCULI	0	1	0	0	0	0
1= 0 PPM	2= 100 PPM	3= 500 PPM	4= 1000 PPM	5= 4000 PPM	6= 8000 PPM	
PATH/ESK/HMRAD89.TB5/*P						

TABLE 6
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ANIMALS SACRIFICED AT WEEK 13
FEMALE

GROUP:		1	2	3	4	5	6				
NUMBER OF ANIMALS IN DOSE GROUP		15	15	15	15	15	15				
NUMBER OF ANIMALS SACRIFICED		15	15	15	15	4	0				
ADIPOSE TISSUE											
TOTAL NUMBER EXAMINED		1	0	0	0	0	0				
STEATITIS		1	0	0	0	0	0				
STOMACH											
TOTAL NUMBER EXAMINED		10	10	10	10	4	0				
EXAMINED, UNREMARKABLE		9	10	10	10	4	0				
EDEMA		1	0	0	0	0	0				
LIVER											
TOTAL NUMBER EXAMINED		10	10	10	10	4	0				
EXAMINED, UNREMARKABLE		3	3	1	3	0	0				
HEPATOCELLULAR NECROSIS		0	0	0	0	1	0				
MONONUCLEAR CELL INFILTRATE(S)		7	7	9	7	4	0				
PANCREAS											
TOTAL NUMBER EXAMINED		10	0	0	10	0	0				
EXAMINED, UNREMARKABLE		7	0	0	10	0	0				
LYMPHOID INFILTRATES		2	0	0	0	0	0				
PANCREATITIS		1	0	0	0	0	0				
DUODENUM											
TOTAL NUMBER EXAMINED		10	10	10	10	4	0				
EXAMINED, UNREMARKABLE		10	10	10	10	4	0				
JEJUNUM											
TOTAL NUMBER EXAMINED		10	0	0	10	0	0				
EXAMINED, UNREMARKABLE		10	0	0	10	0	0				
ILEUM											
TOTAL NUMBER EXAMINED		10	0	0	10	0	0				
EXAMINED, UNREMARKABLE		10	0	0	10	0	0				
1=	0 PPM	2=	100 PPM	3=	500 PPM	4=	1000 PPM	5=	4000 PPM	6=	8000 PPM

TABLE 6
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ANIMALS SACRIFICED AT WEEK 13						
FEMALE						
GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS SACRIFICED	15	15	15	15	4	0
CECUM						
TOTAL NUMBER EXAMINED	10	0	0	10	4	0
EXAMINED, UNREMARKABLE	10	0	0	10	4	0
COLON						
TOTAL NUMBER EXAMINED	10	0	0	10	2	0
EXAMINED, UNREMARKABLE	7	0	0	10	2	0
LYMPHOID HYPERPLASIA	3	0	0	0	0	0
RECTUM						
TOTAL NUMBER EXAMINED	10	0	0	10	0	0
EXAMINED, UNREMARKABLE	10	0	0	9	0	0
LYMPHOID HYPERPLASIA	0	0	0	1	0	0
THYROID GL						
TOTAL NUMBER EXAMINED	10	0	0	10	0	0
EXAMINED, UNREMARKABLE	4	0	0	9	0	0
THYROGLOSSAL DUCT CYST	6	0	0	1	0	0
ADRENAL GL						
TOTAL NUMBER EXAMINED	10	0	0	10	0	0
EXAMINED, UNREMARKABLE	8	0	0	10	0	0
HEMORRHAGE	1	0	0	0	0	0
CORTICAL CELL HYPERPLASIA, NODULAR	1	0	0	0	0	0
SKIN, UNTREATED						
TOTAL NUMBER EXAMINED	0	0	0	1	2	0
EXAMINED, UNREMARKABLE	0	0	0	1	1	0
HYPERKERATOSIS	0	0	0	0	1	0
SPLEEN						
TOTAL NUMBER EXAMINED	10	0	0	10	0	0
EXAMINED, UNREMARKABLE	6	0	0	8	0	0
HEMOSIDEROSIS	4	0	0	2	0	0

1= 0 PPM 2= 100 PPM 3= 500 PPM 4= 1000 PPM 5= 4000 PPM 6= 8000 PPM

TABLE 6
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ANIMALS SACRIFICED AT WEEK 13
FEMALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS SACRIFICED	15	15	15	15	4	0
LYMPH ND, S-MAN						
TOTAL NUMBER EXAMINED	8	0	2	9	0	0
EXAMINED, UNREMARKABLE	3	0	1	5	0	0
SINUS ERYTHROCYTOSIS	4	0	1	3	0	0
LYMPHOID HYPERPLASIA	2	0	1	0	0	0
PLASMACYTOSIS	1	0	0	2	0	0
LYMPH ND, MED						
TOTAL NUMBER EXAMINED	9	1	2	10	1	0
EXAMINED, UNREMARKABLE	1	0	0	0	0	0
MISSING	1	0	0	0	0	0
SINUS ERYTHROCYTOSIS	8	1	2	10	1	0
HEMOSIDEROSIS	4	1	1	6	1	0
LYMPH ND, MES						
TOTAL NUMBER EXAMINED	10	0	1	10	3	0
EXAMINED, UNREMARKABLE	4	0	1	7	0	0
SINUS ERYTHROCYTOSIS	0	0	0	0	2	0
LYMPHOID HYPERPLASIA	2	0	0	1	1	0
HISTIOCYTIC AGGREGATES	4	0	0	3	0	0
MASTOCYTOSIS	0	0	0	0	3	0
HEMOSIDEROSIS	0	0	0	0	1	0
LYMPH ND, REN						
TOTAL NUMBER EXAMINED	0	2	0	0	0	0
SINUS ERYTHROCYTOSIS	0	2	0	0	0	0
HEMOSIDEROSIS	0	2	0	0	0	0
LYMPH ND, PANC						
TOTAL NUMBER EXAMINED	0	1	0	1	1	0
SINUS ERYTHROCYTOSIS	0	1	0	1	0	0
HEMOSIDEROSIS	0	0	0	1	0	0
LYMPHOID HYPERPLASIA	0	1	0	0	1	0
1= 0 PPM	2= 100 PPM	3= 500 PPM	4= 1000 PPM	5= 4000 PPM	6= 8000 PPM	

TABLE 6
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ANIMALS SACRIFICED AT WEEK 13
FEMALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS SACRIFICED	15	15	15	15	4	0
THYMIC REGION						
TOTAL NUMBER EXAMINED	10	1	3	10	1	0
EXAMINED, UNREMARKABLE	2	0	0	4	1	0
CONGESTION	2	0	0	0	0	0
HEMORRHAGE	8	1	3	6	0	0
BRAIN						
TOTAL NUMBER EXAMINED	10	0	0	10	0	0
EXAMINED, UNREMARKABLE	10	0	0	10	0	0
UTERUS						
TOTAL NUMBER EXAMINED	10	1	1	10	0	0
EXAMINED, UNREMARKABLE	8	0	0	8	0	0
LUMINAL ECTASIA	2	1	1	2	0	0
LUNGS						
TOTAL NUMBER EXAMINED	10	10	10	10	4	0
EXAMINED, UNREMARKABLE	9	9	8	7	3	0
CONGESTION	0	0	0	1	0	0
ALVEOLAR HISTIOCYTOSIS	1	0	1	1	1	0
HEMORRHAGE	0	0	1	1	0	0
HEMOSIDEROSIS	0	0	0	1	0	0
PNEUMONITIS, INTERSTITIAL	0	1	1	1	1	0
PLEURITIS	0	0	0	1	0	0
PLEURAL FIBROSIS	0	0	0	1	0	0
KIDNEYS						
TOTAL NUMBER EXAMINED	10	10	10	10	4	0
EXAMINED, UNREMARKABLE	9	7	7	8	2	0
HYDRONEPHROSIS	0	1	2	0	1	0
INFARCTION	0	0	0	0	1	0
RENAL CALCULI	0	0	0	0	1	0
PYELITIS	0	1	0	1	0	0
PYELONEPHRITIS	0	0	0	0	1	0

1= 0 PPM 2= 100 PPM 3= 500 PPM 4= 1000 PPM 5= 4000 PPM 6= 8000 PPM

TABLE 6
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ANIMALS SACRIFICED AT WEEK 13
FEMALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS SACRIFICED	15	15	15	15	4	0
KIDNEYS (CONTINUED)						
TUBULAR DILATION	0	0	0	0	1	0
TUBULAR PROTEINOSIS	0	0	1	0	1	0
NEPHRITIS, INTERSTITIAL	1	0	1	1	0	0
FIBROSIS, INTERSTITIAL	0	0	0	0	1	0
TUBULAR ATROPHY	0	0	0	0	1	0
TUBULAR BASOPHILIA	0	2	0	0	1	0
URETER						
TOTAL NUMBER EXAMINED	0	0	0	0	1	0
CALCULI	0	0	0	0	1	0
TRANSITIONAL EPITHELIAL HYPERPLASIA	0	0	0	0	1	0
LUMINAL ECTASIA	0	0	0	0	1	0
URETERITIS	0	0	0	0	1	0
URINARY BLADDER						
TOTAL NUMBER EXAMINED	10	1	0	10	1	0
EXAMINED, UNREMARKABLE	9	0	0	9	0	0
CYSTITIS	0	1	0	1	1	0
TRANSITIONAL CELL HYPERPLASIA	1	1	0	1	1	0

1= 0 PPM 2= 100 PPM 3= 500 PPM 4= 1000 PPM 5= 4000 PPM 6= 8000 PPM

PATH/ESK/HFRADB9.TB6/*P

TABLE 7
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ALL ANIMALS FOUND DEAD/SACRIFICED MORIBUND
MALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS FOUND DEAD/SACRIFICED MORIBUND	0	0	0	0	12	15
STOMACH						
TOTAL NUMBER EXAMINED	0	0	0	0	7	9
EXAMINED, UNREMARKABLE	0	0	0	0	0	1
TOO AUTOLYZED TO EVALUATE	0	0	0	0	0	1
CONGESTION	0	0	0	0	4	6
HEMORRHAGE	0	0	0	0	1	1
EDEMA	0	0	0	0	6	6
LIVER						
TOTAL NUMBER EXAMINED	0	0	0	0	7	10
CONGESTION	0	0	0	0	7	10
CAPSULAR FIBROSIS	0	0	0	0	0	1
HEPATOCELLULAR ATROPHY	0	0	0	0	7	8
DUODENUM						
TOTAL NUMBER EXAMINED	0	0	0	0	6	7
EXAMINED, UNREMARKABLE	0	0	0	0	2	3
TOO AUTOLYZED TO EVALUATE	0	0	0	0	1	3
CONGESTION	0	0	0	0	3	3
MUCOSAL CELL DEGENERATION	0	0	0	0	3	1
JEJUNUM						
TOTAL NUMBER EXAMINED	0	0	0	0	4	2
EXAMINED, UNREMARKABLE	0	0	0	0	3	0
TOO AUTOLYZED TO EVALUATE	0	0	0	0	2	7
CONGESTION	0	0	0	0	1	2
MUCOSAL CELL DEGENERATION	0	0	0	0	1	0
ILEUM						
TOTAL NUMBER EXAMINED	0	0	0	0	2	4
EXAMINED, UNREMARKABLE	0	0	0	0	0	2
TOO AUTOLYZED TO EVALUATE	0	0	0	0	4	5
CONGESTION	0	0	0	0	1	2
MUCOSAL CELL NECROSIS	0	0	0	0	1	0

1= 0 PPM 2= 100 PPM 3= 500 PPM 4= 1000 PPM 5= 4000 PPM 6= 8000 PPM

TABLE 7
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ALL ANIMALS FOUND DEAD/SACRIFICED MORIBUND
MALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS FOUND DEAD/SACRIFICED MORIBUND	0	0	0	0	12	15
ILEUM (CONTINUED)						
LYMPHOID NECROSIS	0	0	0	0	0	1
CECUM						
TOTAL NUMBER EXAMINED	0	0	0	0	1	5
EXAMINED, UNREMARKABLE	0	0	0	0	0	1
TOO AUTOLYZED TO EVALUATE	0	0	0	0	6	5
CONGESTION	0	0	0	0	0	2
ENTERITIS	0	0	0	0	1	0
MUCOSAL CELL NECROSIS	0	0	0	0	1	4
SPLEEN						
TOTAL NUMBER EXAMINED	0	0	0	0	4	1
CONTRACTED SPLEEN	0	0	0	0	4	1
AUTOLYSIS	0	0	0	0	2	0
LYMPHOID DEPLETION	0	0	0	0	2	1
LYMPH ND, MES						
TOTAL NUMBER EXAMINED	0	0	0	0	1	0
SINUS ERYTHROCYTOSIS	0	0	0	0	1	0
HISTIOCYTIC AGGREGATES	0	0	0	0	1	0
BRAIN						
TOTAL NUMBER EXAMINED	0	0	0	0	1	2
CONGESTION	0	0	0	0	1	2
TESTES						
TOTAL NUMBER EXAMINED	0	0	0	0	6	9
EXAMINED, UNREMARKABLE	0	0	0	0	6	9
LUNGS						
TOTAL NUMBER EXAMINED	0	0	0	0	7	10
EXAMINED, UNREMARKABLE	0	0	0	0	1	1
CONGESTION	0	0	0	0	5	8

1= 0 PPM 2= 100 PPM 3= 500 PPM 4= 1000 PPM 5= 4000 PPM 6= 8000 PPM

TABLE 7
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ALL ANIMALS FOUND DEAD/SACRIFICED MORIBUND
MALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS FOUND DEAD/SACRIFICED MORIBUND	0	0	0	0	12	15
LUNGS (CONTINUED)						
HEMORRHAGE	0	0	0	0	2	7
KIDNEYS						
TOTAL NUMBER EXAMINED	0	0	0	0	7	10
EXAMINED, UNREMARKABLE	0	0	0	0	3	8
HYDRONEPHROSIS	0	0	0	0	4	1
CONGESTION	0	0	0	0	1	1
URINARY BLADDER						
TOTAL NUMBER EXAMINED	0	0	0	0	0	4
EXAMINED, UNREMARKABLE	0	0	0	0	0	3
TOO AUTOLYZED TO EVALUATE	0	0	0	0	0	1
MISSING	0	0	0	0	1	0
HEMORRHAGIC CONTENTS	0	0	0	0	0	1
MUCOSAL ULCERATION	0	0	0	0	0	1
1= 0 PPM	2= 100 PPM	3= 500 PPM	4= 1000 PPM	5= 4000 PPM	6= 8000 PPM	

PATH/ESK/HMRADB9.TB7/*P

TABLE 8
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ALL ANIMALS FOUND DEAD/SACRIFICED MORIBUND
FEMALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS FOUND DEAD/SACRIFICED MORIBUND	0	0	0	0	11	15
STOMACH						
TOTAL NUMBER EXAMINED	0	0	0	0	6	10
EXAMINED, UNREMARKABLE	0	0	0	0	5	7
CONGESTION	0	0	0	0	0	1
EDEMA	0	0	0	0	1	2
LIVER						
TOTAL NUMBER EXAMINED	0	0	0	0	6	10
EXAMINED, UNREMARKABLE	0	0	0	0	2	0
CONGESTION	0	0	0	0	4	10
HEPATOCELLULAR NECROSIS	0	0	0	0	1	0
MONONUCLEAR CELL INFILTRATE(S)	0	0	0	0	1	0
HEPATOCELLULAR ATROPHY	0	0	0	0	4	7
DUODENUM						
TOTAL NUMBER EXAMINED	0	0	0	0	5	9
EXAMINED, UNREMARKABLE	0	0	0	0	4	7
TOO AUTOLYZED TO EVALUATE	0	0	0	0	1	1
CONGESTION	0	0	0	0	1	0
MUCOSAL CELL DEGENERATION	0	0	0	0	1	2
JEJUNUM						
TOTAL NUMBER EXAMINED	0	0	0	0	4	0
EXAMINED, UNREMARKABLE	0	0	0	0	3	0
TOO AUTOLYZED TO EVALUATE	0	0	0	0	1	5
CONGESTION	0	0	0	0	1	0
ILEUM						
TOTAL NUMBER EXAMINED	0	0	0	0	4	1
EXAMINED, UNREMARKABLE	0	0	0	0	2	1
TOO AUTOLYZED TO EVALUATE	0	0	0	0	1	4
CONGESTION	0	0	0	0	2	0

1= 0 PPM 2= 100 PPM 3= 500 PPM 4= 1000 PPM 5= 4000 PPM 6= 8000 PPM

TABLE 8
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ALL ANIMALS FOUND DEAD/SACRIFICED MORIBUND
FEMALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS FOUND DEAD/SACRIFICED MORIBUND	0	0	0	0	11	15
CECUM						
TOTAL NUMBER EXAMINED	0	0	0	0	5	2
EXAMINED, UNREMARKABLE	0	0	0	0	5	1
TOO AUTOLYZED TO EVALUATE	0	0	0	0	1	8
CONGESTION	0	0	0	0	0	1
COLON						
TOTAL NUMBER EXAMINED	0	0	0	0	1	0
EXAMINED, UNREMARKABLE	0	0	0	0	1	0
ADRENAL GL						
TOTAL NUMBER EXAMINED	0	0	0	0	1	0
EXAMINED, UNREMARKABLE	0	0	0	0	1	0
SKIN, UNTREATED						
TOTAL NUMBER EXAMINED	0	0	0	0	0	3
EXAMINED, UNREMARKABLE	0	0	0	0	0	3
SPLEEN						
TOTAL NUMBER EXAMINED	0	0	0	0	0	1
CONTRACTED SPLEEN	0	0	0	0	0	1
LYMPH ND, MED						
TOTAL NUMBER EXAMINED	0	0	0	0	0	1
EXAMINED, UNREMARKABLE	0	0	0	0	0	1
LYMPH ND, REN						
TOTAL NUMBER EXAMINED	0	0	0	0	0	1
SINUS ERYTHROCYTOSIS	0	0	0	0	0	1

1= 0 PPM 2= 100 PPM 3= 500 PPM 4= 1000 PPM 5= 4000 PPM 6= 8000 PPM

TABLE 8
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ALL ANIMALS FOUND DEAD/SACRIFICED MORIBUND
FEMALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS FOUND DEAD/SACRIFICED MORIBUND	0	0	0	0	11	15
THYMIC REGION						
TOTAL NUMBER EXAMINED	0	0	0	0	0	1
HEMORRHAGE	0	0	0	0	0	1
BRAIN						
TOTAL NUMBER EXAMINED	0	0	0	0	1	7
CONGESTION	0	0	0	0	1	7
LUNGS						
TOTAL NUMBER EXAMINED	0	0	0	0	6	10
EXAMINED, UNREMARKABLE	0	0	0	0	2	1
CONGESTION	0	0	0	0	4	9
HEMORRHAGE	0	0	0	0	2	6
PNEUMONITIS, INTERSTITIAL	0	0	0	0	1	3
KIDNEYS						
TOTAL NUMBER EXAMINED	0	0	0	0	6	10
EXAMINED, UNREMARKABLE	0	0	0	0	6	8
HYDRONEPHROSIS	0	0	0	0	0	1
INFARCTION	0	0	0	0	0	1
URINARY BLADDER						
TOTAL NUMBER EXAMINED	0	0	0	0	0	1
EXAMINED, UNREMARKABLE	0	0	0	0	0	1
1= 0 PPM	2= 100 PPM	3= 500 PPM	4= 1000 PPM	5= 4000 PPM	6= 8000 PPM	

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TABLE 9
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ALL DEATHS COMBINED
MALE

GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS	15	15	15	15	15	15
HEART						
TOTAL NUMBER EXAMINED	10	0	0	10	0	0
EXAMINED, UNREMARKABLE	7	0	0	8	0	0
MYOCARDIAL DEGENERATION/FIBROSIS	1	0	0	0	0	0
MYOCARDITIS	2	0	0	2	0	0
STOMACH						
TOTAL NUMBER EXAMINED	10	10	10	10	9	9
EXAMINED, UNREMARKABLE	10	8	10	10	2	1
TOO AUTOLYZED TO EVALUATE	0	0	0	0	0	1
GLAND ECTASIA	0	2	0	0	0	0
CONGESTION	0	0	0	0	4	6**
HEMORRHAGE	0	0	0	0	1	1
EDEMA	0	0	0	0	6**	6**
LIVER						
TOTAL NUMBER EXAMINED	10	10	10	10	10	10
EXAMINED, UNREMARKABLE	2	1	2	2	3	0
CONGESTION	0	0	0	0	7**	10**
CAPSULAR FIBROSIS	0	0	0	0	0	1
MONONUCLEAR CELL INFILTRATE(S)	8	9	8	8	0**	0**
CHOLANGITIS	1	0	0	0	0	0
HEPATOCELLULAR ATROPHY	0	0	0	0	7**	8**
PANCREAS						
TOTAL NUMBER EXAMINED	10	1	1	10	0	0
EXAMINED, UNREMARKABLE	7	0	1	7	0	0
HEMOSIDEROSIS	1	0	0	0	0	0
LYMPHOID INFILTRATES	2	0	0	2	0	0
PANCREATITIS	1	1	0	1	0	0
ACINAR ATROPHY	1	0	0	1	0	0
LIPOMATOSIS	0	0	0	1	0	0
FIBROSIS	1	0	0	1	0	0
NESIDIOBLASTOSIS	1	0	0	0	0	0
1= 0 PPM	2= 100 PPM	3= 500 PPM	4= 1000 PPM	5= 4000 PPM	6= 8000 PPM	

**= SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01

TABLE 9
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ALL DEATHS COMBINED						
MALE						
GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS	15	15	15	15	15	15
DUODENUM						
TOTAL NUMBER EXAMINED	10	10	10	10	9	7
EXAMINED, UNREMARKABLE	10	10	10	10	4	3
TOO AUTOLYZED TO EVALUATE	0	0	0	0	1	3
CONGESTION	0	0	0	0	3	3
MUCOSAL CELL DEGENERATION	0	0	0	0	4	1
JEJUNUM						
TOTAL NUMBER EXAMINED	10	0	0	10	4	2
EXAMINED, UNREMARKABLE	10	0	0	10	3	0
TOO AUTOLYZED TO EVALUATE	0	0	0	0	2	7
CONGESTION	0	0	0	0	1	2*
MUCOSAL CELL DEGENERATION	0	0	0	0	1	0
ILEUM						
TOTAL NUMBER EXAMINED	10	0	0	10	3	4
EXAMINED, UNREMARKABLE	9	0	0	10	0	2
TOO AUTOLYZED TO EVALUATE	0	0	0	0	4	5
CONGESTION	0	0	0	0	2	2
LYMPHOID HYPERPLASIA	1	0	0	0	0	0
MUCOSAL CELL NECROSIS	0	0	0	0	1	0
LYMPHOID NECROSIS	0	0	0	0	0	1
CECUM						
TOTAL NUMBER EXAMINED	10	0	0	10	4	5
EXAMINED, UNREMARKABLE	10	0	0	10	3	1
TOO AUTOLYZED TO EVALUATE	0	0	0	0	6	5
CONGESTION	0	0	0	0	0	2
ENTERITIS	0	0	0	0	1	0
MUCOSAL CELL NECROSIS	0	0	0	0	1	4**
COLON						
TOTAL NUMBER EXAMINED	10	0	0	10	1	0
EXAMINED, UNREMARKABLE	10	0	0	10	0	0
LYMPHOID HYPERPLASIA	0	0	0	0	1	0

1= 0 PPM 2= 100 PPM 3= 500 PPM 4= 1000 PPM 5= 4000 PPM 6= 8000 PPM

**= SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01

*= SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.05

TABLE 9
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ALL DEATHS COMBINED						
MALE						
GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS	15	15	15	15	15	15
RECTUM						
TOTAL NUMBER EXAMINED	10	0	0	10	0	0
EXAMINED, UNREMARKABLE	10	0	0	8	0	0
LYMPHOID HYPERPLASIA	0	0	0	2	0	0
THYROID GL						
TOTAL NUMBER EXAMINED	10	0	0	10	0	0
EXAMINED, UNREMARKABLE	10	0	0	8	0	0
THYROGLOSSAL DUCT CYST	0	0	0	2	0	0
ADRENAL GL						
TOTAL NUMBER EXAMINED	10	0	1	10	2	0
EXAMINED, UNREMARKABLE	8	0	1	7	2	0
FIBROSIS	2	0	0	2	0	0
FOAM CELL HYPERPLASIA	0	0	0	1	0	0
SKIN, UNTREATED						
TOTAL NUMBER EXAMINED	0	0	1	0	2	0
EXAMINED, UNREMARKABLE	0	0	0	0	2	0
HYPERKERATOSIS	0	0	1	0	0	0
SPLEEN						
TOTAL NUMBER EXAMINED	10	0	0	10	4	1
EXAMINED, UNREMARKABLE	10	0	0	8	0	0
HEMOSIDEROSIS	0	0	0	1	0	0
CONGESTION	0	0	0	1	0	0
CONTRACTED SPLEEN	0	0	0	0	4**	1
AUTOLYSIS	0	0	0	0	2	0
LYMPHOID DEPLETION	0	0	0	0	2	1
LYMPH ND, S-MAN						
TOTAL NUMBER EXAMINED	9	1	1	10	0	0
EXAMINED, UNREMARKABLE	2	0	0	4	0	0
SINUS ERYTHROCYTOSIS	6	1	1	4	0	0

1= 0 PPM

2= 100 PPM

3= 500 PPM

4= 1000 PPM

5= 4000 PPM

6= 8000 PPM

**= SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01

TABLE 9
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ALL DEATHS COMBINED MALE						
GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS	15	15	15	15	15	15
LYMPH ND, S-MAN (CONTINUED)						
LYMPHOID HYPERPLASIA	5	0	0	3	0	0
PLASMACYTOSIS	3	0	1	3	0	0
LYMPH ND, MED						
TOTAL NUMBER EXAMINED	10	1	4	9	0	0
EXAMINED, UNREMARKABLE	5	0	0	0	0	0
MISSING	0	0	0	1	0	0
SINUS ERYTHROCYTOSIS	4	1	4	8	0	0
MASTOCYTOSIS	1	0	0	0	0	0
SINUS HISTIOCYTOSIS	2	0	0	2	0	0
HEMOSIDEROSIS	1	0	0	3	0	0
LYMPHOID HYPERPLASIA	1	0	0	1	0	0
LYMPH ND, MES						
TOTAL NUMBER EXAMINED	10	0	0	10	3	0
EXAMINED, UNREMARKABLE	8	0	0	8	0	0
SINUS ERYTHROCYTOSIS	2	0	0	2	3	0
HEMOSIDEROSIS	0	0	0	0	2	0
HISTIOCYTIC AGGREGATES	0	0	0	0	3**	0
MASTOCYTOSIS	0	0	0	0	2	0
LYMPH ND, REN						
TOTAL NUMBER EXAMINED	0	0	0	1	0	0
SINUS ERYTHROCYTOSIS	0	0	0	1	0	0
HEMOSIDEROSIS	0	0	0	1	0	0
LYMPH ND, PANC						
TOTAL NUMBER EXAMINED	1	0	0	0	0	0
MISSING	0	0	1	0	0	0
SINUS ERYTHROCYTOSIS	1	0	0	0	0	0
HEMOSIDEROSIS	1	0	0	0	0	0
1= 0 PPM	2= 100 PPM	3= 500 PPM	4= 1000 PPM	5= 4000 PPM	6= 8000 PPM	
**= SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01						

TABLE 9
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ALL DEATHS COMBINED						
MALE						
GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS	15	15	15	15	15	15
LYMPH ND, OTHER						
TOTAL NUMBER EXAMINED	0	1	0	0	0	0
LYMPHOID HYPERPLASIA	0	1	0	0	0	0
PLASMACYTOSIS	0	1	0	0	0	0
THYMIC REGION						
TOTAL NUMBER EXAMINED	10	1	4	10	0	0
EXAMINED, UNREMARKABLE	5	0	0	2	0	0
HEMORRHAGE	4	1	4	8	0	0
INVOLUTIONAL ATROPHY	1	0	0	0	0	0
BRAIN						
TOTAL NUMBER EXAMINED	10	1	0	10	1	2
EXAMINED, UNREMARKABLE	10	1	0	10	0	0
CONGESTION	0	0	0	0	1	2*
TESTES						
TOTAL NUMBER EXAMINED	10	9	9	10	9	9
EXAMINED, UNREMARKABLE	9	6	8	10	8	9
SEMINIFEROUS TUBULAR ATROPHY	1	3	0	0	1	0
MINERALIZATION	0	0	1	0	0	0
PROSTATE						
TOTAL NUMBER EXAMINED	10	0	0	10	0	0
EXAMINED, UNREMARKABLE	8	0	0	9	0	0
PROSTATITIS	2	0	0	1	0	0
TRACHEA						
TOTAL NUMBER EXAMINED	10	0	0	10	0	0
EXAMINED, UNREMARKABLE	9	0	0	10	0	0
TRACHEITIS	1	0	0	0	0	0
1= 0 PPM	2= 100 PPM	3= 500 PPM	4= 1000 PPM	5= 4000 PPM	6= 8000 PPM	
* = SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.05						

TABLE 9
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ALL DEATHS COMBINED MALE						
GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS	15	15	15	15	15	15
LUNGS						
TOTAL NUMBER EXAMINED	10	10	9	10	10	10
EXAMINED, UNREMARKABLE	8	8	6	8	4	1
CONGESTION	0	0	0	0	5*	8**
EPIDERMAL CYST	0	0	1	0	0	0
ALVEOLAR HISTIOCYTOSIS	1	1	0	1	0	0
HEMORRHAGE	1	1	1	1	2	7*
LYMPHOID INFILTRATE(S)	0	0	0	1	0	0
PNEUMONITIS, INTERSTITIAL	0	0	1	0	0	0
PLEURAL FIBROSIS	0	0	0	1	0	0
KIDNEYS						
TOTAL NUMBER EXAMINED	10	10	10	10	9	10
EXAMINED, UNREMARKABLE	3	4	6	3	5	8
CYST(S)	0	1	0	2	0	0
HYDRONEPHROSIS	2	1	1	1	4	1
CONGESTION	0	0	0	0	1	1
INFARCTION	0	1	0	0	0	0
PYELONEPHRITIS	0	1	0	0	0	0
TUBULAR DILATION	0	0	1	0	0	0
TUBULAR PROTEINOSIS	0	0	1	0	0	0
NEPHRITIS, INTERSTITIAL	4	5	1	3	0	0
FIBROSIS, INTERSTITIAL	1	3	0	1	0	0
TUBULAR PIGMENTATION	0	0	0	1	0	0
TUBULAR BASOPHILIA	5	3	1	5	0*	0*
URETER						
TOTAL NUMBER EXAMINED	0	1	0	0	0	0
MUCOSAL HYPERPLASIA	0	1	0	0	0	0
URETERITIS	0	1	0	0	0	0
URINARY BLADDER						
TOTAL NUMBER EXAMINED	10	1	1	10	0	4
EXAMINED, UNREMARKABLE	10	0	1	10	0	3
TOO AUTOLYZED TO EVALUATE	0	0	0	0	0	1
MISSING	0	0	0	0	1	0
HEMORRHAGE	0	1	0	0	0	0

1= 0 PPM 2= 100 PPM 3= 500 PPM 4= 1000 PPM 5= 4000 PPM 6= 8000 PPM
 **= SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01
 *= SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.05

TABLE 9
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ALL DEATHS COMBINED MALE						
GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS	15	15	15	15	15	15
URINARY BLADDER (CONTINUED)						
CYSTITIS	0	1	0	0	0	0
TRANSITIONAL CELL HYPERPLASIA	0	1	0	0	0	0
HEMORRHAGIC CONTENTS	0	0	0	0	0	1
CALCULI	0	1	0	0	0	0
MUCOSAL ULCERATION	0	0	0	0	0	1
1= 0 PPM 2= 100 PPM 3= 500 PPM 4= 1000 PPM 5= 4000 PPM 6= 8000 PPM						
NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP						
PATH/ESK/HMRADB9.TB9/*P						

TABLE 10
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ALL DEATHS COMBINED FEMALE						
GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS	15	15	15	15	15	15
ADIPOSE TISSUE						
TOTAL NUMBER EXAMINED	1	0	0	0	0	0
STEATITIS	1	0	0	0	0	0
STOMACH						
TOTAL NUMBER EXAMINED	10	10	10	10	10	10
EXAMINED, UNREMARKABLE	9	10	10	10	9	7
CONGESTION	0	0	0	0	0	1
EDEMA	1	0	0	0	1	2
LIVER						
TOTAL NUMBER EXAMINED	10	10	10	10	10	10
EXAMINED, UNREMARKABLE	3	3	1	3	2	0
CONGESTION	0	0	0	0	4	10**
HEPATOCELLULAR NECROSIS	0	0	0	0	2	0
MONONUCLEAR CELL INFILTRATE(S)	7	7	9	7	5	0**
HEPATOCELLULAR ATROPHY	0	0	0	0	4	7**
PANCREAS						
TOTAL NUMBER EXAMINED	10	0	0	10	0	0
EXAMINED, UNREMARKABLE	7	0	0	10	0	0
LYMPHOID INFILTRATES	2	0	0	0	0	0
PANCREATITIS	1	0	0	0	0	0
DUODENUM						
TOTAL NUMBER EXAMINED	10	10	10	10	9	9
EXAMINED, UNREMARKABLE	10	10	10	10	8	7
TOO AUTOLYZED TO EVALUATE	0	0	0	0	1	1
CONGESTION	0	0	0	0	1	0
MUCOSAL CELL DEGENERATION	0	0	0	0	1	2
JEJUNUM						
TOTAL NUMBER EXAMINED	10	0	0	10	4	0
EXAMINED, UNREMARKABLE	10	0	0	10	3	0
TOO AUTOLYZED TO EVALUATE	0	0	0	0	1	5
CONGESTION	0	0	0	0	1	0

1= 0 PPM 2= 100 PPM 3= 500 PPM 4= 1000 PPM 5= 4000 PPM 6= 8000 PPM
 **= SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01

TABLE 10
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ALL DEATHS COMBINED FEMALE						
GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS	15	15	15	15	15	15
ILEUM						
TOTAL NUMBER EXAMINED	10	0	0	10	4	1
EXAMINED, UNREMARKABLE	10	0	0	10	2	1
TOO AUTOLYZED TO EVALUATE	0	0	0	0	1	4
CONGESTION	0	0	0	0	2	0
CECUM						
TOTAL NUMBER EXAMINED	10	0	0	10	9	2
EXAMINED, UNREMARKABLE	10	0	0	10	9	1
TOO AUTOLYZED TO EVALUATE	0	0	0	0	1	8
CONGESTION	0	0	0	0	0	1
COLON						
TOTAL NUMBER EXAMINED	10	0	0	10	3	0
EXAMINED, UNREMARKABLE	7	0	0	10	3	0
LYMPHOID HYPERPLASIA	3	0	0	0	0	0
RECTUM						
TOTAL NUMBER EXAMINED	10	0	0	10	0	0
EXAMINED, UNREMARKABLE	10	0	0	9	0	0
LYMPHOID HYPERPLASIA	0	0	0	1	0	0
THYROID GL						
TOTAL NUMBER EXAMINED	10	0	0	10	0	0
EXAMINED, UNREMARKABLE	4	0	0	9	0	0
THYROGLOSSAL DUCT CYST	6	0	0	1	0	0
ADRENAL GL						
TOTAL NUMBER EXAMINED	10	0	0	10	1	0
EXAMINED, UNREMARKABLE	8	0	0	10	1	0
HEMORRHAGE	1	0	0	0	0	0
CORTICAL CELL HYPERPLASIA, NODULAR	1	0	0	0	0	0
1= 0 PPM	2= 100 PPM	3= 500 PPM	4= 1000 PPM	5= 4000 PPM	6= 8000 PPM	
NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP						

TABLE 10
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ALL DEATHS COMBINED FEMALE						
GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS	15	15	15	15	15	15
SKIN, UNTREATED						
TOTAL NUMBER EXAMINED	0	0	0	1	2	3
EXAMINED, UNREMARKABLE	0	0	0	1	1	3
HYPERKERATOSIS	0	0	0	0	1	0
SPLEEN						
TOTAL NUMBER EXAMINED	10	0	0	10	0	1
EXAMINED, UNREMARKABLE	6	0	0	8	0	0
CONTRACTED SPLEEN	0	0	0	0	0	1
HEMOSIDEROSIS	4	0	0	2	0	0
LYMPH ND, S-MAN						
TOTAL NUMBER EXAMINED	8	0	2	9	0	0
EXAMINED, UNREMARKABLE	3	0	1	5	0	0
SINUS ERYTHROCYTOSIS	4	0	1	3	0	0
LYMPHOID HYPERPLASIA	2	0	1	0	0	0
PLASMACYTOSIS	1	0	0	2	0	0
LYMPH ND, MED						
TOTAL NUMBER EXAMINED	9	1	2	10	1	1
EXAMINED, UNREMARKABLE	1	0	0	0	0	1
MISSING	1	0	0	0	0	0
SINUS ERYTHROCYTOSIS	8	1	2	10	1	0
HEMOSIDEROSIS	4	1	1	6	1	0
LYMPH ND, MES						
TOTAL NUMBER EXAMINED	10	0	1	10	3	0
EXAMINED, UNREMARKABLE	4	0	1	7	0	0
SINUS ERYTHROCYTOSIS	0	0	0	0	2	0
LYMPHOID HYPERPLASIA	2	0	0	1	1	0
HISTIOCYTIC AGGREGATES	4	0	0	3	0	0
MASTOCYTOSIS	0	0	0	0	3**	0
HEMOSIDEROSIS	0	0	0	0	1	0

1= 0 PPM 2= 100 PPM 3= 500 PPM 4= 1000 PPM 5= 4000 PPM 6= 8000 PPM
**= SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01

TABLE 10
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ALL DEATHS COMBINED FEMALE						
GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS	15	15	15	15	15	15
LYMPH ND, REN TOTAL NUMBER EXAMINED	0	2	0	0	0	1
SINUS ERYTHROCYTOSIS	0	2	0	0	0	1
HEMOSIDEROSIS	0	2	0	0	0	0
LYMPH ND, PANC TOTAL NUMBER EXAMINED	0	1	0	1	1	0
SINUS ERYTHROCYTOSIS	0	1	0	1	0	0
HEMOSIDEROSIS	0	0	0	1	0	0
LYMPHOID HYPERPLASIA	0	1	0	0	1	0
THYMIC REGION TOTAL NUMBER EXAMINED	10	1	3	10	1	1
EXAMINED, UNREMARKABLE	2	0	0	4	1	0
CONGESTION	2	0	0	0	0	0
HEMORRHAGE	8	1	3	6	0	1
BRAIN TOTAL NUMBER EXAMINED	10	0	0	10	1	7
EXAMINED, UNREMARKABLE	10	0	0	10	0	0
CONGESTION	0	0	0	0	1	7**
UTERUS TOTAL NUMBER EXAMINED	10	1	1	10	0	0
EXAMINED, UNREMARKABLE	8	0	0	8	0	0
LUMINAL ECTASIA	2	1	1	2	0	0
LUNGS TOTAL NUMBER EXAMINED	10	10	10	10	10	10
EXAMINED, UNREMARKABLE	9	9	8	7	5	1
CONGESTION	0	0	0	1	4	9**
ALVEOLAR HISTIOCYTOSIS	1	0	1	1	1	0
HEMORRHAGE	0	0	1	1	2	6*
1= 0 PPM	2= 100 PPM	3= 500 PPM	4= 1000 PPM	5= 4000 PPM	6= 8000 PPM	
**= SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.01						
*= SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP AT 0.05						

TABLE 10
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MICROSCOPIC OBSERVATIONS - INCIDENCE SUMMARY

ALL DEATHS COMBINED						
FEMALE						
GROUP:	1	2	3	4	5	6
NUMBER OF ANIMALS IN DOSE GROUP	15	15	15	15	15	15
NUMBER OF ANIMALS	15	15	15	15	15	15
LUNGS (CONTINUED)						
HEMOSIDEROSIS	0	0	0	1	0	0
PNEUMONITIS, INTERSTITIAL	0	1	1	1	2	3
PLEURITIS	0	0	0	1	0	0
PLEURAL FIBROSIS	0	0	0	1	0	0
KIDNEYS						
TOTAL NUMBER EXAMINED	10	10	10	10	10	10
EXAMINED, UNREMARKABLE	9	7	7	8	8	8
HYDRONEPHROSIS	0	1	2	0	1	1
INFARCTION	0	0	0	0	1	1
RENAL CALCULI	0	0	0	0	1	0
PYELITIS	0	1	0	1	0	0
PYELONEPHRITIS	0	0	0	0	1	0
TUBULAR DILATION	0	0	0	0	1	0
TUBULAR PROTEINOSIS	0	0	1	0	1	0
NEPHRITIS, INTERSTITIAL	1	0	1	1	0	0
FIBROSIS, INTERSTITIAL	0	0	0	0	1	0
TUBULAR ATROPHY	0	0	0	0	1	0
TUBULAR BASOPHILIA	0	2	0	0	1	0
URETER						
TOTAL NUMBER EXAMINED	0	0	0	0	1	0
CALCULI	0	0	0	0	1	0
TRANSITIONAL EPITHELIAL HYPERPLASIA	0	0	0	0	1	0
LUMINAL ECTASIA	0	0	0	0	1	0
URETERITIS	0	0	0	0	1	0
URINARY BLADDER						
TOTAL NUMBER EXAMINED	10	1	0	10	1	1
EXAMINED, UNREMARKABLE	9	0	0	9	0	1
CYSTITIS	0	1	0	1	1	0
TRANSITIONAL CELL HYPERPLASIA	1	1	0	1	1	0

1= 0 PPM 2= 100 PPM 3= 500 PPM 4= 1000 PPM 5= 4000 PPM 6= 8000 PPM
NONE SIGNIFICANTLY DIFFERENT FROM CONTROL GROUP

PATH/ESK/HFRADB9.T10/*P

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
PATHOLOGY PROTOCOL

The following tissues were examined at necropsy and histologically, for 10 rats in the 1000 and 0 ppm groups, with no significant lesions observed unless otherwise specified:

TOTAL BODY ²	MESENTARY/OM'TUM ²	PERITONEUM ²	PERITONEAL CAV ²	PLEURA ²
THORACIC CAV ²	HEART ¹	PERICARDIAL CAV ²	AORTA	SALIVARY GL
ORAL/PHARYNGEAL ²	TONGUE ²	ESOPHAGUS	STOMACH ³	LIVER ^{1,3}
PANCREAS	DUODENUM ³	JEJUNUM	ILEUM	CECUM
COLON	RECTUM	ANUS ²	PITUITARY	THYROID GL
PARATHYROID GL	ADRENAL GL ¹	SKIN, UNTREATED ²	SUBCUTIS ²	HEAD ²
MAMMARY GL ²	SPLEEN ¹	LYMPH ND, S-MAN ^{2*}	LYMPH ND, MED	LYMPH ND, MES
THYMIC REGION	BONE/JOINT ²	BONE, STERNUM	BONE, FEMUR ²	BONE, VERTEBRA ²
BONE MARROW	SKELETAL MUSCLE ²	DIAPHRAGM ²	BRAIN ¹	SPINAL CORD
NERVE, SCIATIC	EYE ²	LACRYMAL GL ²	TESTES ^{1,3}	EPIDIDYMIDES
SEMINAL VESICLE ²	COAGULATING GL ²	PROSTATE	PENIS ²	LARYNX ²
TRACHEA	LUNGS ³	KIDNEYS ^{1,3}	URETER ²	URINARY BLADDER

¹ = Organ weights collected. ² = examined at necropsy only, unless gross lesions present.
³ = tissues examined histologically for 10 rats in the 8000, 4000, 500 and 100 ppm groups.

*Also examined histologically if attached to the salivary glands

Grade codes:

1=MINIMAL, 2=MILD, 3=MODERATE, 4=MARKED, 5=SEVERE, P=PRESENT
()=FOCAL, (())=MULTIFOCAL, NO PARENTHESES=DIFFUSE

Micro diagnosis prefix codes:

= NEOPLASM, B = BENIGN, M = MALIGNANT, @PN = PRE-NEOPLASTIC

MICRO+ indicates histologic confirmation of preceding gross diagnosis.

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 0 PPM MALE

ANIMAL 12746A01	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS. (G)	REL.	
LIVER	12.402	2.588	LIVER MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	3.360	0.701	PANCREAS MICRO: ((3)) ACINAR ATROPHY
SPLEEN	0.646	0.135	((1)) LYMPHOID INFILTRATES
HEART	1.209	0.252	THYMIC REGION MICRO: (2) HEMORRHAGE
BRAIN	1.994	0.416	KIDNEYS MICRO: ((1)) NEPHRITIS, INTERSTITIAL
ADRENAL GL	0.052	0.011	((2)) TUBULAR BASOPHILIA
TESTES	4.082	0.852	
TERMINAL BODY WT.	479.3		

ANIMAL 12807A02	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS. (G)	REL.	
LIVER	10.238	2.372	EXAMINED - NO SIGNIFICANT LESIONS
KIDNEYS	3.311	0.767	
SPLEEN	0.621	0.144	
HEART	1.366	0.316	
BRAIN	2.148	0.498	
ADRENAL GL	0.056	0.013	
TESTES	3.692	0.855	
TERMINAL BODY WT.	431.6		

ANIMAL 12783A03	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS. (G)	REL.	
LIVER	10.732	2.355	HEART MICRO: (1) MYOCARDITIS
KIDNEYS	2.937	0.644	LIVER MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
SPLEEN	0.591	0.130	(1) CHOLANGITIS
HEART	1.278	0.280	ILEUM MICRO: 2 LYMPHOID HYPERPLASIA
BRAIN	1.966	0.431	ADRENAL GL MICRO: (1) FIBROSIS
ADRENAL GL	0.050	0.011	CAPSULAR
TESTES	3.121	0.685	LYMPH ND, S-MAN GROSS: COLOR CHANGE, DIFFUSE
TERMINAL BODY WT.	455.8		DARK RED
			MICRO+ 4 SINUS ERYTHROCYTOSIS
			MICRO: 3 PLASMACYTOSIS
			3 LYMPHOID HYPERPLASIA
			LYMPH ND, MED GROSS: SIZE INCREASE
			2X NORMAL
			MICRO+ 2 LYMPHOID HYPERPLASIA
			MICRO: 2 SINUS ERYTHROCYTOSIS
			THYMIC REGION MICRO: 5 INVOLUTIONAL ATROPHY
			NO THYMUS PRESENT
			THE FOLLOWING TISSUES WERE MISSING: PARATHYROID GL

ANIMAL 12802A04	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS. (G)	REL.	
LIVER	12.495	2.428	LIVER MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	2.888	0.561	LYMPH ND, S-MAN MICRO: ((1)) SINUS ERYTHROCYTOSIS
SPLEEN	0.632	0.123	LYMPH ND, MES MICRO: ((1)) SINUS ERYTHROCYTOSIS
HEART	1.496	0.291	KIDNEYS MICRO: ((1)) NEPHRITIS, INTERSTITIAL
BRAIN	2.050	0.398	
ADRENAL GL	0.073	0.014	
TESTES	3.442	0.669	
TERMINAL BODY WT.	514.7		

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 0 PPM MALE

ANIMAL	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS. (G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS	
LIVER	13.934	2.685		
KIDNEYS	3.526	0.679		
SPLEEN	0.689	0.133		
HEART	1.398	0.269		
BRAIN	2.230	0.430		
ADRENAL GL	0.075	0.014		
TESTES	3.007	0.579		
TERMINAL BODY WT.	519.0			

ANIMAL	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS. (G)	REL.	HEART	
LIVER	12.819	2.763	MICRO: (1) MYOCARDIAL DEGENERATION/FIBROSIS	
KIDNEYS	3.316	0.715	LIVER	
SPLEEN	0.779	0.168	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)	
HEART	1.436	0.309	LYMPH ND, S-MAN	
BRAIN	1.933	0.417	MICRO: 4 SINUS ERYTHROCYTOSIS	
ADRENAL GL	0.064	0.014	3 LYMPHOID HYPERPLASIA	
TESTES	3.261	0.703	THYMIC REGION	
TERMINAL BODY WT.	464.0		MICRO: ((2)) HEMORRHAGE	
			KIDNEYS	
			MICRO: 2 HYDRONEPHROSIS	
			RIGHT	

ANIMAL	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS. (G)	REL.	LIVER	
LIVER	12.515	2.589	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)	
KIDNEYS	3.717	0.769	PAWS/FEET	
SPLEEN	0.754	0.156	GROSS: MISTAKE IN CLIPPING TOES	
HEART	1.417	0.293	6	
BRAIN	2.117	0.438	LYMPH ND, S-MAN	
ADRENAL GL	0.059	0.012	MICRO: 3 PLASMACYTOSIS	
TESTES	3.391	0.702	TRACHEA	
TERMINAL BODY WT.	483.4		MICRO: (2) TRACHEITIS	
			KIDNEYS	
			MICRO: ((1)) TUBULAR BASOPHILIA	

ANIMAL	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS. (G)	REL.	LIVER	
LIVER	13.340	2.460	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)	
KIDNEYS	3.371	0.622	ADRENAL GL	
SPLEEN	0.821	0.151	MICRO: ((2)) FIBROSIS	
HEART	1.586	0.292	CAPSULAR	
BRAIN	2.095	0.386	LYMPH ND, PANC	
ADRENAL GL	0.078	0.014	MICRO: ((2)) SINUS ERYTHROCYTOSIS	
TESTES	3.471	0.640	((1)) HEMOSIDEROSIS	
TERMINAL BODY WT.	542.3		LUNGS	
			MICRO: (2) ALVEOLAR HISTIOCYTOSIS	
			KIDNEYS	
			GROSS: HYDRONEPHROSIS	
			BILATERAL, MARKED	
			MICRO: 3 HYDRONEPHROSIS	
			BILATERAL	
			MICRO: ((2)) NEPHRITIS, INTERSTITIAL	
			RIGHT	
			((1)) TUBULAR BASOPHILIA	
			((1)) FIBROSIS, INTERSTITIAL	

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 0 PPM MALE

ANIMAL	12837A09	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS. (G)	REL.	STOMACH		
LIVER	13.761	2.985	GROSS:	SURFACE CHANGE	
KIDNEYS	2.823	0.612		MULTIPLE AREAS OF THICKENED MUCOSA, 2MM	
SPLEEN	0.635	0.138		GLANDULAR PORTION	
HEART	1.270	0.275	SKIN, UNTREATED		
BRAIN	2.047	0.444	GROSS:	ALOPECIA	
ADRENAL GL	0.044	0.010		NOSE AREA, BOTH FRONT LEGS	
TESTES	3.717	0.806			
TERMINAL BODY WT.	461.0				

ANIMAL	12817A10	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS. (G)	REL.	STOMACH		
LIVER	14.452	2.704	GROSS:	CONTENTS ABNORMAL	
KIDNEYS	3.641	0.681		RED CONTENTS	
SPLEEN	0.739	0.138	LIVER		
HEART	1.654	0.310	MICRO: ((1))	MONONUCLEAR CELL INFILTRATE(S)	
BRAIN	2.143	0.401	PANCREAS		
ADRENAL GL	0.056	0.010	MICRO: (1)	LYMPHOID INFILTRATES	
TESTES	3.523	0.659	(3)	PANCREATITIS	
TERMINAL BODY WT.	534.4			CHRONIC ACTIVE LESION WITH ACUTE	
				HEMORRHAGIC NECROSIS	
				AND DENSE FIBROSIS.	
			(4)	FIBROSIS	
			LYMPH ND, S-MAN		
			GROSS:	COLOR CHANGE, DIFFUSE	
				DARK RED, ALL NODES	
			MICRO+ 3	SINUS ERYTHROCYTOSIS	
			MICRO: ((2))	PLASMACYTOSIS	
			2	LYMPHOID HYPERPLASIA	
			LYMPH ND, MED		
			MICRO: 4	SINUS ERYTHROCYTOSIS	
			TESTES		
			MICRO: (1)	SEMINIFEROUS TUBULAR ATROPHY	
				LEFT	
			LUNGS		
			GROSS:	COLOR CHANGE, FOCAL/MULTIFOCAL	
				LEFT- SEVERAL DARK RED FOCI, 1X1MM	
			MICRO+((1))	HEMORRHAGE	
			KIDNEYS		
			MICRO: ((1))	TUBULAR BASOPHILIA	

ANIMAL	12844A11	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS. (G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS		
LIVER	15.871	2.772			
KIDNEYS	3.906	0.682			
SPLEEN	0.792	0.138			
HEART	1.608	0.281			
BRAIN	2.123	0.371			
ADRENAL GL	0.065	0.011			
TESTES	3.762	0.657			
TERMINAL BODY WT.	572.6				

ANIMAL	12836A12	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS. (G)	REL.	PANCREAS		
LIVER	13.862	2.450	MICRO: ((4))	NESIDIOBLASTOSIS	
KIDNEYS	3.498	0.618	((3))	HEMOSIDEROSIS	
SPLEEN	0.689	0.122	LYMPH ND, MED		
HEART	1.603	0.283	MICRO: 2	SINUS ERYTHROCYTOSIS	
BRAIN	2.164	0.382	1	MASTOCYTOSIS	
ADRENAL GL	0.057	0.010	1	SINUS HISTIOCYTOSIS	
TESTES	3.033	0.536	LYMPH ND, MES		
TERMINAL BODY WT.	565.8		MICRO: 1	SINUS ERYTHROCYTOSIS	
			THE FOLLOWING TISSUES WERE MISSING:		

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AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 0 PPM MALE

ANIMAL 12836A12 (CONTINUED)

PARATHYROID GL

ANIMAL 12755A13	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS.(G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS
LIVER	13.279	2.682	
KIDNEYS	2.935	0.593	
SPLEEN	0.757	0.153	
HEART	1.347	0.272	
BRAIN	2.206	0.446	
ADRENAL GL	0.055	0.011	
TESTES	3.400	0.687	
TERMINAL BODY WT.	495.2		

ANIMAL 12787A14	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS.(G)	REL.	LIVER
LIVER	14.478	2.528	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	3.387	0.591	LYMPH ND, S-MAN
SPLEEN	0.665	0.116	MICRO: ((2)) SINUS ERYTHROCYTOSIS
HEART	1.618	0.283	3 LYMPHOID HYPERPLASIA
BRAIN	2.137	0.373	LYMPH ND, MED
ADRENAL GL	0.049	0.009	MICRO: ((3)) SINUS ERYTHROCYTOSIS
TESTES	3.840	0.670	((1)) HEMOSIDEROSIS
TERMINAL BODY WT.	572.7		THYMIC REGION
			MICRO: ((3)) HEMORRHAGE
			PROSTATE
			MICRO: ((1)) PROSTATITIS
			THE FOLLOWING TISSUES WERE MISSING:
			PARATHYROID GL

ANIMAL 12796A15	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS.(G)	REL.	HEART
LIVER	14.599	2.679	MICRO: (1) MYOCARDITIS
KIDNEYS	3.223	0.592	LYMPH ND, S-MAN
SPLEEN	0.668	0.123	MICRO: 1 SINUS ERYTHROCYTOSIS
HEART	1.512	0.277	2 LYMPHOID HYPERPLASIA
BRAIN	2.004	0.368	LYMPH ND, MED
ADRENAL GL	0.036	0.007	MICRO: 2 SINUS HISTIOCYTOSIS
TESTES	3.265	0.599	THYMIC REGION
TERMINAL BODY WT.	544.9		MICRO: ((3)) HEMORRHAGE
			PROSTATE
			MICRO: ((2)) PROSTATITIS
			KIDNEYS
			MICRO: (1) NEPHRITIS, INTERSTITIAL
			(1) TUBULAR BASOPHILIA
			THE FOLLOWING TISSUES WERE MISSING:
			PARATHYROID GL

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 100 PPM MALE

ANIMAL 12793B01	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS. (G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS
LIVER	11.227	2.527	
KIDNEYS	2.886	0.650	
SPLEEN	0.682	0.154	
HEART	1.158	0.261	
BRAIN	1.947	0.438	
ADRENAL GL	0.048	0.011	
TESTES	3.350	0.754	
TERMINAL BODY WT.	444.3		

ANIMAL 12843B02	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS. (G)	REL.	LIVER
LIVER	11.721	2.341	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	3.550	0.709	KIDNEYS
SPLEEN	0.710	0.142	MICRO: ((3)) TUBULAR BASOPHILIA
HEART	1.396	0.279	((1)) FIBROSIS, INTERSTITIAL
BRAIN	2.018	0.403	((1)) NEPHRITIS, INTERSTITIAL
ADRENAL GL	0.061	0.012	
TESTES	3.563	0.712	
TERMINAL BODY WT.	500.6		

ANIMAL 12831B03	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS. (G)	REL.	LYMPH ND, S-MAN
LIVER	12.202	2.441	GROSS: SIZE INCREASE
KIDNEYS	2.953	0.591	2X NORMAL
SPLEEN	0.677	0.135	
HEART	1.385	0.277	
BRAIN	2.071	0.414	
ADRENAL GL	0.050	0.010	
TESTES	3.115	0.623	
TERMINAL BODY WT.	499.8		

ANIMAL 12786B04	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS. (G)	REL.	LIVER
LIVER	12.176	2.597	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	3.268	0.697	
SPLEEN	0.586	0.125	
HEART	1.551	0.331	
BRAIN	2.106	0.449	
ADRENAL GL	0.063	0.013	
TESTES	3.174	0.677	
TERMINAL BODY WT.	468.9		

ANIMAL 12853B05	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS. (G)	REL.	LYMPH ND, MED
LIVER	10.581	2.238	GROSS: COLOR CHANGE, DIFFUSE
KIDNEYS	3.189	0.675	LIGHT RED
SPLEEN	0.644	0.136	MICRO+((4)) SINUS ERYTHROCYTOSIS
HEART	1.228	0.260	THYMIC REGION
BRAIN	2.204	0.466	MICRO: (2) HEMORRHAGE
ADRENAL GL	0.055	0.012	BRAIN
TESTES	3.659	0.774	GROSS: HEMORRHAGE
TERMINAL BODY WT.	472.8		SUBDURAL OVER CEREBELLUM
			TESTES
			MICRO: (2) SEMINIFEROUS TUBULAR ATROPHY
			LUNGS
			MICRO: (2) ALVEOLAR HISTIOCYTOSIS
			KIDNEYS
			MICRO: ((1)) TUBULAR BASOPHILIA

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 100 PPM MALE

ANIMAL	SCHEDULED KILL	21-SEP-87	STUDY DAY
12756B06			95
ORGAN WEIGHT	ABS. (G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS
LIVER	13.004	2.542	
KIDNEYS	3.565	0.697	
SPLEEN	0.649	0.127	
HEART	1.663	0.325	
BRAIN	2.253	0.440	
ADRENAL GL	0.068	0.013	
TESTES	3.667	0.717	
TERMINAL BODY WT.	511.5		

ANIMAL	SCHEDULED KILL	21-SEP-87	STUDY DAY
12841B07			95
ORGAN WEIGHT	ABS. (G)	REL.	LIVER
LIVER	10.832	2.370	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	3.289	0.720	KIDNEYS
SPLEEN	0.595	0.130	MICRO: (1) NEPHRITIS, INTERSTITIAL
HEART	1.278	0.280	
BRAIN	2.088	0.457	
ADRENAL GL	0.063	0.014	
TESTES	3.205	0.701	
TERMINAL BODY WT.	457.0		

ANIMAL	SCHEDULED KILL	21-SEP-87	STUDY DAY
12764B08			95
ORGAN WEIGHT	ABS. (G)	REL.	STOMACH
LIVER	12.494	2.457	MICRO: ((1)) GLAND ECTASIA
KIDNEYS	2.836	0.558	LIVER
SPLEEN	0.697	0.137	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
HEART	1.436	0.282	LUNGS
BRAIN	2.105	0.414	MICRO: (2) HEMORRHAGE
ADRENAL GL	0.064	0.013	KIDNEYS
TESTES	3.311	0.651	MICRO: (2) NEPHRITIS, INTERSTITIAL
TERMINAL BODY WT.	508.5		(2) FIBROSIS, INTERSTITIAL

ANIMAL	SCHEDULED KILL	21-SEP-87	STUDY DAY
12808B09			95
ORGAN WEIGHT	ABS. (G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS
LIVER	11.610	2.445	
KIDNEYS	2.868	0.604	
SPLEEN	0.616	0.130	
HEART	1.424	0.300	
BRAIN	2.159	0.455	
ADRENAL GL	0.060	0.013	
TESTES	3.625	0.763	
TERMINAL BODY WT.	474.8		

ANIMAL	SCHEDULED KILL	21-SEP-87	STUDY DAY
12804B10			95
ORGAN WEIGHT	ABS. (G)	REL.	LIVER
LIVER	11.970	2.548	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	3.434	0.731	LYMPH ND, S-MAN
SPLEEN	0.600	0.128	GROSS: COLOR CHANGE, DIFFUSE
HEART	1.312	0.279	DARK RED, ALL NODES
BRAIN	2.282	0.486	MICRO+((4)) SINUS ERYTHROCYTOSIS
ADRENAL GL	0.053	0.011	
TESTES	3.280	0.698	
TERMINAL BODY WT.	469.7		

PATHOLOGY RECORD
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AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 100 PPM MALE

ANIMAL	12753B11	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS.(G)	REL.	STOMACH		
LIVER	13.147	2.577	MICRO: ((1)) GLAND ECTASIA		
KIDNEYS	3.249	0.637	LIVER		
SPLEEN	0.599	0.117	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)		
HEART	1.411	0.277	PAWS/FEET		
BRAIN	2.288	0.448	GROSS: MISTAKE IN CLIPPING TOES		
ADRENAL GL	0.048	0.009	60 TOE		
TESTES	3.269	0.641	TESTES		
TERMINAL BODY WT.	510.2		MICRO: 4 SEMINIFEROUS TUBULAR ATROPHY		
			LEFT		

ANIMAL	12765B12	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS.(G)	REL.	LIVER		
LIVER	11.596	2.656	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)		
KIDNEYS	4.128	0.946	PANCREAS		
SPLEEN	0.763	0.175	MICRO: ((1)) PANCREATITIS		
HEART	1.338	0.306	LYMPHOCYTIC INFILTRATES WITH		
BRAIN	2.116	0.485	PARENCHYMAL LOSS		
ADRENAL GL	0.054	0.012	PAWS/FEET		
TESTES	3.167	0.725	GROSS: MISTAKE IN CLIPPING TOES		
TERMINAL BODY WT.	436.6		50		
			LYMPH ND, OTHER		
			GROSS: SIZE INCREASE		
			SUBLUMBAR, BILATERAL, 10MM AND EDEMATOUS		
			MICRO+ 2 LYMPHOID HYPERPLASIA		
			SUBLUMBER NODES		
			MICRO: 2 PLASMACYTOSIS		
			LUNGS		
			GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL		
			1MM DARK RED FOCAL AREAS SCATTERED		
			THROUGH OUT ALL LOBES		
			KIDNEYS		
			GROSS: HYDRONEPHROSIS		
			BILATERAL, MODERATE		
			MICRO+ 3 HYDRONEPHROSIS		
			RIGHT		
			KIDNEYS		
			GROSS: DIMPLED/PITTED		
			1MM FOCUS, RIGHT		
			MICRO+((P)) INFARCTION		
			MICRO: (P) CYST(S)		
			LEFT		
			((3)) TUBULAR BASOPHILIA		
			((3)) FIBROSIS, INTERSTITIAL		
			((2)) NEPHRITIS, INTERSTITIAL		
			4 PYELONEPHRITIS		
			BILATERAL, MAINLY INVOLVING THE PELVIS		
			REGION		
			URETER		
			GROSS: DILATATION/DISTENTION		
			3MM IN DIAMETER, BILATERAL		
			MICRO+ 4 MUCOSAL HYPERPLASIA		
			MICRO: 4 URETERITIS		
			URINARY BLADDER		
			GROSS: CALCULUS		
			8 RANGING IN SIZE FROM 5MM TO 10MM IN		
			DIAMETER		
			MICRO+ P CALCULI		
			URINARY BLADDER		
			GROSS: THICKER THAN NORMAL		
			WALL 3X NORMAL WITH 1MM FOCAL AREAS		
			SCATTERED THROUGHOUT		
			MICRO+ 4 TRANSITIONAL CELL HYPERPLASIA		
			MICRO: 3 CYSTITIS		

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
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ALL DEATHS COMBINED

GROUP: 100 PPM MALE

ANIMAL 12765B12 (CONTINUED)

BOTH NEUTROPHILIC AND PLASMACYTIC
INFILTRATES
((2)) HEMORRHAGE

ANIMAL 12761B13	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS. (G)	REL.	
LIVER	13.845	2.452	LIVER
KIDNEYS	3.422	0.606	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
SPLEEN	0.610	0.108	KIDNEYS
HEART	1.596	0.283	MICRO: (1) NEPHRITIS, INTERSTITIAL
BRAIN	2.116	0.375	
ADRENAL GL	0.061	0.011	
TESTES	3.504	0.620	
TERMINAL BODY WT.	564.7		

ANIMAL 12834B14	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS. (G)	REL.	
LIVER	14.629	2.850	EXAMINED - NO SIGNIFICANT LESIONS
KIDNEYS	3.590	0.699	
SPLEEN	0.928	0.181	
HEART	1.519	0.296	
BRAIN	2.128	0.415	
ADRENAL GL	0.053	0.010	
TESTES	3.739	0.728	
TERMINAL BODY WT.	513.3		

ANIMAL 12839B15	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS. (G)	REL.	
LIVER	13.851	2.700	LIVER
KIDNEYS	3.036	0.592	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
SPLEEN	0.564	0.110	TESTES
HEART	1.444	0.281	MICRO: (1) SEMINIFEROUS TUBULAR ATROPHY
BRAIN	1.979	0.386	
ADRENAL GL	0.063	0.012	
TESTES	3.463	0.675	
TERMINAL BODY WT.	513.0		

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NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 500 PPM

MALE

ANIMAL	12809C01	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS.(G)	REL.	LIVER		
LIVER	12.008	2.458	MICRO: ((1))	MONONUCLEAR CELL INFILTRATE(S)	
KIDNEYS	3.208	0.657	LYMPH ND, MED		
SPLEEN	0.617	0.126	GROSS:	COLOR CHANGE, DIFFUSE	
HEART	1.304	0.267		LIGHT RED	
BRAIN	2.142	0.438	MICRO+ 4	SINUS ERYTHROCYTOSIS	
ADRENAL GL	0.056	0.011	THYMIC REGION		
TESTES	3.617	0.740	GROSS:	COLOR CHANGE, FOCAL/MULTIFOCAL	
TERMINAL BODY WT.	488.5			MULTIFOCAL, CREAM AND VERY DARK RED, THROUGHOUT	
			MICRO+ 5	HEMORRHAGE	
			KIDNEYS		
			MICRO: (1)	TUBULAR PROTEINOSIS	

ANIMAL	12846C02	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS.(G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS		
LIVER	14.463	3.030			
KIDNEYS	3.494	0.732			
SPLEEN	0.700	0.147			
HEART	1.259	0.264			
BRAIN	2.097	0.439			
ADRENAL GL	0.072	0.015			
TESTES	3.350	0.702			
TERMINAL BODY WT.	477.4				

ANIMAL	12848C03	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS.(G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS		
LIVER	14.597	2.872			
KIDNEYS	3.885	0.765			
SPLEEN	0.711	0.140			
HEART	1.652	0.325			
BRAIN	2.204	0.434			
ADRENAL GL	0.069	0.014			
TESTES	3.495	0.688			
TERMINAL BODY WT.	508.2				

ANIMAL	12813C04	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS.(G)	REL.	LIVER		
LIVER	11.435	2.481	MICRO: ((1))	MONONUCLEAR CELL INFILTRATE(S)	
KIDNEYS	3.042	0.660	ADRENAL GL		
SPLEEN	0.711	0.154	GROSS:	SIZE DECREASE	
HEART	1.511	0.328		RIGHT, 1/2 OF NORMAL	
BRAIN	1.851	0.402	LYMPH ND, PANC		
ADRENAL GL	0.049	0.011	GROSS:	SIZE INCREASE	
TESTES	4.004	0.869		2X NORMAL	
TERMINAL BODY WT.	461.0		LYMPH ND, PANC		
			GROSS:	COLOR CHANGE, DIFFUSE	
				DARK RED	
			KIDNEYS		
			MICRO: 2	HYDRONEPHROSIS	
				RIGHT	
			THE FOLLOWING TISSUES WERE MISSING:		
			LYMPH ND, PANC		

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AMMONIUM CHLORIDE (ADBAC) IN RATS
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ALL DEATHS COMBINED

GROUP: 500 PPM MALE

ANIMAL	12772C05	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS.(G)	REL.	KIDNEYS		
LIVER	12.284	2.704	GROSS:	DIMPLED/PITTED	
KIDNEYS	3.388	0.746		2MM FOCUS, LEFT CORTEX	
SPLEEN	0.658	0.145			
HEART	1.357	0.299			
BRAIN	2.089	0.460			
ADRENAL GL	0.064	0.014			
TESTES	3.055	0.673			
TERMINAL BODY WT.	454.3				

ANIMAL	12744C06	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS.(G)	REL.	LIVER		
LIVER	11.483	2.450	MICRO: ((2))	MONONUCLEAR CELL INFILTRATE(S)	
KIDNEYS	3.228	0.689			
SPLEEN	0.721	0.154			
HEART	1.201	0.256			
BRAIN	2.232	0.476			
ADRENAL GL	0.062	0.013			
TESTES	3.269	0.697			
TERMINAL BODY WT.	468.7				

ANIMAL	12773C07	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS.(G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS		
LIVER	14.498	3.029			
KIDNEYS	3.610	0.754			
SPLEEN	0.757	0.158			
HEART	1.279	0.267			
BRAIN	2.216	0.463			
ADRENAL GL	0.056	0.012			
TESTES	3.255	0.680			
TERMINAL BODY WT.	478.7				

ANIMAL	12814C08	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS.(G)	REL.	LIVER		
LIVER	13.970	2.705	MICRO: ((1))	MONONUCLEAR CELL INFILTRATE(S)	
KIDNEYS	3.048	0.590	LYMPH ND, MED		
SPLEEN	0.725	0.140	MICRO: 4	SINUS ERYTHROCYTOSIS	
HEART	1.414	0.274	THYMIC REGION		
BRAIN	1.926	0.373	GROSS:	COLOR CHANGE, FOCAL/MULTIFOCAL	
ADRENAL GL	0.060	0.012		DARK RED	
TESTES	3.498	0.677	MICRO+((3))	HEMORRHAGE	
TERMINAL BODY WT.	516.4		LUNGS		
			MICRO: ((1))	HEMORRHAGE	

ANIMAL	12840C09	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS.(G)	REL.	LIVER		
LIVER	12.200	2.547	MICRO: ((1))	MONONUCLEAR CELL INFILTRATE(S)	
KIDNEYS	2.903	0.606	LUNGS		
SPLEEN	0.710	0.148	MICRO: (1)	PNEUMONITIS, INTERSTITIAL	
HEART	1.244	0.260			
BRAIN	2.070	0.432			
ADRENAL GL	0.058	0.012			
TESTES	3.726	0.778			
TERMINAL BODY WT.	479.1				

PATHOLOGY RECORD
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AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 500 PPM MALE

ANIMAL 12855C10	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS. (G)	REL.	
LIVER	13.157	2.685	KIDNEYS
KIDNEYS	2.994	0.611	GROSS: DIMPLED/PITTED
SPLEEN	0.500	0.102	CORTICAL REGION, BILATERAL
HEART	1.268	0.259	
BRAIN	1.947	0.397	
ADRENAL GL	0.061	0.012	
TESTES	3.710	0.757	
TERMINAL BODY WT.	490.0		

ANIMAL 12805C11	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS. (G)	REL.	
LIVER	12.546	2.423	LYMPH ND, S-MAN
KIDNEYS	3.262	0.630	GROSS: COLOR CHANGE, DIFFUSE
SPLEEN	0.584	0.113	DARK RED
HEART	1.789	0.346	MICRO+((2)) SINUS ERYTHROCYTOSIS
BRAIN	2.061	0.398	MICRO: 2 PLASMACYTOSIS
ADRENAL GL	0.029	0.006	LYMPH ND, MED
TESTES	3.314	0.640	GROSS: COLOR CHANGE, DIFFUSE
TERMINAL BODY WT.	517.8		DARK RED
			MICRO+ 2 SINUS ERYTHROCYTOSIS
			LYMPH ND, MED
			GROSS: SIZE INCREASE
			2X NORMAL
			THYMIC REGION
			MICRO: ((2)) HEMORRHAGE
			KIDNEYS
			GROSS: DIMPLED/PITTED
			CORTICAL SURFACE, BILATERAL
			MICRO: ((3)) TUBULAR DILATION
			LEFT KIDNEY, MEDULLA ONLY
			URINARY BLADDER
			GROSS: CALCULUS

ANIMAL 12842C12	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS. (G)	REL.	
LIVER	12.408	2.456	LIVER
KIDNEYS	3.354	0.664	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
SPLEEN	0.626	0.124	TESTES
HEART	1.481	0.293	MICRO: (1) MINERALIZATION
BRAIN	2.204	0.436	LUNGS
ADRENAL GL	0.066	0.013	MICRO: (P) EPIDERMAL CYST
TESTES	3.188	0.631	THIS IS A CONGENITAL LESION
TERMINAL BODY WT.	505.2		

ANIMAL 12850C13	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS. (G)	REL.	
LIVER	15.456	2.823	STOMACH
KIDNEYS	3.859	0.705	GROSS: COLOR CHANGE, FOCAL/MULTIFOCA
SPLEEN	0.739	0.135	DARK RED FOCAL AREAS, GLANDULAR AND
HEART	1.744	0.318	NON-GLANDULAR PORTIONS
BRAIN	2.141	0.391	LIVER
ADRENAL GL	0.062	0.011	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
TESTES	4.054	0.740	LYMPH ND, MED
TERMINAL BODY WT.	547.6		GROSS: COLOR CHANGE, DIFFUSE
			DARK RED
			MICRO+((1)) SINUS ERYTHROCYTOSIS
			LYMPH ND, MED
			GROSS: SIZE INCREASE
			3X NORMAL
			THYMIC REGION
			MICRO: ((3)) HEMORRHAGE
			KIDNEYS
			GROSS: DIMPLED/PITTED

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 500 PPM MALE

ANIMAL 12850C13 (CONTINUED)

RIGHT, CORTICAL REGION

MICRO: ((1)) TUBULAR BASOPHILIA
(1) NEPHRITIS, INTERSTITIAL

<u>ANIMAL 12806C14</u>	<u>SCHEDULED KILL</u>	<u>21-SEP-87</u>	<u>STUDY DAY 95</u>
<u>ORGAN WEIGHT</u>	<u>ABS. (G)</u>	<u>REL.</u>	<u>LIVER</u>
LIVER	13.106	2.798	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	3.357	0.717	SKIN, UNTREATED
SPLEEN	0.482	0.103	GROSS: ALOPECIA
HEART	1.402	0.299	BILATERAL, FRONT LEGS, 10X40MM
BRAIN	2.084	0.445	LEFT LATERAL, 10X10MM
ADRENAL GL	0.048	0.010	MICRO: 2 HYPERKERATOSIS
TESTES	3.557	0.760	
TERMINAL BODY WT.	468.3		

<u>ANIMAL 12784C15</u>	<u>SCHEDULED KILL</u>	<u>21-SEP-87</u>	<u>STUDY DAY 95</u>
<u>ORGAN WEIGHT</u>	<u>ABS. (G)</u>	<u>REL.</u>	<u>STOMACH</u>
LIVER	12.636	2.459	GROSS: DIVERTICULUM
KIDNEYS	3.085	0.600	5X4X3MM, NON-GLANDULAR PORTION
SPLEEN	0.648	0.126	
HEART	1.407	0.274	
BRAIN	2.011	0.391	
ADRENAL GL	0.051	0.010	
TESTES	3.254	0.633	
TERMINAL BODY WT.	514.0		

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AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 1000 PPM MALE

ANIMAL	12B26D01	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS. (G)	REL.	LIVER		
LIVER	11.607	2.309	MICRO: (1)	MONONUCLEAR CELL INFILTRATE(S)	
KIDNEYS	2.884	0.574	SPLEEN		
SPLEEN	0.643	0.128	MICRO: 1	CONGESTION	
HEART	1.298	0.258	LYMPH ND, S-MAN		
BRAIN	2.030	0.404	MICRO: ((3))	SINUS ERYTHROCYTOSIS	
ADRENAL GL	0.053	0.011	(3)	PLASMACYTOSIS	
TESTES	3.622	0.721	3	LYMPHOID HYPERPLASIA	
TERMINAL BODY WT.	502.6		LYMPH ND, MED		
			MICRO: 2	SINUS ERYTHROCYTOSIS	

ANIMAL	12B19D02	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS. (G)	REL.	STOMACH		
LIVER	11.019	2.375	GROSS:	SURFACE CHANGE	
KIDNEYS	3.189	0.687		WHITE RAISED AREAS	
SPLEEN	0.704	0.152		AT JUNCTION OF GLANDULAR AND	
HEART	1.197	0.258		NON-GLANDULAR PORTIONS	
BRAIN	2.103	0.453	EYE		
ADRENAL GL	0.048	0.010	GROSS:	CRUST	
TESTES	3.293	0.710		PEIOCLAR REGION	
TERMINAL BODY WT.	464.0		URINARY BLADDER		
			GROSS:	CALCULUS	

ANIMAL	12B18D03	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS. (G)	REL.	HEART		
LIVER	10.943	2.340	MICRO: ((1))	MYOCARDITIS	
KIDNEYS	3.161	0.676	LIVER		
SPLEEN	0.736	0.157	MICRO: ((1))	MONONUCLEAR CELL INFILTRATE(S)	
HEART	1.363	0.291	THYROID GL		
BRAIN	2.076	0.444	MICRO: P	THYROGLOSSAL DUCT CYST	
ADRENAL GL	0.045	0.010	ADRENAL GL		
TESTES	3.803	0.813	MICRO: 2	FIBROSIS	
TERMINAL BODY WT.	467.7			CAPSULE ONLY	
			LYMPH ND, S-MAN		
			MICRO: 2	PLASMACYTOSIS	
			2	LYMPHOID HYPERPLASIA	
			LYMPH ND, MED		
			GROSS:	COLOR CHANGE, DIFFUSE	
				DARK RED	
			MICRO+ 3	SINUS ERYTHROCYTOSIS	
			LYMPH ND, MED		
			GROSS:	SIZE INCREASE	
				2X NORMAL	
			MICRO: 2	SINUS HISTIOCYTOSIS	
			LYMPH ND, MES		
			MICRO: 3	SINUS ERYTHROCYTOSIS	
			THYMIC REGION		
			MICRO: 3	HEMORRHAGE	
			KIDNEYS		
			MICRO: (2)	NEPHRITIS, INTERSTITIAL	

ANIMAL	12777D04	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS. (G)	REL.	LYMPH ND, MED		
LIVER	12.651	2.960	MICRO: 3	HEMOSIDEROSIS	
KIDNEYS	3.484	0.815	THYMIC REGION		
SPLEEN	0.746	0.175	MICRO: ((3))	HEMORRHAGE	
HEART	1.381	0.323	LUNGS		
BRAIN	2.082	0.487	GROSS:	COLOR CHANGE, FOCAL/MULTIFOCAL	
ADRENAL GL	0.058	0.014		MOTTLED	
TESTES	3.518	0.823		DARK RED	
TERMINAL BODY WT.	427.4		MICRO+ ((4))	HEMORRHAGE	
			MICRO: (1)	ALVEOLAR HISTIOCYTOSIS	

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 1000 PPM MALE

ANIMAL 12777D04 (CONTINUED)

KIDNEYS

MICRO: ((1)) NEPHRITIS, INTERSTITIAL
(1) TUBULAR BASOPHILIA
(2) TUBULAR PIGMENTATION

ANIMAL 12835D05 SCHEDULED KILL 21-SEP-87 STUDY DAY 95

ORGAN WEIGHT	ABS.(G)	REL.	LIVER	GROSS:	COLOR CHANGE, FOCAL/MULTIFOCAL
LIVER	11.906	2.463			
KIDNEYS	3.343	0.692			LEFT LATERAL LOBE, 1MM DARK RED FOCAL
SPLEEN	0.681	0.141			AREA, VENTRAL SIDE
HEART	1.474	0.305			
BRAIN	2.231	0.462			
ADRENAL GL	0.065	0.013			
TESTES	3.692	0.764			
TERMINAL BODY WT.	483.4				

ANIMAL 12782D06 SCHEDULED KILL 21-SEP-87 STUDY DAY 95

ORGAN WEIGHT	ABS.(G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS
LIVER	13.057	2.793	
KIDNEYS	3.110	0.665	
SPLEEN	0.674	0.144	
HEART	1.532	0.328	
BRAIN	2.048	0.438	
ADRENAL GL	0.051	0.011	
TESTES	3.245	0.694	
TERMINAL BODY WT.	467.4		

ANIMAL 12823D07 SCHEDULED KILL 21-SEP-87 STUDY DAY 95

ORGAN WEIGHT	ABS.(G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS
LIVER	12.142	2.332	
KIDNEYS	3.206	0.616	
SPLEEN	0.660	0.127	
HEART	1.400	0.269	
BRAIN	2.055	0.395	
ADRENAL GL	0.066	0.013	
TESTES	3.833	0.736	
TERMINAL BODY WT.	520.6		

ANIMAL 12825D08 SCHEDULED KILL 21-SEP-87 STUDY DAY 95

ORGAN WEIGHT	ABS.(G)	REL.	LIVER	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
LIVER	12.209	2.444		
KIDNEYS	3.178	0.636	PANCREAS	
SPLEEN	0.710	0.142		MICRO: (2) LYMPHOID INFILTRATES
HEART	1.285	0.257		((1)) LIPOMATOSIS
BRAIN	2.121	0.425		((1)) FIBROSIS
ADRENAL GL	0.051	0.010		((2)) ACINAR ATROPHY
TESTES	3.221	0.645		ASSOCIATED WITH FIBROSIS
TERMINAL BODY WT.	499.5		LYMPH ND, MED	
			MICRO: (3) SINUS ERYTHROCYTOSIS	
			((1)) HEMOSIDEROSIS	
			THYMIC REGION	
			MICRO: 3 HEMORRHAGE	
			KIDNEYS	
			GROSS: HYDRONEPHROSIS	
			BILATERAL, MINIMAL	

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 1000 PPM MALE

ANIMAL	12742D09	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS. (G)	REL.	LIVER		
LIVER	14.897	2.892	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)		
KIDNEYS	3.608	0.700	PANCREAS		
SPLEEN	0.720	0.140	MICRO: (2) PANCREATITIS		
HEART	1.571	0.305	LYMPH ND, MED		
BRAIN	2.121	0.412	MICRO: ((2)) SINUS ERYTHROCYTOSIS		
ADRENAL GL	0.052	0.010	THYMIC REGION		
TESTES	3.644	0.707	MICRO: ((3)) HEMORRHAGE		
TERMINAL BODY WT.	515.1		PROSTATE		
			MICRO: ((2)) PROSTATITIS		
			INTERSTITIAL LYMPHOCYTIC INFILTRATES		
			KIDNEYS		
			GROSS: HYDRONEPHROSIS		
			RIGHT, SEVERE LEFT, MODERATE		
			MICRO: 3 HYDRONEPHROSIS		
			BILATERAL		
			MICRO: ((1)) TUBULAR BASOPHILIA		

ANIMAL	12778D10	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS. (G)	REL.	LIVER		
LIVER	17.599	3.090	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)		
KIDNEYS	3.674	0.645	LYMPH ND, S-MAN		
SPLEEN	0.773	0.136	MICRO: ((2)) SINUS ERYTHROCYTOSIS		
HEART	1.534	0.269	LYMPH ND, MED		
BRAIN	2.125	0.373	MICRO: 3 SINUS ERYTHROCYTOSIS		
ADRENAL GL	0.056	0.010	THYMIC REGION		
TESTES	3.476	0.610	MICRO: ((2)) HEMORRHAGE		
TERMINAL BODY WT.	569.5		LUNGS		
			GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL		
			ALL LOBES 1MM DARK RED FOCAL AREAS.		
			SCATTERED THROUGHOUT		
			KIDNEYS		
			MICRO: (P) CYST(S)		
			LEFT		

ANIMAL	12774D11	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS. (G)	REL.	HEART		
LIVER	12.686	2.631	MICRO: (3) MYOCARDITIS		
KIDNEYS	3.591	0.745	THE PRECEDING SLIDE CONTAINING LUNG HAS		
SPLEEN	0.668	0.139	AN ARTIFACT OF		
HEART	1.433	0.297	EXTRAORBITAL LACRYMAL GLAND EMBEDDED IN		
BRAIN	2.053	0.426	THE LUNG TISSUE.		
ADRENAL GL	0.044	0.009	LIVER		
TESTES	3.224	0.669	MICRO: (1) MONONUCLEAR CELL INFILTRATE(S)		
TERMINAL BODY WT.	482.1		RECTUM		
			MICRO: (1) LYMPHOID HYPERPLASIA		
			LYMPH ND, S-MAN		
			MICRO: ((2)) SINUS ERYTHROCYTOSIS		
			THYMIC REGION		
			MICRO: 2 HEMORRHAGE		
			KIDNEYS		
			MICRO: (1) TUBULAR BASOPHILIA		
			THE FOLLOWING TISSUES WERE MISSING:		
			LYMPH ND, MED		

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 1000 PPM MALE

ANIMAL 12849D12	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS.(G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS
LIVER	13.021	2.603	
KIDNEYS	3.383	0.676	
SPLEEN	0.775	0.155	
HEART	1.473	0.294	
BRAIN	2.103	0.420	
ADRENAL GL	0.065	0.013	
TESTES	3.836	0.767	
TERMINAL BODY WT.	500.3		

ANIMAL 12785D13	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS.(G)	REL.	LIVER
LIVER	11.720	2.654	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	3.087	0.699	THYROID GL
SPLEEN	0.589	0.133	MICRO: P THYROGLOSSAL DUCT CYST
HEART	1.364	0.309	ADRENAL GL
BRAIN	1.986	0.450	MICRO: ((2)) FIBROSIS
ADRENAL GL	0.057	0.013	CAPSULAR ONLY
TESTES	3.037	0.688	SPLEEN
TERMINAL BODY WT.	441.6		MICRO: 3 HEMOSIDEROSIS
			LYMPH ND, S-MAN
			MICRO: 2 LYMPHOID HYPERPLASIA
			LYMPH ND, MED
			MICRO: ((3)) SINUS ERYTHROCYTOSIS
			2 LYMPHOID HYPERPLASIA
			LYMPH ND, MES
			MICRO: 1 SINUS ERYTHROCYTOSIS
			LYMPH ND, REN
			GROSS: COLOR CHANGE, DIFFUSE
			BILATERAL, DARK RED
			MICRO+ 3 SINUS ERYTHROCYTOSIS
			MICRO: 3 HEMOSIDEROSIS
			THYMIC REGION
			MICRO: ((2)) HEMORRHAGE
			KIDNEYS
			GROSS: CYST
			LEFT, 1MM CLEAR FILLED
			MICRO+((P)) CYST(S)
			LEFT
			MICRO: ((3)) TUBULAR BASOPHILIA
			((2)) NEPHRITIS, INTERSTITIAL
			((2)) FIBROSIS, INTERSTITIAL
			THIS LESION PLUS THE NEPHRITIS AND
			BASOPHILIA ARE ALL
			ASSOCIATED WITH THE CYSTS.

ANIMAL 12851D14	SCHEDULED KILL	21-SEP-87	STUDY DAY 95
ORGAN WEIGHT	ABS.(G)	REL.	PANCREAS
LIVER	11.910	2.504	MICRO: ((2)) LYMPHOID INFILTRATES
KIDNEYS	3.466	0.729	WITHIN THE PARENCHYMA, DISPLACES SOME
SPLEEN	0.687	0.144	ACINI
HEART	1.368	0.288	ADRENAL GL
BRAIN	2.099	0.441	GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
ADRENAL GL	0.049	0.010	RIGHT, CREAM COLOR FOCAL AREAS
TESTES	3.623	0.762	MICRO+((2)) FOAM CELL HYPERPLASIA
TERMINAL BODY WT.	475.6		A FEW CORTICAL FOCI
			LYMPH ND, MED
			GROSS: COLOR CHANGE, DIFFUSE
			DARK RED
			MICRO+ 2 SINUS ERYTHROCYTOSIS
			LYMPH ND, MED
			GROSS: SIZE INCREASE
			2-3X NORMAL

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 1000 PPM MALE

ANIMAL 12851D14 (CONTINUED)

LUNGS

MICRO: ((1)) LYMPHOID INFILTRATE(S)
((1)) PLEURAL FIBROSIS
ALONG THE BORDER OF ONE LOBE

ANIMAL 12801D15 SCHEDULED KILL 21-SEP-87 STUDY DAY 95

ORGAN WEIGHT	ABS. (G)	REL.	
LIVER	13.715	2.519	LIVER
KIDNEYS	3.620	0.665	MICRO: (1) MONONUCLEAR CELL INFILTRATE(S)
SPLEEN	0.760	0.140	RECTUM
HEART	1.554	0.285	MICRO: ((3)) LYMPHOID HYPERPLASIA
BRAIN	2.124	0.390	LYMPH ND, S-MAN
ADRENAL GL	0.071	0.013	GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
TESTES	3.741	0.687	DARK RED FOCAL AREAS ON SEVERAL LYMPH
TERMINAL BODY WT.	544.5		NODES
			MICRO+ (2) SINUS ERYTHROCYTOSIS
			MICRO: 4 PLASMACYTOSIS
			LYMPH ND, MED
			MICRO: 1 SINUS ERYTHROCYTOSIS
			1 SINUS HISTIOCYTOSIS
			1 HEMOSIDEROSIS
			THYMIC REGION
			MICRO: 4 HEMORRHAGE
			KIDNEYS
			MICRO: ((1)) TUBULAR BASOPHILIA

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 4000 PPM MALE

ANIMAL	12763E01	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS. (G)	REL.	DUODENUM		
LIVER	8.941	2.625	MICRO: ((2))	MUCOSAL CELL DEGENERATION	
KIDNEYS	2.260	0.663		CHROMATOLYSIS OF NUCLEI OF CELLS LINING	
SPLEEN	0.451	0.132		VILLUS TIPS	
HEART	1.040	0.305	CECUM		
BRAIN	1.967	0.577	GROSS:	DILATATION/DISTENTION	
ADRENAL GL	0.057	0.017		SEVERE	
TESTES	3.309	0.971	ADRENAL GL		
TERMINAL BODY WT.	340.6		GROSS:	COLOR CHANGE, DIFFUSE	
				BILATERAL, PALE	
			SKIN, UNTREATED		
			GROSS:	STAINED	
				BROWNISH YELLOW, PERIANAL AREA	
			LYMPH NO. MES		
			GROSS:	COLOR CHANGE, DIFFUSE	
				LIGHT RED, SEVERAL NODES	
			MICRO: 2	SINUS ERYTHROCYTOSIS	
			MICRO: 3	HEMOSIDEROSIS	
			((3))	MASTOCYTOSIS	
			4	HISTIOCYTIC AGGREGATES	
			LUNGS		
			GROSS:	COLOR CHANGE, FOCAL/MULTIFOCAL	
				LEFT-TWO DARK RED FOCI, 1X1MM	
				RIGHT DIAPHRAGMATIC, DARK RED FOCUS, 1X1MM	
			KIDNEYS		
			GROSS:	COLOR CHANGE, FOCAL/MULTIFOCAL	
				LEFT- CREAM FOCUS, 1X1MM	

ANIMAL	12791E02	FOUND DEAD	26-JUN-87	STUDY DAY	8
			TOTAL BODY		
			GROSS:	EMACIATION	
			PERICARDIAL CAV		
			GROSS:	ADHESION	
				FIBRINOUS ADHESIONS TO CHEST WALL	
			JEJUNUM		
			GROSS:	CONTENTS ABNORMAL	
				CONTAINS BLACK MATERIAL	
			ILEUM		
			GROSS:	CONTENTS ABNORMAL	
				CONTAINS BLACK MATERIAL	
			CECUM		
			GROSS:	FLUID	
				CONTAINS BROWN FLUID	
			LUNGS		
			GROSS:	ADHESION	
				RIGHT CRANIAL LOBES, FIBRINOUS ADHESIONS	
				TO CHEST WALL	
			LUNGS		
			GROSS:	COLOR CHANGE, FOCAL/MULTIFOCAL	
				ALL LOBES MOTTLED PINK AND RED	

ANIMAL	12762E03	SCHEDULED KILL	21-SEP-87	STUDY DAY	95
ORGAN WEIGHT	ABS. (G)	REL.	TOTAL BODY		
LIVER	8.866	2.779	GROSS:	THIN	
KIDNEYS	2.226	0.698	STOMACH		
SPLEEN	0.565	0.177	GROSS:	COLOR CHANGE, FOCAL/MULTIFOCAL	
HEART	1.172	0.367		MULTIPLE RED FOCI, ENTIRE SURFACE,	
BRAIN	1.960	0.614		GLANDULAR	
ADRENAL GL	0.081	0.025	CECUM		
TESTES	3.301	1.035	GROSS:	FLUID	
TERMINAL BODY WT.	319.0			WATERY FECES, DISTENDED 3X NORMAL	

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 4000 PPM MALE

ANIMAL 12797E04 FOUND DEAD 29-JUN-87 STUDY DAY 11

TOTAL BODY
GROSS: EMACIATION

TOTAL BODY
GROSS: AUTOLYSIS

STOMACH
GROSS: COLOR CHANGE, DIFFUSE
GLANDULAR, LIGHT RED

MICRO+ 4 CONGESTION
MICRO: (1) HEMORRHAGE
((2)) EDEMA

LIVER
MICRO: 3 CONGESTION
2 HEPATOCELLULAR ATROPHY

CECUM
GROSS: FLUID
CONTAINS BROWN FLUID

SPLEEN
GROSS: SIZE DECREASE
1/3 OF NORMAL

MICRO+ P CONTRACTED SPLEEN
MICRO: P AUTOLYSIS

LUNGS
GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
ALL LOBES MOTTLED LIGHT AND DARK RED

MICRO+ 4 CONGESTION

KIDNEYS
MICRO: 3 HYDRONEPHROSIS
RIGHT

THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:
CECUM

ANIMAL 12749E05 FOUND DEAD 7-JUL-87 STUDY DAY 19

TOTAL BODY
GROSS: EMACIATION

STOMACH
GROSS: FLUID
DARK BROWN
FILLED

MICRO: 2 EDEMA
(3) CONGESTION

LIVER
MICRO: 3 CONGESTION
2 HEPATOCELLULAR ATROPHY

DUODENUM
GROSS: CONTENTS ABNORMAL
GAS FILLED

MICRO: 3 CONGESTION

JEJUNUM
GROSS: CONTENTS ABNORMAL
GAS FILLED

ILEUM
GROSS: CONTENTS ABNORMAL
GAS FILLED

CECUM
GROSS: FLUID
FILLED WITH DARK BROWN FLUID

SKIN, UNTREATED
GROSS: STAINED
UROGENITAL AREA, URINE AND FECAL STAINED

SPLEEN
GROSS: SIZE DECREASE
1/4 OF NORMAL

MICRO+ 4 CONTRACTED SPLEEN
MICRO: 2 LYMPHOID DEPLETION

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 4000 PPM MALE

ANIMAL 12749E05 (CONTINUED)

LYMPH ND. MES
GROSS: COLOR CHANGE, DIFFUSE
DARK RED
MICRO+((2)) SINUS ERYTHROCYTOSIS
MICRO: 4 HISTIOCYTIC AGGREGATES
LUNGS
GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
ALL LOBES MOTTLED DARK RED AND PINK
MICRO+ 3 CONGESTION
MICRO: ((1)) HEMORRHAGE
KIDNEYS
MICRO: 2 HYDRONEPHROSIS
RIGHT
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:
JEJUNUM ILEUM CECUM

ANIMAL 12798E06 FOUND DEAD 29-JUN-87 STUDY DAY 11

TOTAL BODY
GROSS: EMACIATION
TOTAL BODY
GROSS: AUTOLYSIS
STOMACH
GROSS: COLOR CHANGE, DIFFUSE
GLANDULAR, LIGHT RED
MICRO+((2)) CONGESTION
LIVER
MICRO: 3 CONGESTION
2 HEPATOCELLULAR ATROPHY
JEJUNUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
ILEUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
CECUM
GROSS: FLUID
CONTAINS BROWN FLUID
SPLEEN
GROSS: SIZE DECREASE
1/3 OF NORMAL
MICRO+ P CONTRACTED SPLEEN
MICRO: 3 LYMPHOID DEPLETION
THIS LESION MAY BE DUE TO AUTOLYSIS
BRAIN
GROSS: HEMORRHAGE
MENINGEAL, POSTERIOR FOSSA
MICRO+ 3 CONGESTION
LUNGS
MICRO: ((3)) CONGESTION
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:
DUODENUM JEJUNUM ILEUM
CECUM

ANIMAL 12828E07 FOUND DEAD 30-JUN-87 STUDY DAY 12

TOTAL BODY
GROSS: EMACIATION
STOMACH
GROSS: COLOR CHANGE, DIFFUSE
GLANDULAR, LIGHT RED
MICRO+((2)) CONGESTION
MICRO: 2 EDEMA
LIVER
MICRO: 3 CONGESTION
2 HEPATOCELLULAR ATROPHY

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 4000 PPM MALE

ANIMAL 12828E07 (CONTINUED)

DUODENUM
MICRO: ((1)) MUCOSAL CELL DEGENERATION
JEJUNUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
ILEUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
MICRO: ((2)) CONGESTION
CECUM
GROSS: FLUID
CONTAINS BROWN FLUID
SPLEEN
GROSS: SIZE DECREASE
1/3 OF NORMAL
MICRO+ P CONTRACTED SPLEEN
MICRO: P AUTOLYSIS
LUNGS
GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
ALL LOBES MOTTLED LIGHT AND DARK PINK
MICRO+ 4 CONGESTION
KIDNEYS
GROSS: HYDRONEPHROSIS
MODERATE, RIGHT KIDNEY
MICRO+ 3 HYDRONEPHROSIS
RIGHT
MICRO: 3 CONGESTION
URINARY BLADDER
GROSS: FLUID
CONTAINS A SMALL AMOUNT OF RED FLUID
THE FOLLOWING TISSUES WERE MISSING:
URINARY BLADDER
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:
CECUM

ANIMAL 12792E08 FOUND DEAD 25-JUN-87 STUDY DAY 7

TOTAL BODY
GROSS: EMACIATION
STOMACH
GROSS: FLUID
CONTAINS BROWN FLUID
JEJUNUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
ILEUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
CECUM
GROSS: FLUID
CONTAINS BROWN FLUID
SKIN, UNTREATED
GROSS: STAINED
TAN, UROGENITAL AREA
SPLEEN
GROSS: SIZE DECREASE
SLIGHT
LYMPH ND, MED
GROSS: COLOR CHANGE, DIFFUSE
DARK RED
LUNGS
GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
ALL LOBES MOTTLED PINK AND DARK RED

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 4000 PPM MALE

ANIMAL 12820E09 FOUND DEAD 28-JUN-87 STUDY DAY 10

STOMACH
MICRO: 2 EDEMA
SUBMUCOSAL
LIVER
MICRO: 3 CONGESTION
2 HEPATOCELLULAR ATROPHY
JEJUNUM
GROSS: FLUID
FILLED WITH BLACK FLUID
ILEUM
GROSS: FLUID
FILLED WITH BLACK FLUID
CECUM
GROSS: FLUID
GROSSLY DISTENDED WITH BROWN FLUID
LUNGS
MICRO: ((2)) HEMORRHAGE
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:
ILEUM CECUM

ANIMAL 12767E10 SCHEDULED KILL 21-SEP-87 STUDY DAY 95

ORGAN WEIGHT	ABS. (G)	REL.	TOTAL BODY
LIVER	9.543	2.623	GROSS: THIN
KIDNEYS	2.565	0.705	MINIMAL BODY FAT
SPLEEN	0.549	0.151	ILEUM
HEART	1.167	0.321	GROSS: COLOR CHANGE, DIFFUSE
BRAIN	2.074	0.570	DARK RED, 40MM IN LENGTH
ADRENAL GL	0.057	0.016	MICRO+ 3 CONGESTION
TESTES	3.419	0.940	CECUM
TERMINAL BODY WT.	363.9		GROSS: FLUID
			WATERY FECES, GREEN, 6CC
			CECUM
			GROSS: DILATATION/DISTENTION
			SEVERE
			COLON
			GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
			PEYER'S PATCH, 10MM IN LENGTH, MULTIPLE
			RED PUNCTATE FOCI
			MICRO: 3 LYMPHOID HYPERPLASIA
			ADRENAL GL
			GROSS: COLOR CHANGE, DIFFUSE
			BILATERAL, PALE
			SKIN, UNTREATED
			GROSS: STAINED
			BROWNISH YELLOW, PERIANAL AREA
			LYMPH ND, MES
			GROSS: COLOR CHANGE, DIFFUSE
			DARK RED, ALL NODES
			MICRO+ 3 SINUS ERYTHROCYTOSIS
			MICRO: 3 HEMOSIDEROSIS
			3 HISTIOCYTIC AGGREGATES
			3 MASTOCYTOSIS
			TESTES
			MICRO: (1) SEMINIFEROUS TUBULAR ATROPHY
			KIDNEYS
			GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
			LEFT- CREAM FOCUS, 2X2MM

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 4000 PPM MALE

ANIMAL	FOUND DEAD	29-JUN-87	STUDY DAY 11
TOTAL BODY			
GROSS:		EMACIATION	
STOMACH			
GROSS:		COLOR CHANGE, DIFFUSE GLANDULAR, LIGHT RED	
MICRO: 2		EDEMA INVOLVES THE SUBMUCOSA OF GLANDULAR-NONGLANDULAR JUNCTION	
LIVER			
MICRO: 4		CONGESTION	
3		HEPATOCELLULAR ATROPHY	
DUODENUM			
MICRO: 3		CONGESTION	
((3))		MUCOSAL CELL DEGENERATION NUCLEAR CHROMATOLYSIS IS PRESENT IN THE CELLS OF MANY VILLUS TIPS WHICH IS DIFFERENT FROM TYPICAL AUTOLYSIS.	
JEJUNUM			
GROSS:		CONTENTS ABNORMAL CONTAINS BLACK MATERIAL	
MICRO: 3		CONGESTION	
((3))		MUCOSAL CELL DEGENERATION	
ILEUM			
GROSS:		CONTENTS ABNORMAL CONTAINS BLACK MATERIAL	
MICRO: ((1))		MUCOSAL CELL NECROSIS	
CECUM			
GROSS:		FLUID CONTAINS BROWN FLUID	
MICRO: 2		ENTERITIS	
((1))		MUCOSAL CELL NECROSIS	
LUNGS			
GROSS:		COLOR CHANGE, FOCAL/MULTIFOCA ALL LOBES MOTTLED LIGHT AND DARK PINK	
MICRO: 3		CONGESTION	
KIDNEYS			
GROSS:		HYDRONEPHROSIS MARKED, RIGHT KIDNEY	
MICRO: 3		HYDRONEPHROSIS BILATERAL	

ANIMAL	SACR MORIBUND	26-JUN-87	STUDY DAY 8
TOTAL BODY			
GROSS:		EMACIATION	
CECUM			
GROSS:		FLUID CONTAINS BROWN FLUID	

ANIMAL	FOUND DEAD	26-JUN-87	STUDY DAY 8
TOTAL BODY			
GROSS:		EMACIATION	
TOTAL BODY			
GROSS:		AUTOLYSIS	
STOMACH			
GROSS:		FLUID FILLED WITH BROWN FLUID	
JEJUNUM			
GROSS:		CONTENTS ABNORMAL BLACK FLUID FILLED	
ILEUM			
GROSS:		CONTENTS ABNORMAL	

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 4000 PPM MALE

ANIMAL 12758E13 (CONTINUED)

CECUM BLACK FLUID FILLED
GROSS: FLUID
GROSSLY DISTENDED WITH BROWN FLUID
BRAIN
GROSS: HEMORRHAGE
MENINGEAL, POSTERIOR FOSSA
URINARY BLADDER
GROSS: FLUID
FILLED WITH DARK RED FLUID

ANIMAL 12845E14 FOUND DEAD 28-JUN-87 STUDY DAY 10

TOTAL BODY
GROSS: EMACIATION
TOTAL BODY
GROSS: AUTOLYSIS
STOMACH
MICRO: 2 EDEMA
SUBMUCOSAL, NONGLANDULAR
LIVER
MICRO: 3 CONGESTION
2 HEPATOCELLULAR ATROPHY
DUODENUM
MICRO: 2 CONGESTION
3 MUCOSAL CELL DEGENERATION
JEJUNUM
GROSS: FLUID
FILLED WITH BLACK FLUID
ILEUM
GROSS: FLUID
FILLED WITH BLACK FLUID
CECUM
GROSS: FLUID
GROSSLY DISTENDED WITH BROWN FLUID
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:
ILEUM CECUM

ANIMAL 12816E15 SACR MORIBUND 26-JUN-87 STUDY DAY 8
EXAMINED - NO SIGNIFICANT LESIONS

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 8000 PPM MALE

ANIMAL	FOUND DEAD	24-JUN-87	STUDY DAY	6
TOTAL BODY				
GROSS: EMACIATION				
STOMACH				
GROSS: COLOR CHANGE, DIFFUSE GLANDULAR, LIGHT RED				
JEJUNUM				
GROSS: CONTENTS ABNORMAL CONTAINS BLACK MATERIAL				
ILEUM				
GROSS: CONTENTS ABNORMAL CONTAINS BLACK MATERIAL				
CECUM				
GROSS: FLUID CONTAINS BROWN FLUID				
SKIN, UNTREATED				
GROSS: STAINED RED, UROGENITAL AREA				
LUNGS				
GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL ALL LOBES MOTTLED PINK AND DARK RED				
URINARY BLADDER				
GROSS: FLUID CONTAINS A SMALL AMOUNT OF LIGHT RED FLUID				

ANIMAL	FOUND DEAD	25-JUN-87	STUDY DAY	7
TOTAL BODY				
GROSS: EMACIATION				
STOMACH				
GROSS: COLOR CHANGE, DIFFUSE GLANDULAR, LIGHT RED				
STOMACH				
GROSS: FLUID CONTAINS BROWN FLUID				
MICRO: (1) EDEMA				
LIVER				
MICRO: 4 CONGESTION				
DUODENUM				
MICRO: ((1)) MUCOSAL CELL DEGENERATION				
JEJUNUM				
GROSS: CONTENTS ABNORMAL CONTAINS BLACK MATERIAL				
MICRO: 3 CONGESTION				
ILEUM				
GROSS: CONTENTS ABNORMAL CONTAINS BLACK MATERIAL				
MICRO: 3 CONGESTION				
CECUM				
GROSS: FLUID CONTAINS LIGHT BROWN FLUID				
MICRO: ((1)) MUCOSAL CELL NECROSIS				
SPLEEN				
GROSS: SIZE DECREASE SLIGHT				
MICRO: 4 CONTRACTED SPLEEN				
MICRO: 2 LYMPHOID DEPLETION				
LUNGS				
MICRO: ((2)) HEMORRHAGE				
3 CONGESTION				

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 8000 PPM MALE

ANIMAL	FOUND DEAD	25-JUN-87	STUDY DAY	7
STOMACH				
GROSS: FLUID				
CONTAINS BROWN FLUID				
MICRO: ((4)) CONGESTION				
3 EDEMA				
LIVER				
MICRO: 3 CONGESTION				
JEJUNUM				
GROSS: CONTENTS ABNORMAL				
CONTAIN BLACK MATERIAL				
ILEUM				
GROSS: CONTENTS ABNORMAL				
CONTAIN BLACK MATERIAL				
CECUM				
GROSS: FLUID				
CONTAIN BROWN FLUID				
MICRO: 3 CONGESTION				
((1)) MUCOSAL CELL NECROSIS				
SKIN, UNTREATED				
GROSS: STAINED				
BROWN, UROGENITAL AREA				
LUNGS				
GROSS: COLOR CHANGE, DIFFUSE				
ALL LOBES BRIGHT RED				
MICRO: 3 CONGESTION				
KIDNEYS				
GROSS: COLOR CHANGE, DIFFUSE				
MEDULLA, DARK RED				
URINARY BLADDER				
GROSS: FLUID				
CONTAINS RED FLUID				
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:				
JEJUNUM				

ANIMAL	FOUND DEAD	24-JUN-87	STUDY DAY	6
TOTAL BODY				
GROSS: EMACIATION				
TOTAL BODY				
GROSS: AUTOLYSIS				
STOMACH				
GROSS: COLOR CHANGE, DIFFUSE				
GLANDULAR, LIGHT RED				
STOMACH				
GROSS: FLUID				
CONTAINS DARK BROWN FLUID				
JEJUNUM				
GROSS: CONTENTS ABNORMAL				
CONTAINS BLACK MATERIAL				
ILEUM				
GROSS: CONTENTS ABNORMAL				
CONTAINS BLACK MATERIAL				
BRAIN				
GROSS: HEMORRHAGE				
MENINGEAL, POSTERIOR FOSSA				
URINARY BLADDER				
GROSS: FLUID				
CONTAINS A SMALL AMOUNT OF LIGHT RED				
FLUID				

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 8000 PPM MALE

ANIMAL 12830F05 FOUND DEAD 24-JUN-87 STUDY DAY 6
TOTAL BODY
GROSS: EMACIATION
JEJUNUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
ILEUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
LUNGS
GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
ALL LOBES MOTTLED PINK AND RED
URINARY BLADDER
GROSS: FLUID
CONTAINS A SMALL AMOUNT OF RED FLUID

ANIMAL 12824F06 FOUND DEAD 26-JUN-87 STUDY DAY 8
TOTAL BODY
GROSS: EMACIATION
STOMACH
GROSS: FLUID
FILLED WITH DARK RED FLUID
LIVER
MICRO: 2 HEPATOCELLULAR ATROPHY
3 CONGESTION
JEJUNUM
GROSS: CONTENTS ABNORMAL
FILLED WITH BLACK MATERIAL
ILEUM
GROSS: CONTENTS ABNORMAL
FILLED WITH BLACK MATERIAL
CECUM
GROSS: FLUID
BROWN
SKIN, UNTREATED
GROSS: STAINED
UROGENTIAL, URINE AND RED
LUNGS
GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
ALL LOBES MOTTLED DARK RED AND BRIGHT
PINK
MICRO+((2)) HEMORRHAGE
MICRO: 3 CONGESTION
KIDNEYS
GROSS: COLOR CHANGE, DIFFUSE
MEDULLA DARK RED, BILATERAL
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:
STOMACH DUODENUM JEJUNUM
ILEUM CECUM

ANIMAL 12781F07 FOUND DEAD 25-JUN-87 STUDY DAY 7
TOTAL BODY
GROSS: EMACIATION
TOTAL BODY
GROSS: AUTOLYSIS
STOMACH
GROSS: COLOR CHANGE, DIFFUSE
GLANDULAR, LIGHT RED
STOMACH
GROSS: FLUID
CONTAINS BROWN FLUID
LIVER
MICRO: 3 CONGESTION
2 HEPATOCELLULAR ATROPHY

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 8000 PPM MALE

ANIMAL 12781F07 (CONTINUED)

JEJUNUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
ILEUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
CECUM
GROSS: FLUID
CONTAINS BROWN FLUID
SKIN, UNTREATED
GROSS: CRUST
RED, UROGENITAL AREA
BRAIN
GROSS: HEMORRHAGE
MENINGEAL, POSTERIOR FOSSA
MICRO: 3 CONGESTION
EYE
GROSS: OPACITY
CORNEAL, LEFT EYE
LUNGS
GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
ALL LOBES MOTTLED PINK AND DARK RED
MICRO+((2)) HEMORRHAGE
MICRO: 3 CONGESTION
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:
DUODENUM JEJUNUM ILEUM
CECUM

ANIMAL 12760F08 FOUND DEAD 26-JUN-87 STUDY DAY 8

TOTAL BODY
GROSS: EMACIATION
TOTAL BODY
GROSS: AUTOLYSIS
STOMACH
GROSS: COLOR CHANGE, DIFFUSE
GLANDULAR, LIGHT RED
MICRO+ 2 CONGESTION
STOMACH
GROSS: FLUID
CONTAINS DARK BROWN FLUID
LIVER
MICRO: 3 CONGESTION
2 HEPATOCELLULAR ATROPHY
DUODENUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
JEJUNUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
ILEUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
CECUM
GROSS: FLUID
CONTAINS BROWN FLUID
BRAIN
GROSS: HEMORRHAGE
MENINGEAL, POSTERIOR FOSSA
MICRO+ 3 CONGESTION
LUNGS
GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
ALL LOBES MOTTLED PINK AND RED
MICRO+ 4 CONGESTION
MICRO: ((3)) HEMORRHAGE
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:
DUODENUM JEJUNUM ILEUM

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 8000 PPM MALE

ANIMAL 12760F08 (CONTINUED)

CECUM

ANIMAL	FOUND DEAD	26-JUN-87	STUDY DAY	8
		TOTAL BODY		
		GROSS:	EMACIATION	
		TOTAL BODY		
		GROSS:	AUTOLYSIS	
		STOMACH		
		GROSS:	COLOR CHANGE, DIFFUSE	
			GLANDULAR, LIGHT RED	
		STOMACH		
		GROSS:	FLUID	
			CONTAINS DARK BROWN FLUID	
		MICRO: 2	EDEMA	
		LIVER		
		MICRO: 3	CONGESTION	
			HEPATOCELLULAR ATROPHY	
		JEJUNUM		
		GROSS:	CONTENTS ABNORMAL	
			CONTAINS BLACK MATERIAL	
		ILEUM		
		GROSS:	CONTENTS ABNORMAL	
			CONTAINS BLACK MATERIAL	
		CECUM		
		GROSS:	FLUID	
			CONTAINS BROWN FLUID	
		LUNGS		
		GROSS:	COLOR CHANGE, FOCAL/MULTIFOCAL	
			ALL LOBES MOTTLED LIGHT AND DARK PINK	
		KIDNEYS		
		GROSS:	COLOR CHANGE, DIFFUSE	
			MEDULLA, RED; BILATERAL	
		URINARY BLADDER		
		GROSS:	FLUID	
			CONTAINS RED FLUID	
		THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:		
		JEJUNUM	ILEUM	CECUM
		URINARY BLADDER		

ANIMAL	FOUND DEAD	26-JUN-87	STUDY DAY	8
		TOTAL BODY		
		GROSS:	EMACIATION	
		PERICARDIAL CAV		
		GROSS:	ADHESION	
			FIBROUS, ADHEARED TO DIAPHRAGM	
		STOMACH		
		GROSS:	FLUID	
			FILLED WITH DARK RED FLUID	
		MICRO: 2	EDEMA	
		((3))	CONGESTION	
		LIVER		
		MICRO: 3	HEPATOCELLULAR ATROPHY	
			CONGESTION	
		(2)	CAPSULAR FIBROSIS	
			A SINGLE FIBROUS TAG IS PRESENT	
		DUODENUM		
		GROSS:	CONTENTS ABNORMAL	
			FILLED WITH BLACK MATERIAL	
		MICRO: 3	CONGESTION	
		JEJUNUM		
		GROSS:	CONTENTS ABNORMAL	
			FILLED WITH BLACK MATERIAL	
		ILEUM		

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 8000 PPM MALE

ANIMAL 12775F10 (CONTINUED)

GROSS: CONTENTS ABNORMAL
FILLED WITH BLACK MATERIAL
MICRO: 2 CONGESTION
2 LYMPHOID NECROSIS
CECUM
GROSS: FLUID
FILLED WITH BROWN FLUID
MICRO: ((3)) MUCOSAL CELL NECROSIS
SKIN, UNTREATED
GROSS: STAINED
UROGENITAL, URINE AND FECAL STAINED
LUNGS
GROSS: COLOR CHANGE, DIFFUSE
BRIGHT PINK ALL LOBES
MICRO: ((2)) HEMORRHAGE
KIDNEYS
GROSS: COLOR CHANGE, DIFFUSE
MEDULLA DARK RED, BILATERAL
URINARY BLADDER
GROSS: FLUID
FILLED WITH DARK RED FLUID
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:
JEJUNUM

ANIMAL 12745F11 FOUND DEAD 24-JUN-87 STUDY DAY 6

TOTAL BODY
GROSS: EMACIATION
STOMACH
GROSS: COLOR CHANGE, DIFFUSE
GLANDULAR, LIGHT RED
STOMACH
GROSS: FLUID
CONTAINS BROWN FLUID
JEJUNUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
ILEUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
CECUM
GROSS: FLUID
CONTAINS BROWN FLUID
URINARY BLADDER
GROSS: FLUID
CONTAINS A SMALL AMOUNT OF RED FLUID

ANIMAL 12751F12 FOUND DEAD 24-JUN-87 STUDY DAY 6

TOTAL BODY
GROSS: EMACIATION
STOMACH
GROSS: FLUID
CONTAINS BROWN FLUID
JEJUNUM
GROSS: FLUID
CONTAINS BROWN FLUID
ILEUM
GROSS: FLUID
CONTAINS BROWN FLUID
CECUM
GROSS: FLUID
CONTAINS BROWN FLUID

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 8000 PPM MALE

ANIMAL	FOUND DEAD	26-JUN-87	STUDY DAY	8
TOTAL BODY				
GROSS: EMACIATION				
TOTAL BODY				
GROSS: AUTOLYSIS				
STOMACH				
MICRO: ((3)) EDEMA				
((2)) CONGESTION				
LIVER				
MICRO: 3 CONGESTION				
2 HEPATOCELLULAR ATROPHY				
JEJUNUM				
GROSS: CONTENTS ABNORMAL				
FILLED WITH BLACK MATERIAL				
ILEUM				
GROSS: CONTENTS ABNORMAL				
FILLED WITH BLACK MATERIAL				
CECUM				
GROSS: FLUID				
BROWN FLUID FILLED				
LUNGS				
MICRO: ((3)) HEMORRHAGE				
2 CONGESTION				
KIDNEYS				
MICRO: 2 HYDRONEPHROSIS				
BILATERAL				
ANIMAL 12847F14 FOUND DEAD 25-JUN-87 STUDY DAY 7				
TOTAL BODY				
GROSS: EMACIATION				
STOMACH				
GROSS: COLOR CHANGE, DIFFUSE				
GLANDULAR, LIGHT RED				
MICRO+ ((4)) CONGESTION				
MICRO: 3 EDEMA				
((3)) HEMORRHAGE				
LIVER				
MICRO: 3 CONGESTION				
3 HEPATOCELLULAR ATROPHY				
DUODENUM				
MICRO: 2 CONGESTION				
JEJUNUM				
GROSS: CONTENTS ABNORMAL				
CONTAINS BLACK MATERIAL				
MICRO: 2 CONGESTION				
ILEUM				
GROSS: CONTENTS ABNORMAL				
CONTAINS BLACK MATERIAL				
CECUM				
GROSS: FLUID				
CONTAINS BROWN FLUID				
MICRO: ((1)) MUCOSAL CELL NECROSIS				
3 CONGESTION				
LUNGS				
MICRO: 4 CONGESTION				
URINARY BLADDER				
GROSS: FLUID				
CONTAINS A MODERATE AMOUNT OF RED FLUID				
MICRO+ 2 HEMORRHAGIC CONTENTS				
MICRO: (3) MUCOSAL ULCERATION				
MAY BE AN ARTIFACT OR AUTOLYSIS; MOST				
OF MUCOSA IS				
NORMAL				
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:				
ILEUM				

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 8000 PPM MALE

ANIMAL	FOUND DEAD	26-JUN-87	STUDY DAY	8
TOTAL BODY				
GROSS: EMACIATION				
STOMACH				
GROSS: FLUID				
DARK RED				
MICRO: 4 CONGESTION				
LIVER				
MICRO: 3 CONGESTION				
2 HEPATOCELLULAR ATROPHY				
DUODENUM				
MICRO: 3 CONGESTION				
JEJUNUM				
GROSS: CONTENTS ABNORMAL				
FILLED WITH BLACK MATERIAL				
ILEUM				
GROSS: CONTENTS ABNORMAL				
FILLED WITH BLACK MATERIAL				
CECUM				
GROSS: FLUID				
BROWN				
SKIN, UNTREATED				
GROSS: STAINED				
UROGENITAL, URINE				
LUNGS				
GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL				
ALL LOBES MOTTLED DARK RED AND BRIGHT				
PINK				
MICRO+ (3) HEMORRHAGE				
MICRO: 4 CONGESTION				
KIDNEYS				
GROSS: COLOR CHANGE, DIFFUSE				
MEDULLA DARK RED, BILATERAL				
MICRO+ 3 CONGESTION				
URINARY BLADDER				
GROSS: FLUID				
DARK RED				
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:				
JEJUNUM CECUM				

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
PATHOLOGY PROTOCOL

The following tissues were examined at necropsy and histologically, for 10 rats in the 1000 and 0 ppm groups, with no significant lesions observed unless otherwise specified:

TOTAL BODY ²	MESENTARY/OM'TUM ²	PERITONEUM ²	PERITONEAL CAV ²	PLEURA ²
THORACIC CAV ²	HEART ¹	PERICARDIAL CAV ²	AORTA	SALIVARY GL
ORAL/PHARYNGEAL ²	TONGUE ²	ESOPHAGUS	STOMACH	LIVER ¹
PANCREAS	DUODENUM	JEJUNUM	ILEUM	CECUM
COLON	RECTUM	ANUS ²	PITUITARY	THYROID GL
PARATHYROID GL	ADRENAL GL ¹	SKIN, UNTREATED ²	SUBCUTIS ²	HEAD ²
MAMMARY GL ²	SPLEEN ¹	LYMPH ND, S-MAN ^{2*}	LYMPH ND, MED	LYMPH ND, MES
THYMIC REGION	BONE/JOINT ²	BONE, STERNUM	BONE, FEMUR ²	BONE, VERTEBRA ²
BONE MARROW	SKELETAL MUSCLE ²	DIAPHRAGM ²	BRAIN ¹	SPINAL CORD
NERVE, SCIATIC	EYE ²	LACRYMAL GL ²	OVARIES ¹	OVIDUCT ²
UTERUS	CERVIX	VAGINA ²	VULVA ²	LARYNX ²
TRACHEA	LUNGS	KIDNEYS ¹	URETER ²	URINARY BLADDER

¹ = Organ weights collected, ² = examined at necropsy only, unless gross lesions present.
³ = tissues examined histologically for 10 rats in the 8000, 4000, 500 and 100 ppm groups.

*Also examined histologically if attached to the salivary glands

Grade codes:

1=MINIMAL, 2=MILD, 3=MODERATE, 4=MARKED, 5=SEVERE, P=PRESENT
()=FOCAL, (())=MULTIFOCA, NO PARENTHESES=DIFFUSE

Micro diagnosis prefix codes:

= NEOPLASM, B = BENIGN, M = MALIGNANT, @PN = PRE-NEOPLASTIC

MICRO+ indicates histologic confirmation of preceding gross diagnosis.

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 0 PPM

FEMALE

ANIMAL	12966A01	SCHEDULED KILL	22-SEP-87	STUDY DAY	96
ORGAN WEIGHT	ABS. (G)	REL.	ADRENAL GL		
LIVER	6.702	2.658	MICRO: (3)	HEMORRHAGE	
KIDNEYS	1.838	0.729	LYMPH ND, MED		
SPLEEN	0.394	0.156	MICRO: ((3))	SINUS ERYTHROCYTOSIS	
HEART	0.881	0.349	LYMPH ND, MES		
BRAIN	1.904	0.755	MICRO: (1)	HISTIOCYTIC AGGREGATES	
ADRENAL GL	0.056	0.022	UTERUS		
OVARIES	0.102	0.040	MICRO: 2	LUMINAL ECTASIA	
TERMINAL BODY WT.	252.1				

ANIMAL	12931A02	SCHEDULED KILL	22-SEP-87	STUDY DAY	96
ORGAN WEIGHT	ABS. (G)	REL.	PAWS/FEET		
LIVER	5.953	2.377	GROSS:	ERROR IN TOE CLIPPING	
KIDNEYS	1.628	0.650		20 TOE	
SPLEEN	0.356	0.142	LYMPH ND, MED		
HEART	1.012	0.404	GROSS:	SIZE INCREASE	
BRAIN	1.843	0.736		2X NORMAL	
ADRENAL GL	0.063	0.025	LYMPH ND, PANC		
OVARIES	0.110	0.044	GROSS:	SIZE INCREASE	
TERMINAL BODY WT.	250.5			2X NORMAL	
			THYMIC REGION		
			GROSS:	COLOR CHANGE, FOCAL/MULTIFOCAL	
				DARK RED FOCAL AREAS	

ANIMAL	12919A03	SCHEDULED KILL	22-SEP-87	STUDY DAY	96
ORGAN WEIGHT	ABS. (G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS		
LIVER	6.979	2.850			
KIDNEYS	1.948	0.796			
SPLEEN	0.416	0.170			
HEART	0.934	0.381			
BRAIN	1.929	0.788			
ADRENAL GL	0.076	0.031			
OVARIES	0.122	0.050			
TERMINAL BODY WT.	244.9				

ANIMAL	12884A04	SCHEDULED KILL	22-SEP-87	STUDY DAY	96
ORGAN WEIGHT	ABS. (G)	REL.	LIVER		
LIVER	6.341	2.637	MICRO: ((2))	MONONUCLEAR CELL INFILTRATE(S)	
KIDNEYS	1.536	0.639	PANCREAS		
SPLEEN	0.415	0.173	MICRO: ((2))	LYMPHOID INFILTRATES	
HEART	0.902	0.375	LYMPH ND, S-MAN		
BRAIN	1.783	0.741	MICRO: ((1))	SINUS ERYTHROCYTOSIS	
ADRENAL GL	0.058	0.024	LYMPH ND, MED		
OVARIES	0.097	0.040	MICRO: 3	SINUS ERYTHROCYTOSIS	
TERMINAL BODY WT.	240.5		((2))	HEMOSIDEROSIS	
			LYMPH ND, MES		
			MICRO: (1)	HISTIOCYTIC AGGREGATES	
			THYMIC REGION		
			GROSS:	COLOR CHANGE, DIFFUSE	
				DARK RED	
			MICRO: 3	CONGESTION	
			MICRO: (2)	HEMORRHAGE	

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 0 PPM

FEMALE

ANIMAL 12977A05		SCHEDULED KILL	22-SEP-87	STUDY DAY	96
ORGAN WEIGHT	ABS. (G)	REL.	SKIN, UNTREATED		
LIVER	5.953	2.501	GROSS:	ALOPECIA	
KIDNEYS	2.000	0.840		MULTIPLE AREAS	
SPLEEN	0.475	0.200	KIDNEYS		
HEART	0.780	0.328	GROSS:	HYDRONEPHROSIS	
BRAIN	1.970	0.828		RIGHT KIDNEY, SLIGHT	
ADRENAL GL	0.052	0.022			
OVARIES	0.106	0.045			
TERMINAL BODY WT.	238.0				

ANIMAL 12872A06		SCHEDULED KILL	22-SEP-87	STUDY DAY	96
ORGAN WEIGHT	ABS. (G)	REL.	ADIPOSE TISSUE		
LIVER	6.421	2.725	MICRO: (2)	STEATITIS	
KIDNEYS	1.663	0.706		PERIAORTIC FAT	
SPLEEN	0.514	0.218	LIVER		
HEART	0.869	0.369	MICRO: ((1))	MONONUCLEAR CELL INFILTRATE(S)	
BRAIN	1.997	0.848	COLON		
ADRENAL GL	0.054	0.023	MICRO: ((2))	LYMPHOID HYPERPLASIA	
OVARIES	0.111	0.047		MULTIFOCAL SUBMUCOSAL INFILTRATES	
TERMINAL BODY WT.	235.6		THYROID GL		
			MICRO: (P)	THYROGLOSSAL DUCT CYST	
			SPLEEN		
			MICRO: 3	HEMOSIDEROSIS	
			LYMPH ND, S-MAN		
			MICRO: ((2))	SINUS ERYTHROCYTOSIS	
			2	LYMPHOID HYPERPLASIA	
			LYMPH ND, MED		
			MICRO: 1	SINUS ERYTHROCYTOSIS	
			THYMIC REGION		
			GROSS:	COLOR CHANGE, DIFFUSE	
				DARK RED	
			MICRO+((4))	CONGESTION	
			MICRO: ((4))	HEMORRHAGE	
			LUNGS		
			GROSS:	COLOR CHANGE, FOCAL/MULTIFOCAL	
				RIGHT APRICAL LOBE, 1/2 OF LOBE DARK RED	

ANIMAL 12913A07		SCHEDULED KILL	22-SEP-87	STUDY DAY	96
ORGAN WEIGHT	ABS. (G)	REL.	LIVER		
LIVER	6.379	2.423	MICRO: ((1))	MONONUCLEAR CELL INFILTRATE(S)	
KIDNEYS	1.711	0.650	PANCREAS		
SPLEEN	0.333	0.126	MICRO: (2)	PANCREATITIS	
HEART	0.867	0.329	LYMPH ND, MED		
BRAIN	1.885	0.716	MICRO: 3	SINUS ERYTHROCYTOSIS	
ADRENAL GL	0.054	0.021	3	HEMOSIDEROSIS	
OVARIES	0.093	0.035			
TERMINAL BODY WT.	263.3				

ANIMAL 12903A08		SCHEDULED KILL	22-SEP-87	STUDY DAY	96
ORGAN WEIGHT	ABS. (G)	REL.	LIVER		
LIVER	7.052	2.406	MICRO: ((1))	MONONUCLEAR CELL INFILTRATE(S)	
KIDNEYS	1.952	0.666	THYROID GL		
SPLEEN	0.458	0.156	MICRO: (P)	THYROGLOSSAL DUCT CYST	
HEART	1.032	0.352	LYMPH ND, S-MAN		
BRAIN	2.093	0.714	GROSS:	COLOR CHANGE, FOCAL/MULTIFOCAL	
ADRENAL GL	0.068	0.023		DARK RED	
OVARIES	0.117	0.040	MICRO: 3	PLASMACYTOSIS	
TERMINAL BODY WT.	293.1		3	LYMPHOID HYPERPLASIA	
			LYMPH ND, MED		
			MICRO: 4	SINUS ERYTHROCYTOSIS	
			LYMPH ND, MES		
			GROSS:	COLOR CHANGE, DIFFUSE	

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

GROUP: 0 PPM FEMALE ALL DEATHS COMBINED

ANIMAL 12903A08 (CONTINUED)

DARK RED
MICRO: 2 LYMPHOID HYPERPLASIA
THYMIC REGION
MICRO: (2) HEMORRHAGE

ANIMAL 12880A09 SCHEDULED KILL 22-SEP-87 STUDY DAY 96

ORGAN WEIGHT	ABS. (G)	REL.	COLON
LIVER	6.562	2.644	MICRO: ((2)) LYMPHOID HYPERPLASIA
KIDNEYS	1.996	0.804	ADRENAL GL
SPLEEN	0.444	0.179	MICRO: (1) CORTICAL CELL HYPERPLASIA, NODULAR
HEART	0.974	0.392	THYMIC REGION
BRAIN	1.796	0.724	MICRO: (2) HEMORRHAGE
ADRENAL GL	0.060	0.024	LUNGS
OVARIES	0.138	0.056	MICRO: (2) ALVEOLAR HISTIOCYTOSIS
TERMINAL BODY WT.	248.2		THE FOLLOWING TISSUES WERE MISSING: LYMPH ND, MED

ANIMAL 12962A10 SCHEDULED KILL 22-SEP-87 STUDY DAY 96

ORGAN WEIGHT	ABS. (G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS
LIVER	7.046	2.699	
KIDNEYS	2.199	0.842	
SPLEEN	0.625	0.239	
HEART	1.040	0.398	
BRAIN	1.874	0.718	
ADRENAL GL	0.078	0.030	
OVARIES	0.147	0.056	
TERMINAL BODY WT.	261.0		

ANIMAL 12950A11 SCHEDULED KILL 22-SEP-87 STUDY DAY 96

ORGAN WEIGHT	ABS. (G)	REL.	STOMACH
LIVER	6.143	2.359	GROSS: DIVERTICULUM
KIDNEYS	1.943	0.746	4X4X2MM, NON-GLANDULAR PORTION
SPLEEN	0.444	0.171	LIVER
HEART	0.852	0.327	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
BRAIN	1.830	0.703	COLON
ADRENAL GL	0.059	0.023	MICRO: ((1)) LYMPHOID HYPERPLASIA
OVARIES	0.119	0.046	THYROID GL
TERMINAL BODY WT.	260.4		MICRO: (P) THYROGLOSSAL DUCT CYST
			SPLEEN
			MICRO: ((3)) HEMOSIDEROSIS
			LYMPH ND, MED
			GROSS: SIZE INCREASE
			2X NORMAL
			LYMPH ND, MED
			GROSS: COLOR CHANGE, DIFFUSE
			LIGHT TO DARK RED
			MICRO+ 4 SINUS ERYTHROCYTOSIS
			THYMIC REGION
			GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
			DARK RED FOCAL AREAS THROUGHOUT
			LARGER FOCAL AREAS IN POSTERIOR PORTION
			MICRO+ (3) HEMORRHAGE
			URINARY BLADDER
			MICRO: (2) TRANSITIONAL CELL HYPERPLASIA

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 0 PPM FEMALE

ANIMAL	SCHEDULED KILL	22-SEP-87	STUDY DAY	96
ORGAN WEIGHT	ABS. (G)	REL.		
ANIMAL 12976A12				
LIVER	6.868	2.627	PANCREAS	
KIDNEYS	1.923	0.736	MICRO: ((1))	LYMPHOID INFILTRATES
SPLEEN	0.472	0.181	THYROID GL	
HEART	0.911	0.348	MICRO: (P)	THYROGLOSSAL DUCT CYST
BRAIN	1.785	0.683	SKIN, UNTREATED	
ADRENAL GL	0.064	0.024	GROSS:	CRUST
OVARIES	0.106	0.041		RIGHT, PERIOCCULAR, DARK RED
TERMINAL BODY WT.	261.4		SPLEEN	
			MICRO: 3	HEMOSIDEROSIS
			LYMPH ND, MES	
			MICRO: 2	LYMPHOID HYPERPLASIA
			THYMIC REGION	
			MICRO: (1)	HEMORRHAGE
			KIDNEYS	
			MICRO: ((1))	NEPHRITIS, INTERSTITIAL
				LEFT
ANIMAL 12973A13				
ORGAN WEIGHT	ABS. (G)	REL.	STOMACH	
LIVER	6.761	2.443	MICRO: ((3))	EDEMA
KIDNEYS	1.955	0.707		SUBMUCOSAL
SPLEEN	0.444	0.160	LIVER	
HEART	1.069	0.386	MICRO: (1)	MONONUCLEAR CELL INFILTRATE(S)
BRAIN	1.924	0.695	THYROID GL	
ADRENAL GL	0.068	0.025	MICRO: ((P))	THYROGLOSSAL DUCT CYST
OVARIES	0.103	0.037	SKIN, UNTREATED	
TERMINAL BODY WT.	276.7		GROSS:	STAINED
				RIGHT, PERIOCCULAR AREA, RED
			LYMPH ND, S-MAN	
			MICRO: 1	SINUS ERYTHROCYTOSIS
			LYMPH ND, MED	
			MICRO: 3	SINUS ERYTHROCYTOSIS
			2	HEMOSIDEROSIS
			LYMPH ND, MES	
			MICRO: ((1))	HISTIOCYTIC AGGREGATES
			THYMIC REGION	
			MICRO: ((3))	HEMORRHAGE
ANIMAL 12882A14				
ORGAN WEIGHT	ABS. (G)	REL.	ESOPHAGUS	
LIVER	7.147	2.658	GROSS:	CONTENTS ABNORMAL
KIDNEYS	2.008	0.747		CONTAINS BLOOD
SPLEEN	0.505	0.188	STOMACH	
HEART	0.988	0.367	GROSS:	CONTENTS ABNORMAL
BRAIN	2.022	0.752		CONTAINS SWALLOWED BLOOD
ADRENAL GL	0.041	0.015	LIVER	
OVARIES	0.116	0.043	MICRO: ((1))	MONONUCLEAR CELL INFILTRATE(S)
TERMINAL BODY WT.	268.9		DUODENUM	
			GROSS:	CONTENTS ABNORMAL
				CONTAINS BLOOD
			THYROID GL	
			MICRO: ((P))	THYROGLOSSAL DUCT CYST
			PAWS/FEET	
			GROSS:	ERROR IN TOE CLIPPING
				3 TOE
			SPLEEN	
			MICRO: 3	HEMOSIDEROSIS
			LYMPH ND, S-MAN	
			GROSS:	COLOR CHANGE, FOCAL/MULTIFOCAL
				SOME NODES RED
			MICRO+((1))	SINUS ERYTHROCYTOSIS
			LYMPH ND, MED	
			MICRO: ((4))	SINUS ERYTHROCYTOSIS

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 0 PPM FEMALE

ANIMAL 12882A14 (CONTINUED)

((2)) HEMOSIDEROSIS
LYMPH ND. MES
MICRO: ((1)) HISTIOCYTIC AGGREGATES
THYMIC REGION
MICRO: ((2)) HEMORRHAGE
UTERUS
MICRO: 2 LUMINAL ECTASIA
LUNGS
GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
2MM RED FOCUS, RIGHT DIAPHRAGMATIC LOBE

ANIMAL 12893A15	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	PAWS/FEET
LIVER	6.642	2.499	GROSS: ERROR IN TOE CLIPPING
KIDNEYS	1.946	0.732	80
SPLEEN	0.501	0.188	
HEART	0.915	0.344	
BRAIN	1.866	0.702	
ADRENAL GL	0.063	0.024	
OVARIES	0.144	0.054	
TERMINAL BODY WT.	265.8		

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 100 PPM FEMALE

ANIMAL 12933801	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	
LIVER	6.597	2.620	LIVER
KIDNEYS	2.027	0.805	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
SPLEEN	0.612	0.243	KIDNEYS
HEART	0.909	0.361	GROSS: HYDRONEPHROSIS
BRAIN	1.878	0.746	SLIGHT, BILATERAL
ADRENAL GL	0.068	0.027	MICRO+ 2 HYDRONEPHROSIS
OVARIES	0.120	0.048	BILATERAL
TERMINAL BODY WT.	251.8		MICRO: 4 PYELITIS
			BILATERAL
			BOTH NEUTROPHILS AND LYMPHOPLASMACYTIC CELLS
			URINARY BLADDER
			GROSS: CALCULUS
			THREE, 3X3X2MM, 5X3X2MM, AND 8X5X3MM
			MICRO: 3 CYSTITIS
			2 TRANSITIONAL CELL HYPERPLASIA

ANIMAL 12936802	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	
LIVER	6.298	2.356	KIDNEYS
KIDNEYS	1.745	0.653	MICRO: (1) TUBULAR BASOPHILIA
SPLEEN	0.381	0.143	
HEART	0.826	0.309	
BRAIN	1.848	0.691	
ADRENAL GL	0.031	0.012	
OVARIES	0.106	0.040	
TERMINAL BODY WT.	267.3		

ANIMAL 12888803	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	
LIVER	6.094	2.220	LIVER
KIDNEYS	1.693	0.617	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
SPLEEN	0.354	0.129	PAWS/FEET
HEART	1.026	0.374	GROSS: ERROR IN TOE CLIPPING
BRAIN	1.963	0.715	70 TOE ALSO GLIPPED
ADRENAL GL	0.053	0.019	LUNGS
OVARIES	0.097	0.035	MICRO: (2) PNEUMONITIS, INTERSTITIAL
TERMINAL BODY WT.	274.5		KIDNEYS
			MICRO: (1) TUBULAR BASOPHILIA

ANIMAL 12909804	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	
LIVER	5.898	2.704	TOTAL BODY
KIDNEYS	1.774	0.813	GROSS: THIN
SPLEEN	0.302	0.138	
HEART	0.808	0.370	
BRAIN	1.902	0.872	
ADRENAL GL	0.069	0.032	
OVARIES	0.112	0.051	
TERMINAL BODY WT.	218.2		

ANIMAL 12899805	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	
LIVER	6.137	2.551	LIVER
KIDNEYS	1.970	0.819	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
SPLEEN	0.339	0.141	
HEART	0.777	0.323	
BRAIN	1.907	0.793	
ADRENAL GL	0.058	0.024	
OVARIES	0.084	0.035	
TERMINAL BODY WT.	240.5		

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 100 PPM FEMALE

ANIMAL	12932806	SCHEDULED KILL	22-SEP-87	STUDY DAY	96
ORGAN WEIGHT	ABS. (G)	REL.	LIVER		
LIVER	6.084	2.645	MICRO: ((2)) MONONUCLEAR CELL INFILTRATE(S)		
KIDNEYS	1.842	0.801	LYMPH ND, REN		
SPLEEN	0.474	0.206	GROSS: COLOR CHANGE, DIFFUSE		
HEART	0.804	0.350	DARK RED		
BRAIN	1.825	0.793	MICRO+ 4 SINUS ERYTHROCYTOSIS		
ADRENAL GL	0.064	0.028	LYMPH ND, REN		
OVARIES	0.092	0.040	GROSS: SIZE INCREASE		
TERMINAL BODY WT.	230.0		25% INCREASE		
			MICRO: 4 HEMOSIDEROSIS		

ANIMAL	12970807	SCHEDULED KILL	22-SEP-87	STUDY DAY	96
ORGAN WEIGHT	ABS. (G)	REL.	THYMIC REGION		
LIVER	7.309	2.889	GROSS: COLOR CHANGE, DIFFUSE		
KIDNEYS	1.872	0.740	DARK RED		
SPLEEN	0.404	0.160			
HEART	0.887	0.351			
BRAIN	1.897	0.750			
ADRENAL GL	0.069	0.027			
OVARIES	0.105	0.042			
TERMINAL BODY WT.	253.0				

ANIMAL	12955808	SCHEDULED KILL	22-SEP-87	STUDY DAY	96
ORGAN WEIGHT	ABS. (G)	REL.	LYMPH ND, MED		
LIVER	6.489	2.599	GROSS: SIZE INCREASE		
KIDNEYS	1.909	0.765	2X NORMAL		
SPLEEN	0.380	0.152	MICRO: 3 SINUS ERYTHROCYTOSIS		
HEART	0.815	0.326	((1)) HEMOSIDEROSIS		
BRAIN	1.769	0.709	LYMPH ND, PANC		
ADRENAL GL	0.048	0.019	GROSS: COLOR CHANGE, DIFFUSE		
OVARIES	0.068	0.027	DARK RED		
TERMINAL BODY WT.	249.6		MICRO+ 2 SINUS ERYTHROCYTOSIS		
			LYMPH ND, PANC		
			GROSS: SIZE INCREASE		
			2X NORMAL		
			MICRO+ 2 LYMPHOID HYPERPLASIA		
			THYMIC REGION		
			GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL		
			DARK RED FOCAL AREAS		
			MICRO+ (2) HEMORRHAGE		
			UTERUS		
			GROSS: DILATATION/DISTENTION		
			CLEAR FLUID FILLED		
			MICRO+ 3 LUMINAL ECTASIA		

ANIMAL	12906809	SCHEDULED KILL	22-SEP-87	STUDY DAY	96
ORGAN WEIGHT	ABS. (G)	REL.	LIVER		
LIVER	5.994	2.442	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)		
KIDNEYS	1.807	0.736			
SPLEEN	0.369	0.150			
HEART	0.849	0.346			
BRAIN	1.744	0.710			
ADRENAL GL	0.056	0.023			
OVARIES	0.117	0.048			
TERMINAL BODY WT.	245.5				

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 100 PPM FEMALE

ANIMAL 12887B10	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS
LIVER	6.039	2.293	
KIDNEYS	1.653	0.628	
SPLEEN	0.433	0.164	
HEART	0.950	0.361	
BRAIN	1.884	0.715	
ADRENAL GL	0.055	0.021	
OVARIES	0.125	0.047	
TERMINAL BODY WT.	263.3		

ANIMAL 12878B11	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS
LIVER	6.816	2.713	
KIDNEYS	2.131	0.848	
SPLEEN	0.708	0.282	
HEART	0.923	0.367	
BRAIN	1.920	0.764	
ADRENAL GL	0.071	0.028	
OVARIES	0.093	0.037	
TERMINAL BODY WT.	251.2		

ANIMAL 12974B12	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	LIVER
LIVER	7.440	2.525	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	1.939	0.658	
SPLEEN	0.509	0.173	
HEART	0.988	0.335	
BRAIN	1.892	0.642	
ADRENAL GL	0.063	0.021	
OVARIES	0.123	0.042	
TERMINAL BODY WT.	294.6		

ANIMAL 12923B13	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	KIDNEYS
LIVER	7.018	2.429	GROSS: HYDRONEPHROSIS
KIDNEYS	2.199	0.761	RIGHT, SLIGHT
SPLEEN	0.486	0.168	
HEART	0.937	0.324	
BRAIN	1.919	0.664	
ADRENAL GL	0.077	0.027	
OVARIES	0.081	0.028	
TERMINAL BODY WT.	289.0		

ANIMAL 12942B14	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS
LIVER	7.102	2.402	
KIDNEYS	1.790	0.605	
SPLEEN	0.515	0.174	
HEART	0.878	0.297	
BRAIN	1.892	0.640	
ADRENAL GL	0.064	0.022	
OVARIES	0.164	0.055	
TERMINAL BODY WT.	295.7		

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 100 PPM FEMALE

ANIMAL 12953B15	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	LIVER
LIVER	6.633	2.396	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	1.777	0.642	LYMPH ND, REN
SPLEEN	0.437	0.158	GROSS: COLOR CHANGE, DIFFUSE
HEART	0.886	0.320	RED
BRAIN	1.848	0.668	MICRO+ 3 SINUS ERYTHROCYTOSIS
ADRENAL GL	0.050	0.018	MICRO: ((2)) HEMOSIDEROSIS
OVARIES	0.131	0.047	LUNGS
TERMINAL BODY WT.	276.9		GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
			1MM RED FOCI RIGHT CRANIAL LOBE

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 500 PPM FEMALE

ANIMAL 12869C01	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	LIVER
LIVER	6.281	2.584	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	1.583	0.651	
SPLEEN	0.380	0.156	
HEART	0.761	0.313	
BRAIN	1.858	0.764	
ADRENAL GL	0.053	0.022	
OVARIES	0.113	0.046	
TERMINAL BODY WT.	243.0		

ANIMAL 12892C02	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	LIVER
LIVER	6.203	2.754	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	1.584	0.703	KIDNEYS
SPLEEN	0.380	0.169	MICRO: (1) NEPHRITIS, INTERSTITIAL
HEART	0.944	0.419	RIGHT
BRAIN	1.838	0.816	
ADRENAL GL	0.067	0.030	
OVARIES	0.119	0.053	
TERMINAL BODY WT.	225.2		

ANIMAL 12889C03	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	LIVER
LIVER	6.346	2.452	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	1.770	0.684	LYMPH ND, S-MAN
SPLEEN	0.398	0.154	GROSS: SIZE INCREASE
HEART	0.896	0.346	ENLARGED 2X NORMAL
BRAIN	1.791	0.692	
ADRENAL GL	0.053	0.020	
OVARIES	0.079	0.031	
TERMINAL BODY WT.	258.8		

ANIMAL 12885C04	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	LIVER
LIVER	7.226	3.010	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	2.026	0.844	THYMIC REGION
SPLEEN	0.422	0.176	GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
HEART	0.933	0.389	DARK RED PUNCTATE FOCAL AREAS SCATTERED
BRAIN	1.994	0.831	THROUGHOUT
ADRENAL GL	0.065	0.027	MICRO+((3)) HEMORRHAGE
OVARIES	0.101	0.042	UTERUS
TERMINAL BODY WT.	240.1		GROSS: DILATATION/DISTENTION
			BILATERAL, 2X NORMAL UTERINE HORNS
			MICRO+ 2 LUMINAL ECTASIA
			LUNGS
			GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
			RIGHT APRICAL LOBE 10X5MM DARK RED
			FOCAL AREA
			MICRO+((3)) HEMORRHAGE

ANIMAL 12941C05	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS
LIVER	6.583	2.496	
KIDNEYS	1.826	0.692	
SPLEEN	0.456	0.173	
HEART	0.953	0.361	
BRAIN	1.820	0.690	
ADRENAL GL	0.075	0.028	
OVARIES	0.101	0.038	
TERMINAL BODY WT.	263.7		

PATHOLOGY RECORD
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AMMONIUM CHLORIDE (ADBAC) IN RATS
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ALL DEATHS COMBINED

GROUP: 500 PPM FEMALE

ANIMAL 12937C06			SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS. (G)	REL.	LYMPH ND, MED		
LIVER	7.134	2.488	GROSS: COLOR CHANGE, DIFFUSE		
KIDNEYS	1.804	0.629	RED		
SPLEEN	0.365	0.127	MICRO+ 3 SINUS ERYTHROCYTOSIS		
HEART	0.904	0.315	MICRO: 3 HEMOSIDEROSIS		
BRAIN	1.836	0.640	THYMIC REGION		
ADRENAL GL	0.067	0.023	MICRO: ((4)) HEMORRHAGE		
OVARIES	0.109	0.038	LUNGS		
TERMINAL BODY WT.	286.8		MICRO: (2) PNEUMONITIS, INTERSTITIAL		
			(2) ALVEOLAR HISTIOCYTOSIS		
			KIDNEYS		
			GROSS: HYDRONEPHROSIS		
			MILD, BILATERAL		
			MICRO+ 3 HYDRONEPHROSIS		
			BILATERAL		
			KIDNEYS		
			GROSS: CALCULUS		
			FINE WHITE CALCULI, BILATERAL		
			KIDNEYS		
			GROSS: CYST		
			LEFT CORTEX		
			MICRO: ((1)) TUBULAR PROTEINOSIS		

ANIMAL 12894C07			SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS. (G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS		
LIVER	5.598	2.487			
KIDNEYS	1.781	0.791			
SPLEEN	0.438	0.195			
HEART	0.803	0.357			
BRAIN	1.936	0.860			
ADRENAL GL	0.074	0.033			
OVARIES	0.109	0.048			
TERMINAL BODY WT.	225.1				

ANIMAL 12940C08			SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS. (G)	REL.	LIVER		
LIVER	6.564	2.404	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)		
KIDNEYS	1.642	0.601	LYMPH ND, MES		
SPLEEN	0.403	0.148	GROSS: COLOR CHANGE, DIFFUSE		
HEART	0.922	0.338	1		
BRAIN	1.932	0.708	DARK RED		
ADRENAL GL	0.051	0.019			
OVARIES	0.102	0.037			
TERMINAL BODY WT.	273.1				

ANIMAL 12928C09			SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS. (G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS		
LIVER	6.352	2.485			
KIDNEYS	1.713	0.670			
SPLEEN	0.386	0.151			
HEART	0.835	0.327			
BRAIN	1.849	0.723			
ADRENAL GL	0.073	0.029			
OVARIES	0.083	0.032			
TERMINAL BODY WT.	255.6				

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GROUP: 500 PPM FEMALE

ANIMAL 12873C10	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS. (G)	REL.	LIVER
LIVER	6.143	2.452	MICRO: ((2)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	1.938	0.774	
SPLEEN	0.397	0.158	
HEART	0.869	0.347	
BRAIN	1.814	0.724	
ADRENAL GL	0.053	0.021	
OVARIES	0.116	0.046	
TERMINAL BODY WT.	250.5		

ANIMAL 12935C11	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS. (G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS
LIVER	6.290	2.553	
KIDNEYS	2.033	0.825	
SPLEEN	0.446	0.181	
HEART	0.750	0.304	
BRAIN	1.858	0.754	
ADRENAL GL	0.068	0.028	
OVARIES	0.118	0.048	
TERMINAL BODY WT.	246.3		

ANIMAL 12902C12	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS. (G)	REL.	LIVER
LIVER	6.456	2.209	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	1.825	0.624	
SPLEEN	0.447	0.153	
HEART	1.091	0.373	
BRAIN	1.658	0.567	
ADRENAL GL	0.070	0.024	
OVARIES	0.130	0.044	
TERMINAL BODY WT.	292.3		

ANIMAL 12895C13	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS. (G)	REL.	LIVER
LIVER	7.191	2.642	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	2.250	0.827	KIDNEYS
SPLEEN	0.499	0.183	MICRO: 2 HYDRONEPHROSIS
HEART	1.022	0.376	RIGHT
BRAIN	1.891	0.695	
ADRENAL GL	0.064	0.024	
OVARIES	0.142	0.052	
TERMINAL BODY WT.	272.2		

ANIMAL 12900C14	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS. (G)	REL.	LYMPH ND, S-MAN
LIVER	7.164	2.417	GROSS: SIZE INCREASE
KIDNEYS	1.875	0.633	50% OF NORMAL
SPLEEN	0.546	0.184	
HEART	0.996	0.336	
BRAIN	1.986	0.670	
ADRENAL GL	0.063	0.021	
OVARIES	0.097	0.033	
TERMINAL BODY WT.	296.4		

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GROUP: 500 PPM FEMALE

ANIMAL 12971C15	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS. (G)	REL.	
LIVER	6.666	2.526	STOMACH
KIDNEYS	2.014	0.763	GROSS: DIVERTICULUM
SPLEEN	0.348	0.132	4X2X2MM, GLANDULAR PORTION
HEART	0.891	0.338	LIVER
BRAIN	1.731	0.656	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
ADRENAL GL	0.053	0.020	LYMPH ND, S-MAN
OVARIES	0.072	0.027	GROSS: COLOR CHANGE, DIFFUSE
TERMINAL BODY WT.	263.9		SEVERAL ARE DARK RED
			MICRO+((2)) SINUS ERYTHROCYTOSIS
			MICRO: 3 LYMPHOID HYPERPLASIA
			LYMPH ND, MED
			GROSS: SIZE INCREASE
			2X NORMAL
			LYMPH ND, MED
			GROSS: COLOR CHANGE, DIFFUSE
			DARK RED
			MICRO+ 2 SINUS ERYTHROCYTOSIS
			THYMIC REGION
			GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
			DARK RED FOCAL AREAS, POSTERIOR PORTION
			MICRO+((3)) HEMORRHAGE

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
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GROUP: 1000 PPM FEMALE

ANIMAL 12975D01	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS. (G)	REL.	LIVER
LIVER	5.511	2.181	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	1.764	0.698	SKIN, UNTREATED
SPLEEN	0.360	0.142	GROSS: STAINED
HEART	0.801	0.317	URINE STAINED PERINEUM
BRAIN	1.841	0.729	LYMPH ND, MED
ADRENAL GL	0.038	0.015	MICRO: 4 SINUS ERYTHROCYTOSIS
OVARIES	0.098	0.039	LYMPH ND, PANC
TERMINAL BODY WT.	252.7		MICRO: 2 SINUS ERYTHROCYTOSIS
			4 HEMOSIDEROSIS
			THYMIC REGION
			MICRO: ((2)) HEMORRHAGE

ANIMAL 12876D02	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS. (G)	REL.	LIVER
LIVER	6.608	2.879	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	1.833	0.799	THYROID GL
SPLEEN	0.412	0.179	MICRO: (P) THYROGLOSSAL DUCT CYST
HEART	0.792	0.345	SPLEEN
BRAIN	1.751	0.763	MICRO: 4 HEMOSIDEROSIS
ADRENAL GL	0.055	0.024	LYMPH ND, S-MAN
OVARIES	0.078	0.034	MICRO: ((2)) SINUS ERYTHROCYTOSIS
TERMINAL BODY WT.	229.5		2 PLASMACYTOSIS
			LYMPH ND, MED
			MICRO: 4 SINUS ERYTHROCYTOSIS
			((3)) HEMOSIDEROSIS
			THYMIC REGION
			GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
			DARK RED FOCAL AREAS, POSTERIOR PORTION
			MICRO+((4)) HEMORRHAGE
			THE FOLLOWING TISSUES WERE MISSING:
			PARATHYROID GL

ANIMAL 12978D03	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS. (G)	REL.	PAWS/FEET
LIVER	6.606	2.764	GROSS: ERROR IN TOE CLIPPING
KIDNEYS	1.829	0.765	6 TOE
SPLEEN	0.436	0.182	
HEART	0.814	0.341	
BRAIN	1.905	0.797	
ADRENAL GL	0.069	0.029	
OVARIES	0.123	0.051	
TERMINAL BODY WT.	239.0		

ANIMAL 12920D04	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS. (G)	REL.	LIVER
LIVER	5.597	2.396	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	1.808	0.774	SKIN, UNTREATED
SPLEEN	0.408	0.175	GROSS: ALOPECIA
HEART	0.808	0.346	MULTIPLE AREAS ABDOMEN AND THORACIC
BRAIN	1.874	0.802	, ALL 4 LEGS
ADRENAL GL	0.067	0.029	LYMPH ND, MED
OVARIES	0.093	0.040	MICRO: 4 SINUS ERYTHROCYTOSIS
TERMINAL BODY WT.	233.6		2 HEMOSIDEROSIS
			LYMPH ND, MES
			GROSS: COLOR CHANGE, DIFFUSE
			DARK RED
			MICRO: ((1)) HISTIOCYTIC AGGREGATES
			THYMIC REGION
			MICRO: ((3)) HEMORRHAGE
			LUNGS
			GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL

PATHOLOGY RECORD
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GROUP: 1000 PPM FEMALE

ANIMAL 12920D04 (CONTINUED)

DARK RED, APICAL LOBE

ANIMAL 12867D05 SCHEDULED KILL 22-SEP-87 STUDY DAY 96

ORGAN WEIGHT	ABS. (G)	REL.	
LIVER	5.799	2.512	LIVER MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	1.679	0.727	SPLEEN
SPLEEN	0.392	0.170	MICRO: 3 HEMOSIDEROSIS
HEART	0.779	0.337	LYMPH ND, MED
BRAIN	1.716	0.743	GROSS: SIZE INCREASE
ADRENAL GL	0.054	0.023	2X NORMAL
OVARIES	0.110	0.048	MICRO: 4 SINUS ERYTHROCYTOSIS
TERMINAL BODY WT.	230.8		3 HEMOSIDEROSIS
			LYMPH ND, MES
			MICRO: ((1)) HISTIOCYTIC AGGREGATES
			2 LYMPHOID HYPERPLASIA
			UTERUS
			MICRO: 2 LUMINAL ECTASIA
			THE FOLLOWING TISSUES WERE MISSING:
			PARATHYROID GL

ANIMAL 12945D06 SCHEDULED KILL 22-SEP-87 STUDY DAY 96

ORGAN WEIGHT	ABS. (G)	REL.	
LIVER	6.551	2.584	LIVER MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	1.687	0.665	LYMPH ND, MED
SPLEEN	0.395	0.156	GROSS: SIZE INCREASE
HEART	0.893	0.352	2X NORMAL
BRAIN	1.790	0.706	MICRO: 4 SINUS ERYTHROCYTOSIS
ADRENAL GL	0.056	0.022	2 HEMOSIDEROSIS
OVARIES	0.073	0.029	LYMPH ND, MES
TERMINAL BODY WT.	253.6		MICRO: ((1)) HISTIOCYTIC AGGREGATES
			THYMIC REGION
			GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
			SMALL DARK RED FOCAL AREAS
			MICRO+ (2) HEMORRHAGE
			OVARIES
			GROSS: SIZE DECREASE
			RIGHT, 3/4 OF NORMAL, PALE IN COLOR
			KIDNEYS
			MICRO: (1) NEPHRITIS, INTERSTITIAL

ANIMAL 12958D07 SCHEDULED KILL 22-SEP-87 STUDY DAY 96

ORGAN WEIGHT	ABS. (G)	REL.	
LIVER	6.066	2.491	EXAMINED - NO SIGNIFICANT LESIONS
KIDNEYS	1.820	0.747	
SPLEEN	0.389	0.160	
HEART	0.813	0.334	
BRAIN	1.895	0.778	
ADRENAL GL	0.075	0.031	
OVARIES	0.116	0.048	
TERMINAL BODY WT.	243.5		

ANIMAL 12948D08 SCHEDULED KILL 22-SEP-87 STUDY DAY 96

ORGAN WEIGHT	ABS. (G)	REL.	
LIVER	6.877	2.485	LIVER MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
KIDNEYS	1.929	0.697	RECTUM
SPLEEN	0.378	0.137	MICRO: (2) LYMPHOID HYPERPLASIA
HEART	0.903	0.326	LYMPH ND, MED
BRAIN	1.946	0.703	MICRO: 2 SINUS ERYTHROCYTOSIS
ADRENAL GL	0.055	0.020	THYMIC REGION
OVARIES	0.102	0.037	MICRO: ((3)) HEMORRHAGE
TERMINAL BODY WT.	276.7		THE FOLLOWING TISSUES WERE MISSING:
			PITUITARY
			PARATHYROID GL

PATHOLOGY RECORD
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ALL DEATHS COMBINED

GROUP: 1000 PPM FEMALE

ANIMAL 12969D09	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	LYMPH ND, S-MAN
LIVER	7.984	3.061	MICRO: ((1)) SINUS ERYTHROCYTOSIS
KIDNEYS	1.922	0.737	LYMPH ND, MED
SPLEEN	0.409	0.157	MICRO: 3 SINUS ERYTHROCYTOSIS
HEART	0.949	0.364	UTERUS
BRAIN	1.771	0.679	GROSS: DILATATION/DISTENTION
ADRENAL GL	0.058	0.022	BILATERAL, CLEAR FLUID FILLED
OVARIES	0.098	0.038	MICRO+ 3 LUMINAL ECTASIA
TERMINAL BODY WT.	260.9		LUNGS
			GROSS: COLOR CHANGE, DIFFUSE
			CARDIAC LOBE, TAN TO DARK BROWN
			MICRO+ 4 ALVEOLAR HISTIOCYTOSIS
			MICRO: ((2)) HEMORRHAGE
			((2)) PNEUMONITIS, INTERSTITIAL
			THIS AND ALL OTHER LESIONS ARE IN ONE
			LOBE ONLY.
			((2)) HEMOSIDEROSIS

ANIMAL 12875D10	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	LYMPH ND, MED
LIVER	6.597	2.799	MICRO: ((4)) SINUS ERYTHROCYTOSIS
KIDNEYS	1.690	0.717	((1)) HEMOSIDEROSIS
SPLEEN	0.478	0.203	LUNGS
HEART	0.936	0.397	GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
BRAIN	1.979	0.840	RIGHT, MOTTLED DARK RED AND PINK
ADRENAL GL	0.054	0.023	MICRO+((3)) CONGESTION
OVARIES	0.114	0.048	
TERMINAL BODY WT.	235.7		

ANIMAL 12921D11	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS
LIVER	7.583	2.674	
KIDNEYS	2.242	0.791	
SPLEEN	0.490	0.173	
HEART	0.937	0.330	
BRAIN	1.938	0.683	
ADRENAL GL	0.065	0.023	
OVARIES	0.084	0.030	
TERMINAL BODY WT.	283.6		

ANIMAL 12980D12	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	EXAMINED - NO SIGNIFICANT LESIONS
LIVER	6.297	2.269	
KIDNEYS	1.824	0.657	
SPLEEN	0.439	0.158	
HEART	0.756	0.272	
BRAIN	1.877	0.676	
ADRENAL GL	0.053	0.019	
OVARIES	0.100	0.036	
TERMINAL BODY WT.	277.5		

ANIMAL 12963D13	SCHEDULED KILL	22-SEP-87	STUDY DAY 96
ORGAN WEIGHT	ABS.(G)	REL.	LYMPH ND, S-MAN
LIVER	6.966	2.405	MICRO: (3) PLASMACYTOSIS
KIDNEYS	1.970	0.680	LYMPH ND, MED
SPLEEN	0.433	0.149	MICRO: ((4)) SINUS ERYTHROCYTOSIS
HEART	1.089	0.376	((3)) HEMOSIDEROSIS
BRAIN	1.959	0.676	THYMIC REGION
ADRENAL GL	0.078	0.027	MICRO: (4) HEMORRHAGE
OVARIES	0.146	0.050	KIDNEYS
TERMINAL BODY WT.	289.7		MICRO: 4 PYELITIS

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GROUP: 1000 PPM FEMALE

ANIMAL 12963013 (CONTINUED)

BILATERAL. INFILTRATES ARE MAINLY
LYMPHOPLASMACYTIC,
BUT NEUTROPHILS ARE PRESENT AS WELL.

URINARY BLADDER

MICRO: 4 CYSTITIS

MAINLY SUPPURATIVE

4 TRANSITIONAL CELL HYPERPLASIA

ANIMAL 12905014 SCHEDULED KILL 22-SEP-87 STUDY DAY 96

ORGAN WEIGHT	ABS. (G)	REL.	
LIVER	6.403	2.451	LIVER
KIDNEYS	2.126	0.814	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
SPLEEN	0.429	0.164	LYMPH ND, S-MAN
HEART	0.881	0.337	MICRO: ((3)) SINUS ERYTHROCYTOSIS
BRAIN	1.746	0.668	LYMPH ND, MED
ADRENAL GL	0.058	0.022	GROSS: SIZE INCREASE
OVARIES	0.087	0.033	2X NORMAL
TERMINAL BODY WT.	261.3		MICRO: ((4)) SINUS ERYTHROCYTOSIS
			LUNGS
			MICRO: ((3)) PLEURITIS
			FIBRINONECROTIC, SAME SITES AS FIBROSIS
			((3)) PLEURAL FIBROSIS
			2 LOBES, 1 LUNG

ANIMAL 12877015 SCHEDULED KILL 22-SEP-87 STUDY DAY 96

ORGAN WEIGHT	ABS. (G)	REL.	
LIVER	7.073	2.475	SALIVARY GL
KIDNEYS	1.982	0.693	GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
SPLEEN	0.498	0.174	DARK RED FOCAL AREAS
HEART	1.038	0.363	LYMPH ND, S-MAN
BRAIN	1.805	0.632	GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
ADRENAL GL	0.057	0.020	DARK RED FOCAL AREAS
OVARIES	0.130	0.045	
TERMINAL BODY WT.	285.8		

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 4000 PPM FEMALE

ANIMAL	STATUS	DATE	STUDY DAY
12911E01	SACR MORIBUND	26-JUN-87	8
TOTAL BODY			
GROSS:		EMACIATION	
JEJUNUM			
GROSS:		FLUID FILLED WITH BROWN FLUID	
ILEUM			
GROSS:		FLUID FILLED WITH BROWN FLUID	
CECUM			
GROSS:		FLUID GROSSLY DISTENDED WITH BROWN FLUID	

ANIMAL	STATUS	DATE	STUDY DAY
14621E02	FOUND DEAD	25-JUN-87	7
TOTAL BODY			
GROSS:		EMACIATION	
STOMACH			
GROSS:		COLOR CHANGE, DIFFUSE GLANDULAR, LIGHT RED	
JEJUNUM			
GROSS:		CONTENTS ABNORMAL CONTAINS BLACK MATERIAL	
ILEUM			
GROSS:		CONTENTS ABNORMAL CONTAINS BLACK MATERIAL	
CECUM			
GROSS:		FLUID CONTAINS BROWN FLUID	
SKIN, UNTREATED			
GROSS:		STAINED TAN, UROGENITAL AREA	
BRAIN			
GROSS:		HEMORRHAGE MENINGEAL, POSTERIOR FOSSA	

ANIMAL	STATUS	DATE	STUDY DAY
12979E03	SCHEDULED KILL	22-SEP-87	96
ORGAN WEIGHT	ABS. (G)	REL.	TOTAL BODY
LIVER	6.326	3.502	GROSS:
KIDNEYS	2.674	1.480	LIVER
SPLEEN	0.564	0.312	MICRO: ((1))
HEART	1.022	0.566	(1)
BRAIN	1.724	0.954	CECUM
ADRENAL GL	0.064	0.035	GROSS:
OVARIES	0.071	0.039	DILATATION/DISTENTION MILD
TERMINAL BODY WT.	180.6		LYMPH ND, MES
			GROSS:
			COLOR CHANGE, DIFFUSE RED
			MICRO: 3
			3
			LYMPH ND, PANC
			MICRO: 2
			2
			KIDNEYS
			GROSS:
			CALCULUS LARGE CALCULI IN PELVIS, BILATERAL
			MICRO+ P
			RENAL CALCULI LEFT
			KIDNEYS
			GROSS:
			COLOR CHANGE, FOCAL/MULTIFOCAL TAN-WHITE FOCI, 3MM, THROUGHOUT BOTH CORTICES, DUE TO PYELONEPHRITIS
			MICRO+ 4
			4
			PYELONEPHRITIS BILATERAL, LEFT WORSE
			MICRO: ((P))
			INFARCTION

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 4000 PPM FEMALE

ANIMAL 12979E03 (CONTINUED)

((4)) FIBROSIS, INTERSTITIAL
BILATERAL
((4)) TUBULAR ATROPHY
((4)) TUBULAR BASOPHILIA
((4)) TUBULAR DILATION
4 HYDRONEPHROSIS
LEFT
URETER
GROSS: CALCULUS
3-4MM CALCULI BILATERALLY
MICRO+ P CALCULI
URETER
GROSS: HYDROURETER
BILATERAL
MICRO+ 4 LUMINAL ECTASIA
MICRO: 4 TRANSITIONAL EPITHELIAL HYPERPLASIA
3 URETERITIS
URINARY BLADDER
GROSS: CALCULUS
3MM , MULTIPLE
URINARY BLADDER
GROSS: THICKER THAN NORMAL
MUCOSA THICKENED
MICRO+ 2 TRANSITIONAL CELL HYPERPLASIA
URINARY BLADDER
GROSS: DILATATION/DISTENTION
MODERATE
MICRO: 2 CYSTITIS

ANIMAL 12957E04 FOUND DEAD 26-JUN-87 STUDY DAY 8

TOTAL BODY
GROSS: AUTOLYSIS
TOTAL BODY
GROSS: EMACIATION
JEJUNUM
GROSS: FLUID
FILLED WITH BLACK FLUID
ILEUM
GROSS: FLUID
FILLED WITH BLACK FLUID
CECUM
GROSS: FLUID
GROSSLY DISTENDED WITH BROWN FLUID
BRAIN
GROSS: HEMORRHAGE
MENINGEAL, POSTERIOR FOSSA

ANIMAL 12925E05 SACR MORIBUND 26-JUN-87 STUDY DAY 8

TOTAL BODY
GROSS: EMACIATION
DUODENUM
GROSS: FLUID
BROWN
JEJUNUM
GROSS: FLUID
BROWN
ILEUM
GROSS: FLUID
BROWN
CECUM
GROSS: FLUID
BROWN

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 4000 PPM FEMALE

ANIMAL	STATUS	DATE	STUDY DAY
12965E06	SACR MORIBUND	25-JUN-87	7
TOTAL BODY			
GROSS: EMACIATION			
JEJUNUM			
GROSS: CONTENTS ABNORMAL			
CONTAINS BLACK MATERIAL			
ILEUM			
GROSS: CONTENTS ABNORMAL			
CONTAINS BLACK MATERIAL			
CECUM			
GROSS: FLUID			
CONTAINS BROWN FLUID			
SKIN, UNTREATED			
GROSS: STAINED			
RED, UROGENITAL AREA			
HEAD			
GROSS: CRUST			
RED, PERINASAL AREA			
URINARY BLADDER			
GROSS: FLUID			
CONTAINS A SMALL AMOUNT OF RED FLUID			
12874E07	SACR MORIBUND	26-JUN-87	8
TOTAL BODY			
GROSS: EMACIATION			
LIVER			
MICRO: 3 CONGESTION			
2 HEPATOCELLULAR ATROPHY			
JEJUNUM			
GROSS: FLUID			
CONTAINS BROWN FLUID			
ILEUM			
GROSS: FLUID			
CONTAINS BROWN FLUID			
MICRO: 2 CONGESTION			
CECUM			
GROSS: FLUID			
CONTAINS BROWN FLUID			
LUNGS			
MICRO: 3 CONGESTION			
12952E08	FOUND DEAD	25-JUN-87	7
TOTAL BODY			
GROSS: EMACIATION			
STOMACH			
GROSS: FLUID			
CONTAINS BROWN FLUID			
STOMACH			
GROSS: COLOR CHANGE, DIFFUSE			
GLANDULAR, LIGHT RED			
JEJUNUM			
GROSS: CONTENTS ABNORMAL			
CONTAINS BLACK MATERIAL			
ILEUM			
GROSS: CONTENTS ABNORMAL			
CONTAINS BLACK MATERIAL			
CECUM			
GROSS: FLUID			
CONTAINS BROWN FLUID			
BRAIN			
GROSS: HEMORRHAGE			
MENINGEAL, POSTERIOR FOSSA			
LUNGS			
GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL			

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 4000 PPM FEMALE

ANIMAL 12952E08 (CONTINUED)

ALL LOBES MOTTLED LIGHT AND DARK PINK

ANIMAL 12930E09 SACR MORIBUND 26-JUN-87 STUDY DAY 8

LIVER
MICRO: 3 CONGESTION
2 HEPATOCELLULAR ATROPHY
CECUM
GROSS: FLUID
DISTENDED WITH BROWN SEMISOLID INGESTA
LUNGS
MICRO: 4 CONGESTION

ANIMAL 12886E10 SACR MORIBUND 25-JUN-87 STUDY DAY 7

JEJUNUM
GROSS: FLUID
BROWN FLUID FILLED
ILEUM
GROSS: FLUID
BROWN FLUID FILLED
CECUM
GROSS: FLUID
BROWN FLUID FILLED
SKIN, UNTREATED
GROSS: STAINED
UROGENITAL AREA

ANIMAL 12934E11 FOUND DEAD 29-JUN-87 STUDY DAY 11

LIVER
MICRO: 3 CONGESTION
2 HEPATOCELLULAR ATROPHY
DUODENUM
MICRO: 3 CONGESTION
((1)) MUCOSAL CELL DEGENERATION
MAY BE AN AUTOLYTIC ARTIFACT
CONSISTS OF NUCLEAR CHROMATOLYSIS OF
CELLS IN VILLUS TIPS
JEJUNUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
MICRO: 3 CONGESTION
ILEUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
MICRO: 3 CONGESTION
CECUM
GROSS: FLUID
CONTAINS BROWN FLUID
ADRENAL GL
GROSS: SIZE INCREASE
0.5X NORMAL, BILATERAL
LUNGS
MICRO: 4 CONGESTION
((1)) HEMORRHAGE

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 4000 PPM FEMALE

ANIMAL	12926E12	SCHEDULED KILL	22-SEP-87	STUDY DAY	96
ORGAN WEIGHT	ABS.(G)	REL.	TOTAL BODY		
LIVER	6.990	3.234	GROSS: THIN		
KIDNEYS	1.756	0.813	LIVER		
SPLEEN	0.356	0.165	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)		
HEART	0.802	0.371	CECUM		
BRAIN	1.900	0.879	GROSS: FLUID		
ADRENAL GL	0.077	0.036	WATERY FECES		
OVARIES	0.079	0.037	LUNGS		
TERMINAL BODY WT.	216.1		MICRO: (1) ALVEOLAR HISTIOCYTOSIS (1) PNEUMONITIS, INTERSTITIAL		

ANIMAL	12960E13	FOUND DEAD	26-JUN-87	STUDY DAY	8
TOTAL BODY					
GROSS: EMACIATION					
STOMACH					
GROSS: COLOR CHANGE, DIFFUSE					
GLANDULAR, LIGHT RED					
MICRO: 2 EDEMA					
SUBMUCOSAL					
LIVER					
MICRO: (1) MONONUCLEAR CELL INFILTRATE(S)					
(1) HEPATOCELLULAR NECROSIS					
3 CONGESTION					
2 HEPATOCELLULAR ATROPHY					
JEJUNUM					
GROSS: CONTENTS ABNORMAL					
CONTAINS BLACK MATERIAL					
ILEUM					
GROSS: CONTENTS ABNORMAL					
CONTAINS BLACK MATERIAL					
CECUM					
GROSS: FLUID					
CONTAINS BROWN FLUID					
BRAIN					
GROSS: HEMORRHAGE					
MENINGEAL, ENTIRE SURFACE					
MICRO+ 4 CONGESTION					
LUNGS					
MICRO: ((2)) HEMORRHAGE					
((2)) PNEUMONITIS, INTERSTITIAL					
THE LUNGS ARE MILDLY AUTOLYSED AND					
ATELECTATIC WHICH					
MAY MAKE THIS LESION APPEAR MORE					
PROMINENT THAN IT					
ACTUALLY IS.					
3 CONGESTION					
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:					
DUODENUM JEJUNUM ILEUM					
CECUM					

ANIMAL	12897E14	SCHEDULED KILL	22-SEP-87	STUDY DAY	96
ORGAN WEIGHT	ABS.(G)	REL.	TOTAL BODY		
LIVER	6.075	2.714	GROSS: THIN		
KIDNEYS	1.740	0.777	MODERATE		
SPLEEN	0.389	0.174	LIVER		
HEART	0.692	0.309	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)		
BRAIN	1.840	0.822	CECUM		
ADRENAL GL	0.060	0.027	GROSS: FLUID		
OVARIES	0.132	0.059	WATERY CONTENTS		
TERMINAL BODY WT.	223.9		CECUM		
			GROSS: DILATATION/DISTENTION		
			3X		
			COLON		

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 4000 PPM FEMALE

ANIMAL 12897E14 (CONTINUED)

GROSS: CONTENTS ABNORMAL
LOOSE FECES
SKIN, UNTREATED
GROSS: STAINED
PERIRECTAL, LOOSE FECES
MICRO: ((2)) HYPERKERATOSIS
LYMPH ND, MED
MICRO: 2 SINUS ERYTHROCYTOSIS
3 HEMOSIDEROSIS
LYMPH ND, MES
GROSS: COLOR CHANGE, DIFFUSE
RED
MICRO: 3 SINUS ERYTHROCYTOSIS
LYMPH ND, MES
GROSS: SIZE INCREASE
2X
MICRO: ((1)) HEMOSIDEROSIS
2 MASTOCYTOSIS
THYMIC REGION
GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
RED
KIDNEYS
MICRO: (1) TUBULAR PROTEINOSIS

ANIMAL 12947E15 SCHEDULED KILL 22-SEP-87 STUDY DAY 96

ORGAN WEIGHT	ABS.(G)	REL.	TOTAL BODY
LIVER	6.983	3.137	GROSS: THIN
KIDNEYS	1.751	0.787	MODERATE
SPLEEN	0.392	0.176	LIVER
HEART	0.886	0.398	MICRO: ((1)) MONONUCLEAR CELL INFILTRATE(S)
BRAIN	1.968	0.884	CECUM
ADRENAL GL	0.050	0.022	GROSS: FLUID
OVARIES	0.072	0.032	CONTENTS WATERY
TERMINAL BODY WT.	222.6		CECUM
			GROSS: DILATATION/DISTENTION
			MODERATE
			COLON
			GROSS: CONTENTS ABNORMAL
			LOOSE FECES
			SKIN, UNTREATED
			GROSS: STAINED
			PERIRECTAL AREA STAINED WITH FECES
			LYMPH ND, MES
			GROSS: COLOR CHANGE, DIFFUSE
			DARK RED
			MICRO: ((1)) SINUS ERYTHROCYTOSIS
			MICRO: 2 MASTOCYTOSIS

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 8000 PPM FEMALE

ANIMAL	FOUND DEAD	DATE	STUDY DAY
12908F01		24-JUN-87	6
TOTAL BODY			
GROSS:		EMACIATION	
STOMACH			
GROSS:		COLOR CHANGE, DIFFUSE GLANDULAR, LIGHT RED	
STOMACH			
GROSS:		FLUID CONTAINS DARK BROWN FLUID	
LIVER			
MICRO:		3	CONGESTION
ILEUM			
GROSS:		FLUID CONTAINS BROWN FLUID	
CECUM			
GROSS:		FLUID CONTAINS BROWN FLUID	
LYMPH ND, REN			
MICRO:		2	SINUS ERYTHROCYTOSIS
BRAIN			
GROSS:		HEMORRHAGE MENINGEAL, POSTERIOR FOSSA	
MICRO+:		3	CONGESTION
LUNGS			
GROSS:		COLOR CHANGE, FOCAL/MULTIFOCAL ALL LOBES MOTTLED LIGHT AND DARK PINK	
MICRO+((3))		HEMORRHAGE	
MICRO:		3	CONGESTION
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION: CECUM			

ANIMAL	FOUND DEAD	DATE	STUDY DAY
12918F02		22-JUN-87	4
JEJUNUM			
GROSS:		CONTENTS ABNORMAL CONTAINS BLACK MATERIAL	
ILEUM			
GROSS:		CONTENTS ABNORMAL CONTAINS BLACK MATERIAL	
ADRENAL GL			
GROSS:		SIZE INCREASE SLIGHT, BILATERAL	

ANIMAL	FOUND DEAD	DATE	STUDY DAY
12891F03		25-JUN-87	7
TOTAL BODY			
GROSS:		AUTOLYSIS 2	
TOTAL BODY			
GROSS:		EMACIATION	
STOMACH			
GROSS:		FLUID CONTAINS BROWN FLUID	
LIVER			
MICRO:		3	CONGESTION
MICRO:		2	HEPATOCELLULAR ATROPHY
CECUM			
GROSS:		FLUID CONTAINS BROWN FLUID	
SKIN, UNTREATED			
GROSS:		STAINED TAN, UROGENITAL AREA	
BRAIN			
GROSS:		HEMORRHAGE MENINGEAL, POSTERIOR FOSSA	
MICRO+:		3	CONGESTION

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 8000 PPM FEMALE

ANIMAL 12891F03 (CONTINUED)

LUNGS

GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
ALL LOBES MOTTLED LIGHT AND DARK PINK
MICRO: 4 CONGESTION
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:
DUODENUM CECUM

ANIMAL 12907F04 FOUND DEAD 22-JUN-87 STUDY DAY 4

TOTAL BODY
GROSS: AUTOLYSIS
STOMACH
GROSS: FLUID
FILLED WITH GREEN FLUID
ADRENAL GL
GROSS: SIZE INCREASE
ABOUT 1/3 LARGER THAN NORMAL
BRAIN
GROSS: HEMORRHAGE
MENINGEAL, ENTIRE SURFACE
KIDNEYS
GROSS: HYDRONEPHROSIS
RIGHT, SLIGHT; LEFT, MARKED

ANIMAL 12915F05 FOUND DEAD 23-JUN-87 STUDY DAY 5

TOTAL BODY
GROSS: EMACIATION
STOMACH
GROSS: COLOR CHANGE, DIFFUSE
GLANDULAR, LIGHT RED
LIVER
MICRO: 3 CONGESTION
2 HEPATOCELLULAR ATROPHY
DUODENUM
MICRO: ((2)) MUCOSAL CELL DEGENERATION
CECUM
GROSS: FLUID
CONTAINS BROWN FLUID
PAWS/FEET
GROSS: ERROR IN TOE CLIPPING
6 TOE
LUNGS
GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
ALL LOBES MOTTLED LIGHT AND DARK PINK
MICRO: ((2)) HEMORRHAGE
MICRO: 3 CONGESTION
(2) PNEUMONITIS, INTERSTITIAL
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:
CECUM

ANIMAL 12972F06 FOUND DEAD 22-JUN-87 STUDY DAY 4

TOTAL BODY
GROSS: EMACIATION
SKIN, UNTREATED
GROSS: STAINED
URINE, UROGENITAL AREA

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 8000 PPM FEMALE

ANIMAL	FOUND DEAD	23-JUN-87	STUDY DAY	5
ANIMAL 12927F07				
TOTAL BODY				
GROSS: EMACIATION				
LIVER				
MICRO: 3 CONGESTION				
MICRO: 1 HEPATOCELLULAR ATROPHY				
CECUM				
GROSS: FLUID				
CONTAINS BROWN FLUID				
LUNGS				
GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL				
ALL LOBES MOTTLED PINK AND DARK RED				
MICRO+ 4 CONGESTION				
ANIMAL 12881F08				
FOUND DEAD 24-JUN-87 STUDY DAY 6				
TOTAL BODY				
GROSS: EMACIATION				
STOMACH				
GROSS: FLUID				
CONTAINS DARK BROWN FLUID				
STOMACH				
GROSS: COLOR CHANGE, DIFFUSE				
GLANDULAR, LIGHT RED				
LIVER				
MICRO: 3 CONGESTION				
MICRO: 1 HEPATOCELLULAR ATROPHY				
JEJUNUM				
GROSS: CONTENTS ABNORMAL				
CONTAINS BLACK MATERIAL				
ILEUM				
GROSS: CONTENTS ABNORMAL				
CONTAINS BLACK MATERIAL				
CECUM				
GROSS: FLUID				
CONTAINS BROWN FLUID				
SPLEEN				
GROSS: SIZE DECREASE				
SLIGHT				
MICRO+ 4 CONTRACTED SPLEEN				
BRAIN				
GROSS: HEMORRHAGE				
MENINGEAL, POSTERIOR FOSSA				
MICRO+ 3 CONGESTION				
LUNGS				
GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL				
ALL LOBES MOTTLED LIGHT AND DARK RED				
MICRO+ 4 CONGESTION				
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:				
JEJUNUM ILEUM CECUM				
ANIMAL 12914F09				
FOUND DEAD 23-JUN-87 STUDY DAY 5				
TOTAL BODY				
GROSS: EMACIATION				
STOMACH				
GROSS: COLOR CHANGE, DIFFUSE				
GLANDULAR, LIGHT RED				
LIVER				
MICRO: 3 CONGESTION				
MICRO: 2 HEPATOCELLULAR ATROPHY				
CECUM				
GROSS: FLUID				
CONTAINS BROWN FLUID				
BRAIN				
GROSS: HEMORRHAGE				

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED

GROUP: 8000 PPM FEMALE

ANIMAL 12914F09 (CONTINUED)

MENINGEAL, POSTERIOR FOSSA
MICRO+ 3 CONGESTION
LUNGS
MICRO: 3 CONGESTION
((2)) HEMORRHAGE
(1) PNEUMONITIS, INTERSTITIAL
KIDNEYS
GROSS: HYDRONEPHROSIS
MODERATE, RIGHT KIDNEY
MICRO+ 3 HYDRONEPHROSIS
RIGHT
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:
CECUM

ANIMAL 12944F10 FOUND DEAD 24-JUN-87 STUDY DAY 6

TOTAL BODY
GROSS: EMACIATION
STOMACH
GROSS: FLUID
CONTAINS DARK BROWN FLUID
MICRO: ((2)) EDEMA
LIVER
MICRO: 4 CONGESTION
JEJUNUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
ILEUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
CECUM
GROSS: FLUID
CONTAINS BROWN FLUID
THYMIC REGION
GROSS: COLOR CHANGE, DIFFUSE
LIGHT RED
MICRO+((1)) HEMORRHAGE
BRAIN
GROSS: HEMORRHAGE
MENINGEAL, POSTERIOR FOSSA
MICRO: 3 CONGESTION
LUNGS
GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
ALL LOBES MOTTLED LIGHT AND DARK PINK
MICRO+((2)) HEMORRHAGE
MICRO: 4 CONGESTION
URINARY BLADDER
GROSS: FLUID
CONTAINS A SMALL AMOUNT OF LIGHT RED
FLUID
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:
JEJUNUM ILEUM CECUM

ANIMAL 12939F11 FOUND DEAD 22-JUN-87 STUDY DAY 4

TOTAL BODY
GROSS: EMACIATION
JEJUNUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
ILEUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
CECUM
GROSS: FLUID
CONTAINS BROWN FLUID

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

GROUP: 8000 PPM FEMALE ALL DEATHS COMBINED

ANIMAL 12939F11 (CONTINUED)

COLON
GROSS: FLUID
CONTAINS BROWN FLUID

ANIMAL 12910F12 FOUND DEAD 24-JUN-87 STUDY DAY 6

TOTAL BODY
GROSS: EMACIATION
LIVER
MICRO: 3 CONGESTION
JEJUNUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
ILEUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
CECUM
GROSS: FLUID
CONTAINS BROWN FLUID
SKIN, UNTREATED
GROSS: STAINED
RED, UROGENITAL AREA
BRAIN
GROSS: HEMORRHAGE
MENINGEAL, POSTERIOR FOSSA
MICRO: 2 CONGESTION
LUNGS
GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
ALL LOBES MOTTLED LIGHT AND DARK PINK
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:
JEJUNUM ILEUM CECUM

ANIMAL 12956F13 FOUND DEAD 23-JUN-87 STUDY DAY 5

TOTAL BODY
GROSS: EMACIATION
STOMACH
MICRO: ((3)) CONGESTION
LIVER
MICRO: 3 CONGESTION
2 HEPATOCELLULAR ATROPHY
DUODENUM
MICRO: ((3)) MUCOSAL CELL DEGENERATION
MAY BE PARTIALLY AUTOLYTIC ARTIFACT
JEJUNUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
ILEUM
GROSS: CONTENTS ABNORMAL
CONTAINS BLACK MATERIAL
CECUM
GROSS: FLUID
CONTAINS BROWN FLUID
MICRO: 3 CONGESTION
LUNGS
GROSS: COLOR CHANGE, FOCAL/MULTIFOCAL
ALL LOBES MOTTLED LIGHT AND DARK PINK
MICRO: ((1)) HEMORRHAGE
MICRO: 4 CONGESTION
((1)) PNEUMONITIS, INTERSTITIAL
THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:
JEJUNUM

PATHOLOGY RECORD
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
GROSS AND MICROSCOPIC OBSERVATIONS

ALL DEATHS COMBINED			
GROUP:	8000 PPM	FEMALE	
<u>ANIMAL 12871F14</u>	<u>FOUND DEAD</u>	<u>23-JUN-87</u>	<u>STUDY DAY 5</u>
		TOTAL BODY	
		GROSS:	EMACIATION
		STOMACH	
		GROSS:	FLUID
			CONTAINS BROWN FLUID
		DUODENUM	
		GROSS:	FLUID
			CONTAINS BROWN FLUID
		JEJUNUM	
		GROSS:	FLUID
			CONTAINS BROWN FLUID
		ILEUM	
		GROSS:	FLUID
			CONTAINS BROWN FLUID
		CECUM	
		GROSS:	FLUID
			CONTAINS BROWN FLUID
		COLON	
		GROSS:	FLUID
			CONTAINS BROWN FLUID
		HEAD	
		GROSS:	CRUST
			BROWN AND RED, PERINASAL AREA
		EYE	
		GROSS:	OPACITY
			CORNEAL, RIGHT EYE
		LUNGS	
		GROSS:	COLOR CHANGE, FOCAL/MULTIFOCAL
			ALL LOBES MOTTLED LIGHT AND DARK PINK
<u>ANIMAL 12924F15</u>	<u>FOUND DEAD</u>	<u>24-JUN-87</u>	<u>STUDY DAY 6</u>
		TOTAL BODY	
		GROSS:	EMACIATION
		STOMACH	
		MICRO: 2	EDEMA
			SUBMUCOSAL
		LIVER	
		MICRO: 3	CONGESTION
			HEPATOCELLULAR ATROPHY
		JEJUNUM	
		GROSS:	CONTENTS ABNORMAL
			CONTAINS BLACK MATERIAL
		ILEUM	
		GROSS:	CONTENTS ABNORMAL
			CONTAINS BLACK MATERIAL
		CECUM	
		GROSS:	FLUID
			CONTAINS BROWN FLUID
		SKIN, UNTREATED	
		GROSS:	STAINED
			URINE, UROGENITAL AREA
		BRAIN	
		GROSS:	HEMORRHAGE
			MENINGEAL, POSTERIOR FOSSA
		MICRO: 2	CONGESTION
		LUNGS	
		GROSS:	COLOR CHANGE, FOCAL/MULTIFOCAL
			ALL LOBES MOTTLED LIGHT AND DARK PINK
		MICRO+((3))	HEMORRHAGE
		MICRO: 4	CONGESTION
		KIDNEYS	
		MICRO: (P)	INFARCTION
			RIGHT
		THE FOLLOWING TISSUES WERE TOO AUTOLYZED FOR EVALUATION:	
		JEJUNUM	ILEUM
			CECUM

APPENDIX 3

Ninety-Day Dietary Toxicity Study with
Alkyl Dimethyl Benzyl Ammonium Chloride (ADBAC) in Rats

Clinical Pathology Report

(28 Pages)

APPENDIX 3

Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl Benzyl Ammonium Chloride (ADBAC) in Rats

Clinical Pathology Report

* * * * *

SUMMARY

Exposure of male and female rats to ADBAC for 13 weeks resulted in a decrease in glucose of all treated males. Additionally, increases in ALT and phosphorus were observed in males of the 4000 ppm group. No significant alterations were observed in other serum chemistry or hematologic parameters of male or female rats.

MATERIALS AND METHODS

In this study, male and female Sprague-Dawley rats were exposed to alkyl dimethyl benzyl ammonium chloride (ADBAC) in the diet for 90 days. Dosages were 0 (control), 100, 500, 1000, 4000 and 8000 ppm. All animals exposed to 8000 ppm were dead prior to sacrifice. Only three males and four females exposed to 4000 ppm survived to sacrifice and were used for clinical pathology.

Blood samples for clinical pathology analyses were collected by retroorbital bleeding from all surviving animals exposed to 4000 ppm and from 10 rats per sex per group sacrificed at 90 days. All analyses were performed in a predetermined random order.

Hematology

Approximately 1.0 ml of blood was collected into tubes containing EDTA as an anticoagulant (Vacutainer® Brand, Becton-Dickinson Company, Rutherford, NJ) for the hematologic determinations.

The following hematologic parameters were measured or calculated: 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 reticulocyte smears were prepared and evaluated for all surviving animals.

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

Serum Clinical Chemistry

Approximately 1.0 ml of blood was collected into tubes without anticoagulant (Vacutainer® Brand, Becton-Dickinson Company, Rutherford, NJ) for serum chemistry analyses.

The following clinical chemistry analyses were performed:

- | | |
|-------------------------------------|--------------------------------|
| 1. glucose | 10. total bilirubin |
| 2. urea nitrogen (UN) | 11. direct bilirubin |
| 3. creatinine | 12. indirect bilirubin |
| 4. aspartate aminotransferase (AST) | 13. gamma-glutamyl transferase |
| 5. alanine aminotransferase (ALT) | 14. alkaline phosphatase (ALK) |
| 6. total protein | 15. calcium |
| 7. albumin | 16. phosphorus |
| 8. globulin | 17. sodium |
| 9. albumin/globulin ratio | 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, creatinine, total and direct bilirubin, calcium, sodium, potassium and chloride. Indirect bilirubin is calculated as the difference between total and direct bilirubin. 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, total protein, albumin, gamma-glutamyl transferase, alkaline phosphatase and phosphorus. Globulin was calculated as the difference between total protein and albumin; albumin/globulin ratio was also 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.

Statistical Procedures

The results of the clinical pathology analyses from the experimental groups were compared to control using Levene's test for homogeneity of variance. An analysis of variance was performed on the groups with homogeneous variances and, if significant, group differences were delineated by grouped variance Student's t-test. When heterogeneous variances were indicated, Welch and Brown-Forsythe analyses were performed. If either was significant, group differences were determined by separate variance Student's t-test (Dixon, 1985).

Medians and quartile deviations were calculated for non-parametric data. These data were statistically analyzed by the Kruskal-Wallis test or by the Wilcoxon rank sum test as modified by Mann-Whitney.

RESULTS AND DISCUSSION

Hematology

The mean and median results of hematology determinations of male and female rats exposed to ADBAC in the diet for 90 days are presented in Tables 1 and 2, respectively. The individual data for these animals is found in Tables 3 and 4, respectively.

No significant alterations were observed in hematologic parameters of male or female rats exposed to ADBAC for 13 weeks. Although a slight (4%) decrease in hemoglobin concentration was observed in female rats exposed to 4000 ppm, only four females remained alive at the time of sacrifice. As a result of this small sample size, as well as the fact that there were no significant alterations in associated parameters (e.g. hemoglobin, erythrocyte indices or erythrocyte count), the decrease in hemoglobin is not considered biologically significant and is probably related to the debilitated condition of the animals.

Serum Clinical Chemistry

The mean results of clinical chemistry determinations of male and female rats exposed to ADBAC in the diet for 90 days are presented in Tables 5 and 6, respectively. The individual data for these animals is found in Tables 7 and 8, respectively.

Statistically significant decreases, 10% to 21% as compared to controls, were observed in glucose of all treated males. Due to the small magnitude of changes and the lack of a dose response in the 100, 500 and 1000 ppm dose groups, the biological significance of these changes is questionable.

Statistically significant increases, 50% in ALT as compared to controls, and 35% in phosphorus as compared to controls, was observed in 4000 ppm males. Only three of 10 animals in this group survived to sacrifice. This increase probably reflects the debilitated condition of this group of male rats. In the absence of histopathologic changes (see Appendix 2), the biologic significance is unclear. No other significant alterations were observed in other clinical pathology parameters monitored in either male or female rats.

A statistically significant decrease was observed in phosphorus of female rats exposed to 500 ppm. This decrease does not occur in a dose-related manner so is not considered biologically significant.

C. M. Troup
C. M. Troup, Ph.D.

3/27/88
Date

REFERENCES

Dixon, W. J. BMDP Statistical Software. University of California Press, Berkley, CA, 1985.

PATH/esk/1149P-8
03-29-88

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MEAN AND MEDIAN RESULTS OF HEMATOLOGICAL DETERMINATIONS AT 13 WEEKS
MALE

	LEUKO- CYTE THOU/UL	ERYTHRO- CYTES MIL/UL	HEMO- GLOBIN G/DL	HEMATO- CRIT %	MCV CUBIC U	MCH pg	MCHC G/DL	PLATE- LETS THOUS/UL	SEG'D NEUTRO- PHILS AB/VAL	LYMPHO- CYTES AB/VAL	MONO- CYTES AB/VAL	BASO- PHILS AB/VAL	EOSINO- PHILS AB/VAL
GROUP 1	0 PPM												
MEAN	10.3	8.4	15.7	42.2	50.2	18.7	37.2	1178.	1362.	7861.	1078.	0.	40.
S.D.	2.3	0.4	0.7	2.0	1.3	0.7	1.0	137.	668.	2155.	[388.]	[0.]	[52.]
N	10	10	10	10	10	10	10	10	10	10	10	10	10
GROUP 2	100 PPM												
MEAN	10.7	8.4	15.8	42.3	50.1	18.8	37.4	1209.	2526.	6955.	990.	0.	90.
S.D.	4.2	0.5	0.7	2.0	1.4	0.6	0.4	143.	3616.	1175.	[312.]	[0.]	[62.]
N	10	10	10	10	10	10	10	10	10	10	10	10	10
GROUP 3	500 PPM												
MEAN	10.4	8.5	15.9	42.8	50.4	18.8	37.2	1174.	1564.	7401.	1223.	0.	100.
S.D.	2.2	0.3	0.5	1.0	1.6	0.8	0.7	149.	787.	1591.	[136.]	[0.]	[103.]
N	10	10	10	10	10	10	10	10	10	10	10	10	10
GROUP 4	1000 PPM												
MEAN	9.8	8.5	16.1	43.2	50.9	19.1	37.4	1240.	1301.	7311.	1176.	0.	0.
S.D.	1.4	0.3	0.4	1.7	0.8	0.4	0.8	201.	496.	1559.	[196.]	[0.]	[42.]
N	10	10	10	10	10	10	10	10	10	10	10	10	10
GROUP 5	4000 PPM												
MEAN	8.1	8.5	16.7	44.4	52.1	19.6	37.6	1180.	1808.	5648.	469	0.	0.
S.D.	3.3	0.3	0.3	1.1	1.1	0.5	0.8	36.	1156.	1923.	[276.]	[0.]	[57.]
N	3	3	3	3	3	3	3	3	3	3	3	3	3

VALUES REPRESENT MEANS WITH THE EXCEPTION OF MONOCYTES, BASOPHILS, EOSINOPHILS, Banded NEUTROPHILS, LARGE MONOCYTES, IMMATURE GRANULOCYTES, AND NUCLEATED RBCs WHICH ARE MEDIANS.
[] QUARTILE DEVIATION

TABLE 1 (Continued)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MEAN AND MEDIAN RESULTS OF HEMATOLOGICAL DETERMINATIONS AT 13 WEEKS
MALE

	BANDED NEUTRO- PHILS AB/VAL	LARGE MONO- CYTES AB/VAL	IMMATURE GRANULO- CYTES AB/VAL	NUCLE- ATED RBC'S /100 WBC	RETICU- LOCYTES % RBC
GROUP 1	0 PPM				
MEAN	0.	0.	0.	0.	2.8
S.D.	[0.]	[0.]	[0.]	[0.]	0.7
N	10	10	10	10	10
GROUP 2	100 PPM				
MEAN	0.	0.	0.	0.	3.0
S.D.	[0.]	[0.]	[0.]	[0.]	0.3
N	10	10	10	10	10
GROUP 3	500 PPM				
MEAN	0.	0.	0.	0.	3.3
S.D.	[0.]	[0.]	[0.]	[0.]	0.3
N	10	10	10	10	10
GROUP 4	1000 PPM				
MEAN	0.	0.	0.	0.	3.0
S.D.	[0.]	[0.]	[0.]	[0.]	0.5
N	10	10	10	10	10
GROUP 5	4000 PPM				
MEAN	0.	0.	0.	0.	2.7
S.D.	[0.]	[0.]	[0.]	[0.]	0.4
N	3	3	3	3	3

VALUES REPRESENT MEANS WITH THE EXCEPTION OF MONOCYTES, BASOPHILS, EOSINOPHILS, BANDED NEUTROPHILS, LARGE MONOCYTES, IMMATURE GRANULOCYTES, AND NUCLEATED RBCs WHICH ARE MEDIANS.
[] QUARTILE DEVIATION

PATH/ESK/SUMRAD89.A13

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MEAN AND MEDIAN RESULTS OF HEMATOLOGICAL DETERMINATIONS AT 13 WEEKS
FEMALE

	LEUKO- CYTE THOU/UL	ERYTHRO- CYTES MIL/UL	HEMO- GLOBIN G/DL	HEMATO- CRIT %	MCV CUBIC U	MCH pg	MCHC G/DL	PLATE- LETS THOUS/UL	SEG'D NEUTRO- PHILS AB/VAL	LYMPHO- CYTES AB/VAL	MONO- CYTES AB/VAL	BASO- PHILS AB/VAL	EOSINO- PHILS AB/VAL
GROUP 1	0 PPM												
MEAN	7.4	7.8	15.5	41.3	52.8	19.8	37.4	1196.	943.	5884.	428.	0.	107.
S.D.	2.2	0.2	0.3	0.9	1.0	0.5	0.7	129.	673.	2315.	[188.]	[0.]	[70.]
N	10	10	10	10	10	10	10	10	10	10	10	10	10
GROUP 2	100 PPM												
MEAN	8.5	8.0	15.8	42.2	53.0	19.8	37.4	1178.	1353.	6458.	510.	0.	88.
S.D.	2.2	0.3	0.3	1.3	2.0	0.8	0.6	105.	885.	1730.	[130.]	[0.]	[66.]
N	10	10	10	10	10	10	10	10	10	10	10	10	10
GROUP 3	500 PPM												
MEAN	6.7	7.9	15.5	41.3	52.3	19.7	37.6	1167.	805.	5407.	394.	0.	64.
S.D.	2.3	0.2	0.4	1.0	1.4	0.6	0.5	157.	307.	2275.	[172.]	[0.]	[59.]
N	10	10	10	10	10	10	10	10	10	10	10	10	10
GROUP 4	1000 PPM												
MEAN	7.8	7.9	15.7	42.0	53.3	20.0	37.5	1201.	675.	6249.	655.	0.	145.
S.D.	1.7	0.2	0.4	1.3	1.4	0.5	0.6	126.	321.	1630.	[290.]	[0.]	[134.]
N	10	10	10	10	10	10	10	10	10	10	10	10	10
GROUP 5	4000 PPM												
MEAN	5.2	7.8	14.9*	40.4	51.7	19.1	36.9	1203.	860.	3880.	260.	0.	86.
S.D.	1.3	0.2	0.5	1.3	2.0	0.9	0.6	126.	602.	570.	[205.]	[0.]	[94.]
N	4	4	4	4	4	4	4	4	4	4	4	4	4

VALUES REPRESENT MEANS WITH THE EXCEPTION OF MONOCYTES, BASOPHILS, EOSINOPHILS, BANDED NEUTROPHILS, LARGE MONOCYTES, IMMATURE GRANULOCYTES, AND NUCLEATED RBCs WHICH ARE MEDIANS.

[] QUARTILE DEVIATION

* 0.05 > P > 0.01

TABLE 2 (Continued)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MEAN AND MEDIAN RESULTS OF HEMATOLOGICAL DETERMINATIONS AT 13 WEEKS
FEMALE

	BANDED NEUTRO- PHILS AB/VAL	LARGE MONO- CYTES AB/VAL	IMMATURE GRANULO- CYTES AB/VAL	NUCLE- ATED RBC'S /100 WBC	RETICU- LOCYTES % RBC
GROUP 1	0 PPM				
MEAN	0.	0.	0.	0.	2.7
S.D.	[0.]	[0.]	[0.]	[0.]	0.4
N	10	10	10	10	10
GROUP 2	100 PPM				
MEAN	0.	0.	0.	0.	3.0
S.D.	[0.]	[0.]	[0.]	[0.]	0.5
N	10	10	10	10	10
GROUP 3	500 PPM				
MEAN	0.	0.	0.	0.	3.1
S.D.	[0.]	[0.]	[0.]	[0.]	0.3
N	10	10	10	10	10
GROUP 4	1000 PPM				
MEAN	0.	0.	0.	0.	2.7
S.D.	[0.]	[0.]	[0.]	[0.]	0.4
N	10	10	10	10	10
GROUP 5	4000 PPM				
MEAN	0.	0.	0.	0.	3.2
S.D.	[0.]	[0.]	[0.]	[0.]	0.3
N	4	4	4	4	4

VALUES REPRESENT MEANS WITH THE EXCEPTION OF MONOCYTES, BASOPHILS, EOSINOPHILS, BANDED NEUTROPHILS, LARGE MONOCYTES, IMMATURE GRANULOCYTES, AND NUCLEATED RBCs WHICH ARE MEDIANS.
[] QUARTILE DEVIATION

PATH/ESK/SUFRADB9.A13/*C

TABLE 3
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL HEMATOLOGY DATA AT 13 WEEKS

ANIMAL NUMBER	LEUKO- CYTE THOU/UL	ERYTHRO- CYTES MIL/UL	HEMO- GLOBIN G/DL	HEMATO- CRIT %	MCV CUBIC U	MCH pg	MCHC G/DL	PLATE- LETS THOUS/UL	SEG'D NEUTRO- PHILS AB/VAL	LYMPHO- CYTES AB/VAL	MONO- CYTES AB/VAL	BASO- PHILS AB/VAL	EOSINO- PHILS AB/VAL
GROUP 1		0 PPM											
12746A01 M	7.9	7.9	13.9	39.1	49.2	17.5	35.5	1470.	1185.	6083.	553.	0.	79.
12783A03 M	11.1	8.2	15.6	40.6	49.4	19.0	38.5	1340.	888.	8991.	1221.	0.	0.
12802A04 M	8.1	8.1	15.1	39.4	48.8	18.7	38.3	1060.	1296.	6480.	324.	0.	0.
12829A06 M	15.1	8.7	16.2	44.5	51.1	18.6	36.4	1040.	906.	12835.	1359.	0.	0.
12827A07 M	11.6	9.1	16.2	44.9	49.4	17.8	36.0	1170.	1044.	9512.	928.	0.	116.
12815A08 M	10.4	8.5	16.3	43.2	51.0	19.2	37.6	1160.	1768.	7592.	936.	0.	104.
12817A10 M	11.9	8.1	15.9	42.3	52.1	19.6	37.6	1110.	3094.	7497.	1309.	0.	0.
12836A12 M	10.5	8.4	16.0	43.4	51.7	19.0	36.8	1040.	840.	7770.	1890.	0.	0.
12787A14 M	8.5	8.2	15.8	41.6	50.8	19.4	38.1	1200.	1275.	6290.	510.	0.	425.
12796A15 M	8.3	8.9	15.8	43.1	48.5	17.9	36.8	1190.	1328.	5561.	1328.	0.	83.
GROUP 2		100 PPM											
12843B02 M	11.7	9.0	16.0	43.1	47.6	17.7	37.2	1300.	936.	9126.	1404.	0.	234.
12786B04 M	9.7	8.9	16.6	44.5	50.0	18.7	37.3	1070.	1358.	6790.	1358.	0.	194.
12853B05 M	7.4	8.8	16.7	45.4	51.8	19.1	36.9	1160.	1332.	5476.	222.	0.	370.
12841B07 M	8.9	7.6	15.1	39.6	52.0	19.8	38.0	1310.	1869.	11.	356.	0.	89.
12764B08 M	10.4	8.1	15.8	42.2	51.8	19.4	37.4	1170.	832.	8528.	936.	0.	104.
12804B10 M	9.0	8.8	16.1	43.5	49.5	18.4	37.1	1170.	1350.	6570.	990.	0.	90.
12753B11 M	7.1	8.3	15.5	41.4	50.0	18.7	37.4	1180.	710.	5538.	781.	0.	71.
12765B12 M	21.9	8.1	14.6	39.7	48.7	17.9	36.7	1490.	12702.	7446.	1752.	0.	0.
12761B13 M	11.6	8.1	15.2	40.4	50.0	18.9	37.7	1270.	2552.	7192.	1856.	0.	0.
12839B15 M	9.0	8.7	16.3	43.1	49.7	18.9	37.9	970.	1620.	6300.	990.	0.	90.

TABLE 3 (Continued)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL HEMATOLOGY DATA AT 13 WEEKS

ANIMAL NUMBER	LEUKO- CYTE THOU/UL	ERYTHRO- CYTES MIL/UL	HEMO- GLOBIN G/DL	HEMATO- CRIT %	MCV CUBIC U	MCH pg	MCHC G/DL	PLATE- LETS THOUS/UL	SEG'D NEUTRO- PHILS AB/VAL	LYMPHO- CYTES AB/VAL	MONO- CYTES AB/VAL	BASO- PHILS AB/VAL	EOSINO- PHILS AB/VAL
GROUP 3	500 PPM												
12809C01 M	7.8	8.5	16.5	43.2	50.8	19.4	38.1	1020.	1482.	5460.	780.	0.	78.
12813C04 M	13.9	8.4	15.7	42.0	49.8	18.6	37.3	1370.	3614.	8479.	1807.	0.	0.
12744C06 M	11.7	8.5	15.7	42.3	49.7	18.5	37.1	1140.	2106.	8424.	1170.	0.	0.
12814C08 M	13.7	8.3	16.0	42.2	50.5	19.1	37.9	900.	1096.	10412.	1918.	0.	274.
12840C09 M	10.3	8.5	16.0	42.1	49.5	18.8	37.9	1090.	1133.	7519.	1442.	0.	206.
12805C11 M	8.9	8.0	16.3	43.3	53.8	20.2	37.6	1130.	979.	6675.	1246.	0.	0.
12842C12 M	10.0	9.0	16.3	44.9	50.0	18.1	36.2	1260.	1300.	7400.	1200.	0.	100.
12850C13 M	9.9	8.1	15.0	41.5	50.9	18.4	36.2	1310.	1287.	7326.	1188.	0.	99.
12806C14 M	7.5	9.0	15.6	42.8	47.3	17.3	36.5	1340.	1500.	4725.	1125.	0.	150.
12784C15 M	10.4	8.5	16.3	43.5	51.3	19.1	37.3	1180.	1144.	7592.	1248.	0.	416.
GROUP 4	1000 PPM												
12826D01 M	8.5	8.1	15.4	41.1	50.5	19.0	37.6	1450.	2125.	5270.	1105.	0.	0.
12818D03 M	10.1	8.9	16.7	46.8	52.7	18.9	35.8	1220.	1717.	6969.	1414.	0.	0.
12777D04 M	9.3	8.6	16.3	43.6	50.5	18.9	37.4	1040.	1302.	6696.	1023.	0.	279.
12825D08 M	9.3	8.3	16.2	42.5	51.2	19.5	38.0	1140.	558.	7533.	1209.	0.	0.
12742D09 M	12.9	8.7	16.1	44.0	50.3	18.4	36.6	1630.	645.	10707.	1548.	0.	0.
12778D10 M	9.8	8.4	15.7	42.2	50.3	18.7	37.2	1310.	1764.	6860.	1176.	0.	0.
12774D11 M	8.4	8.5	16.0	42.9	50.5	18.9	37.3	1330.	1428.	6468.	420.	0.	84.
12785D13 M	10.8	8.8	16.7	44.7	50.5	18.9	37.4	960.	1188.	7884.	1620.	0.	108.
12851D14 M	10.4	8.0	15.9	41.4	51.7	19.9	38.4	1080.	936.	8840.	624.	0.	0.
12801D15 M	8.4	8.3	16.3	42.4	50.7	19.5	38.4	1240.	1344.	5880.	1176.	0.	0.
GROUP 5	4000 PPM												
12763E01 M	5.7	8.9	17.0	45.2	50.9	19.1	37.5	1170.	855.	4332.	399.	0.	114.
12762E03 M	11.9	8.3	16.6	43.2	52.2	20.1	38.4	1220.	3094.	7854.	952.	0.	0.
12767E10 M	6.7	8.4	16.5	44.9	53.1	19.6	36.9	1150.	1474.	4757.	469.	0.	0.

TABLE 3 (Continued)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL HEMATOLOGY DATA AT 13 WEEKS

ANIMAL NUMBER	BANDED NEUTRO- PHILS AB/VAL	LARGE MONO- CYTES AB/VAL	IMMATURE GRANULO- CYTES AB/VAL	NUCLE- ATED RBC'S /100 WBC	RETICU- LOCYTES % RBC
GROUP 1	0 PPM				
12746A01 M	0.	0.	0.	1.	2.3
12783A03 M	0.	0.	0.	0.	3.9
12802A04 M	0.	0.	0.	0.	2.9
12829A06 M	0.	0.	0.	0.	3.1
12827A07 M	0.	0.	0.	0.	2.0
12815A08 M	0.	0.	0.	0.	2.4
12817A10 M	0.	0.	0.	0.	2.1
12836A12 M	0.	0.	0.	0.	3.7
12787A14 M	0.	0.	0.	0.	2.3
12796A15 M	0.	0.	0.	0.	3.1
GROUP 2	100 PPM				
12843B02 M	0.	0.	0.	0.	3.0
12786B04 M	0.	0.	0.	0.	2.6
12853B05 M	0.	0.	0.	1.	2.7
12841B07 M	0.	0.	0.	0.	2.9
12764B08 M	0.	0.	0.	0.	2.9
12804B10 M	0.	0.	0.	0.	3.1
12753B11 M	0.	0.	0.	0.	3.0
12765B12 M	0.	0.	0.	0.	3.6
12761B13 M	0.	0.	0.	0.	3.2
12839B15 M	0.	0.	0.	0.	3.1

TABLE 3 (Continued)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL HEMATOLOGY DATA

ANIMAL NUMBER	BANDED NEUTRO- PHILS AB/VAL	LARGE MONO- CYTES AB/VAL	IMMATURE GRANULO- CYTES AB/VAL	NUCLE- ATED RBC'S /100 WBC	RETICU- LOCYTES % RBC
GROUP 3	500 PPM				
12809C01 M	0.	0.	0.	0.	2.9
12813C04 M	0.	0.	0.	0.	3.5
12744C06 M	0.	0.	0.	0.	3.1
12814C08 M	0.	0.	0.	0.	3.0
12840C09 M	0.	0.	0.	0.	3.4
12805C11 M	0.	0.	0.	0.	3.5
12842C12 M	0.	0.	0.	0.	3.2
12850C13 M	0.	0.	0.	0.	3.7
12806C14 M	0.	0.	0.	0.	3.6
12784C15 M	0.	0.	0.	1.	3.5
GROUP 4	1000 PPM				
12826D01 M	0.	0.	0.	0.	3.8
12818D03 M	0.	0.	0.	0.	3.0
12777D04 M	0.	0.	0.	0.	3.7
12825D08 M	0.	0.	0.	0.	2.0
12742D09 M	0.	0.	0.	1.	3.2
12778D10 M	0.	0.	0.	0.	2.9
12774D11 M	0.	0.	0.	0.	3.1
12785D13 M	0.	0.	0.	0.	2.4
12851D14 M	0.	0.	0.	0.	3.1
12801D15 M	0.	0.	0.	0.	2.7
GROUP 5	4000 PPM				
12763E01 M	0.	0.	0.	0.	2.8
12762E03 M	0.	0.	0.	0.	2.3
12767E10 M	0.	0.	0.	0.	3.0

HEMATOLOGY ABBREVIATIONS

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MCV	MEAN CORPUSCULAR VOLUME
MCH	MEAN CORPUSCULAR HEMOGLOBIN
MCHC	MEAN CORPUSCULAR HEMOGLOBIN CONCENTRATION

PATH/ESK/NDMRADB9.A13/*C

TABLE 4
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL HEMATOLOGY DATA AT 13 WEEKS

ANIMAL NUMBER	LEUKO- CYTE THOU/UL	ERYTHRO- CYTES MIL/UL	HEMO- GLOBIN G/DL	HEMATO- CRIT %	MCV CUBIC U	MCH pg	MCHC G/DL	PLATE- LETS THOUS/UL	SEG'D NEUTRO- PHILS AB/VAL	LYMPHO- CYTES AB/VAL	MONO- CYTES AB/VAL	BASO- PHILS AB/VAL	EOSINO- PHILS AB/VAL
GROUP	1	0 PPM											
12966A01 F	6.4	7.4	15.6	40.6	55.2	21.1	38.3	1250.	448.	5376.	576.	0.	0.
12884A04 F	9.8	8.1	15.7	42.6	52.6	19.4	37.0	1050.	686.	8624.	294.	0.	196.
12872A06 F	6.2	7.8	15.5	40.8	52.0	19.7	37.9	1410.	1178.	4588.	372.	0.	62.
12913A07 F	5.2	7.9	15.6	41.8	52.5	19.6	37.3	1250.	624.	4160.	208.	0.	208.
12903A08 F	8.9	7.7	14.9	39.5	51.4	19.4	37.6	1180.	445.	7565.	712.	0.	178.
12880A09 F	5.6	8.0	16.1	41.9	52.0	20.1	38.5	1140.	616.	4592.	336.	0.	56.
12950A11 F	12.1	7.9	15.5	42.1	53.1	19.5	36.7	1270.	847.	10769.	484.	0.	0.
12976A12 F	7.6	7.8	15.1	41.3	52.6	19.3	36.6	1100.	2736.	3724.	988.	0.	152.
12973A13 F	6.5	7.7	15.2	41.4	53.5	19.7	36.7	990.	1040.	4485.	780.	0.	195.
12882A14 F	6.2	7.8	15.4	41.0	52.8	19.9	37.6	1320.	806.	4960.	372.	0.	62.
GROUP	2	100 PPM											
12933B01 F	12.4	7.7	15.7	42.5	55.2	20.5	37.1	1150.	3596.	7936.	868.	0.	0.
12936B02 F	11.1	7.7	15.8	42.2	54.4	20.4	37.4	1170.	1776.	8769.	555.	0.	0.
12888B03 F	6.5	8.2	16.5	45.3	55.5	20.3	36.5	1170.	1495.	4485.	260.	0.	260.
12909B04 F	6.3	8.3	15.5	41.6	49.8	18.6	37.2	1260.	1134.	4662.	378.	0.	126.
12899B05 F	6.6	8.1	15.7	41.8	51.5	19.3	37.4	1190.	1188.	4686.	594.	0.	132.
12932B06 F	9.3	7.7	15.9	41.6	54.3	20.7	38.1	1170.	1302.	7533.	372.	0.	93.
12955B08 F	9.1	8.4	16.1	42.6	50.7	19.2	37.9	1360.	1001.	6916.	1001.	0.	182.
12906B09 F	9.1	8.0	15.3	41.3	51.7	19.1	36.9	1020.	273.	8190.	637.	0.	0.
12974B12 F	5.8	7.4	15.5	40.5	54.4	20.9	38.4	1020.	928.	4350.	464.	0.	58.
12953B15 F	8.4	8.0	15.6	42.3	52.6	19.4	36.8	1270.	840.	7056.	420.	0.	84.

TABLE 4 (Continued)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL HEMATOLOGY DATA AT 13 WEEKS

ANIMAL NUMBER	LEUKO- CYTE THOU/UL	ERYTHRO- CYTES MIL/UL	HEMO- GLOBIN G/DL	HEMATO- CRIT %	MCV CUBIC U	MCH pg	MCHC G/DL	PLATE- LETS THOUS/UL	SEG'D NEUTRO- PHILS AB/VAL	LYMPHO- CYTES AB/VAL	MONO- CYTES AB/VAL	BASO- PHILS AB/VAL	EOSINO- PHILS AB/VAL
GROUP 3	500 PPM												
12869C01 F	11.0	7.5	15.8	41.3	54.9	21.0	38.3	1180.	1100.	9570.	330.	0.	0.
12892C02 F	5.2	7.8	15.1	39.8	51.1	19.4	37.9	1080.	884.	4056.	208.	0.	52.
12889C03 F	8.7	7.9	16.0	42.6	53.8	20.3	37.6	1290.	522.	7569.	609.	0.	0.
12885C04 F	5.9	8.1	15.5	41.2	51.0	19.2	37.6	1350.	1357.	4012.	413.	0.	118.
12937C06 F	3.4	7.8	14.8	39.6	50.9	19.0	37.3	890.	646.	2312.	374.	0.	68.
12940C08 F	6.6	8.1	15.6	41.8	51.6	19.3	37.4	1010.	792.	5478.	198.	0.	132.
12873C10 F	5.9	8.1	16.0	42.4	52.0	19.7	37.8	1400.	413.	4779.	649.	0.	59.
12902C12 F	6.2	7.8	15.8	42.1	53.8	20.2	37.5	1180.	1054.	4402.	620.	0.	124.
12895C13 F	9.2	7.9	15.4	40.8	51.4	19.4	37.7	1210.	828.	8096.	276.	0.	0.
12971C15 F	5.0	7.9	15.2	41.6	52.5	19.2	36.5	1080.	450.	3800.	650.	0.	100.
GROUP 4	1000 PPM												
12975D01 F	8.8	8.0	16.5	43.5	54.5	20.7	37.9	1030.	440.	7920.	440.	0.	0.
12876D02 F	9.8	7.6	15.7	42.0	55.3	20.7	37.4	1310.	490.	8134.	1176.	0.	0.
12920D04 F	8.6	7.6	15.6	41.3	54.3	20.6	37.9	1190.	344.	7052.	774.	0.	430.
12867D05 F	5.2	8.1	16.1	43.4	53.6	19.9	37.0	1240.	832.	3952.	312.	0.	104.
12945D06 F	6.7	8.0	15.9	42.2	52.4	19.7	37.6	1090.	737.	5159.	536.	0.	268.
12948D08 F	10.2	8.0	15.9	42.0	52.5	19.9	37.8	1020.	612.	8364.	1020.	0.	204.
12969D09 F	6.0	7.5	15.0	39.6	52.9	20.0	37.8	1350.	360.	5220.	300.	0.	120.
12875D10 F	8.5	8.1	15.7	43.4	53.8	19.4	36.1	1170.	765.	7055.	510.	0.	170.
12963D13 F	8.0	8.1	15.5	40.7	50.2	19.1	38.0	1230.	1440.	5120.	1040.	0.	400.
12905D14 F	6.1	7.7	15.5	41.5	53.8	20.1	37.3	1380.	732.	4514.	854.	0.	0.
GROUP 5	4000 PPM												
12979E03 F	7.0	8.0	14.3	39.3	48.9	17.8	36.3	1320.	1750.	4410.	840.	0.	0.
12926E12 F	4.3	7.8	15.1	40.2	51.5	19.4	37.6	1280.	688.	3139.	301.	0.	172.
12897E14 F	4.4	7.9	15.4	42.3	53.3	19.5	36.5	1170.	440.	3740.	220.	0.	0.
12947E15 F	5.1	7.5	14.8	39.7	53.0	19.8	37.3	1040.	561.	4233.	102.	0.	204.

TABLE 4 (Continued)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL HEMATOLOGY DATA AT 13 WEEKS

ANIMAL NUMBER	BANDED NEUTRO- PHILS AB/VAL	LARGE MONO- CYTES AB/VAL	IMMATURE GRANULO- CYTES AB/VAL	NUCLE- ATED RBC'S /100 WBC	RETICU- LOCYTES % RBC
GROUP 1	0 PPM				
12966A01 F	0.	0.	0.	0.	2.3
12884A04 F	0.	0.	0.	0.	2.5
12872A06 F	0.	0.	0.	0.	3.4
12913A07 F	0.	0.	0.	0.	2.7
12903A08 F	0.	0.	0.	0.	2.6
12880A09 F	0.	0.	0.	0.	2.9
12950A11 F	0.	0.	0.	0.	2.1
12976A12 F	0.	0.	0.	0.	2.9
12973A13 F	0.	0.	0.	0.	3.1
12882A14 F	0.	0.	0.	0.	2.4
GROUP 2	100 PPM				
12933B01 F	0.	0.	0.	0.	3.3
12936B02 F	0.	0.	0.	0.	3.0
12888B03 F	0.	0.	0.	0.	2.9
12909B04 F	0.	0.	0.	0.	2.6
12899B05 F	0.	0.	0.	1.	3.1
12932B06 F	0.	0.	0.	0.	3.8
12955B08 F	0.	0.	0.	0.	2.7
12906B09 F	0.	0.	0.	0.	1.8
12974B12 F	0.	0.	0.	0.	3.3
12953B15 F	0.	0.	0.	0.	3.3

TABLE 4 (Continued)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL HEMATOLOGY DATA AT 13 WEEKS

ANIMAL NUMBER	BANDED NEUTRO- PHILS AB/VAL	LARGE MONO- CYTES AB/VAL	IMMATURE GRANULO- CYTES AB/VAL	NUCLE- ATED RBC'S /100 WBC	RETICU- LOCYTES % RBC
GROUP 3	500 PPM				
12869C01 F	0.	0.	0.	0.	3.5
12892C02 F	0.	0.	0.	0.	2.9
12889C03 F	0.	0.	0.	0.	2.5
12885C04 F	0.	0.	0.	0.	3.1
12937C06 F	0.	0.	0.	0.	2.9
12940C08 F	0.	0.	0.	0.	3.0
12873C10 F	0.	0.	0.	0.	3.4
12902C12 F	0.	0.	0.	0.	3.2
12895C13 F	0.	0.	0.	0.	2.7
12971C15 F	0.	0.	0.	0.	3.4
GROUP 4	1000 PPM				
12975D01 F	0.	0.	0.	0.	2.9
12876D02 F	0.	0.	0.	0.	3.0
12920D04 F	0.	0.	0.	0.	2.4
12867D05 F	0.	0.	0.	0.	2.6
12945D06 F	0.	0.	0.	0.	2.8
12948D08 F	0.	0.	0.	0.	3.2
12969D09 F	0.	0.	0.	0.	2.5
12875D10 F	0.	0.	0.	0.	3.3
12963D13 F	0.	0.	0.	0.	2.1
12905D14 F	0.	0.	0.	0.	2.4
GROUP 5	4000 PPM				
12979E03 F	0.	0.	0.	0.	3.6
12926E12 F	0.	0.	0.	0.	3.1
12897E14 F	0.	0.	0.	0.	3.1
12947E15 F	0.	0.	0.	0.	2.9

HEMATOLOGY ABBREVIATIONS

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MCV	MEAN CORPUSCULAR VOLUME
MCH	MEAN CORPUSCULAR HEMOGLOBIN
MCHC	MEAN CORPUSCULAR HEMOGLOBIN CONCENTRATION

PATH/ESK/NDFRADB9.A13/*C

TABLE 5
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MEAN AND MEDIAN RESULTS OF CLINICAL CHEMISTRY PARAMETERS AT 13 WEEKS
MALE

	GLUCOSE g/L	UREA NITROGEN mg/L	CREAT- ININE mg/L	AST U/L	ALT U/L	TOTAL PROTEIN g/L	ALBUMIN g/L	GLOBULIN g/L	A/G	TOTAL BILI- RUBIN mg/L	DIRECT BILI- RUBIN mg/L	INDIRECT BILI mg/L	GGT U/L
GROUP 1	0 PPM												
MEAN	1.21	119.	6.	52.	14.	65.	33.	32.	1.05	3.	0.	3.	0.
S.D.	0.09	19.	1.	4.	3.	6.	2.	5.	0.16	1.	0.	1.	[0.]
N	10	10	10	10	10	10	10	10	10	10	10	10	10
GROUP 2	100 PPM												
MEAN	1.09**	130.	6.	51.	15.	65.	32.	33.	0.97	3.	0.	3.	0.
S.D.	0.09	50.	1.	7.	3.	3.	2.	4.	0.14	0.	0.	0.	[0.]
N	10	10	10	10	10	10	10	10	10	10	10	10	10
GROUP 3	500 PPM												
MEAN	1.09**	115.	6.	52.	16.	65.	33.	32.	1.04	3.	0.	3.	0.
S.D.	0.09	8.	1.	5.	2.	5.	2.	5.	0.17	0.	0.	0.	[0.]
N	10	10	10	10	10	10	10	10	10	10	10	10	10
GROUP 4	1000 PPM												
MEAN	1.06***	120.	6.	51.	14.	65.	32.	32.	1.02	3.	0.	3.	0.
S.D.	0.10	19.	1.	9.	4.	5.	2.	5.	0.17	0.	0.	0.	[0.]
N	10	10	10	10	10	10	10	10	10	10	10	10	10
GROUP 5	4000 PPM												
MEAN	0.95***	153.	7.	62.	21.**	59.	33.	26.	1.29	3.	0.	3.	0.
S.D.	0.08	23.	1.	11.	5.	2.	2.	2.	0.11	0.	0.	0.	[0.]
N	3	3	3	3	3	3	3	3	3	3	3	3	3

VALUES REPRESENT MEANS WITH THE EXCEPTION OF GGT WHICH IS MEDIAN.

[] QUARTILE DEVIATION

** 0.01 > P > 0.001

*** P < 0.001

TABLE 5 (Continued)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MEAN AND MEDIAN RESULTS OF CLINICAL CHEMISTRY PARAMETERS AT 13 WEEKS
MALE

		ALK PHOS'TSE U/L	CALCIUM mg/L	PHOS- PHOROUS MG/L	SODIUM mmol/L	POTAS- SIUM mmol/L	CHLORIDE mmol/L
GROUP	1	0 PPM					
	MEAN	54.	98.	59.	146.	5.2	103.
	S.D.	19.	4.	6.	2.	0.3	2.
	N	10	10	10	10	10	10
GROUP	2	100 PPM					
	MEAN	57.	96.	59.	146.	5.3	104.
	S.D.	14.	3.	3.	2.	0.5	1.
	N	10	10	10	10	10	10
GROUP	3	500 PPM					
	MEAN	61.	96.	60.	145.	5.2	104.
	S.D.	16.	4.	5.	2.	0.3	1.
	N	10	10	10	10	10	10
GROUP	4	1000 PPM					
	MEAN	57.	97.	61.	146.	5.3	103.
	S.D.	15.	4.	7.	2.	0.5	1.
	N	10	10	10	10	10	10
GROUP	5	4000 PPM					
	MEAN	65.	92.	80.***	145.	5.5	102.
	S.D.	16.	3.	8.	1.	0.3	1.
	N	3	3	3	3	3	3

VALUES REPRESENT MEANS WITH THE EXCEPTION OF GGT WHICH IS MEDIAN.

*** P < 0.001

PATH/ESK/SUMRADB9.B13/*C

TABLE 6
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MEAN AND MEDIAN RESULTS OF CLINICAL CHEMISTRY PARAMETERS AT 13 WEEKS
FEMALE

	GLUCOSE g/L	UREA NITROGEN mg/L	CREAT- ININE mg/L	AST U/L	ALT U/L	TOTAL PROTEIN g/L	ALBUMIN g/L	GLOBULIN g/L	A/G	TOTAL BILI- RUBIN mg/L	DIRECT BILI- RUBIN mg/L	INDIRECT BILI mg/L	GGT U/L
GROUP 1	0 PPM												
MEAN	1.03	152.	7.	55.	18.	63.	34.	29.	1.20	3.	0.	3.	0.
S.D.	0.14	38.	1.	9.	5.	2.	1.	2.	0.11	1.	0.	1.	[0.]
N	10	10	10	10	10	10	10	10	10	10	10	10	10
GROUP 2	100 PPM												
MEAN	1.13	149.	7.	56.	16.	65.	36.	33.	1.24	3.	0.	3.	0.
S.D.	0.09	61.	1.	6.	3.	3.	1.	13.	0.09	1.	0.	1.	[0.]
N	10	10	10	10	10	10	9	10	9	9	9	9	10
GROUP 3	500 PPM												
MEAN	1.12	136.	7.	55.	14.	66.	36.	34.	1.19	3.	0.	3.	0.
S.D.	0.11	19.	1.	10.	5.	2.	2.	12.	0.13	0.	0.	0.	[0.]
N	10	10	10	10	10	10	9	10	9	10	10	10	10
GROUP 4	1000 PPM												
MEAN	1.09	149.	6.	52.	16.	64.	35.	29.	1.22	4.	0.	4.	0.
S.D.	0.12	26.	1.	5.	3.	4.	3.	2.	0.08	1.	0.	1.	[0.]
N	10	10	10	10	10	10	10	10	10	10	10	10	10
GROUP 5	4000 PPM												
MEAN	0.92	255.	9.	61.	18.	62.	33.	30.	1.12	4.	0.	4.	0.
S.D.	0.14	185.	2.	3.	3.	7.	3.	5.	0.18	0.	0.	0.	[0.]
N	4	4	4	4	4	4	4	4	4	4	4	4	4

VALUES REPRESENT MEANS WITH THE EXCEPTION OF GGT WHICH IS MEDIAN.
[] QUARTILE DEVIATION

TABLE 6 (Continued)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
MEAN AND MEDIAN RESULTS OF CLINICAL CHEMISTRY PARAMETERS AT 13 WEEKS
FEMALE

	ALK PHOS'TSE U/L	CALCIUM mg/L	PHOS- PHOROUS MG/L	SODIUM mmol/L	POTAS- SIUM mmol/L	CHLORIDE mmol/L
GROUP 1	0 PPM					
MEAN	38.	91.	55.	145.	5.4	106.
S.D.	10.	14.	7.	2.	0.5	4.
N	10	10	10	10	10	10
GROUP 2	100 PPM					
MEAN	36.	98.	52.	146.	5.2	106.
S.D.	9.	5.	6.	2.	0.3	4.
N	10	9	9	10	10	10
GROUP 3	500 PPM					
MEAN	39.	101.	46.**	146.	5.1	108.
S.D.	10.	2.	9.	2.	0.5	2.
N	10	10	10	10	10	10
GROUP 4	1000 PPM					
MEAN	36.	98.	52.	145.	5.2	106.
S.D.	11.	10.	7.	1.	0.4	2.
N	10	10	10	10	10	10
GROUP 5	4000 PPM					
MEAN	45.	100.	63.	145.	5.4	103.
S.D.	37.	8.	6.	1.	0.6	3.
N	4	4	4	4	4	4

VALUES REPRESENT MEANS WITH THE EXCEPTION OF GGT WHICH IS MEDIAN.

** 0.01 > P > 0.001

PATH/ESK/SUFRAD89.B13/*C

TABLE 7
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL SERUM CHEMISTRY DATA AT 13 WEEKS

ANIMAL NUMBER	GLUCOSE g/L	UREA NITROGEN mg/L	CREAT- ININE mg/L	AST U/L	ALT U/L	TOTAL PROTEIN g/L	ALBUMIN g/L	GLOBULIN g/L	A/G	TOTAL BILI- RUBIN mg/L	DIRECT BILI- RUBIN mg/L	INDIRECT BILI mg/L	GGT U/L
GROUP 1		0 PPM											
12746A01 M	1.26	150.	7.	53.	14.	62.	34.	28.	1.21	2.	0.	2.	0.
12783A03 M	1.19	100.	5.	47.	10.	65.	31.	34.	0.91	3.	0.	3.	0.
12802A04 M	1.21	110.	7.	52.	16.	62.	32.	30.	1.07	2.	0.	2.	0.
12829A06 M	1.15	130.	6.	54.	12.	64.	34.	30.	1.13	3.	0.	3.	0.
12827A07 M	1.12	100.	5.	50.	11.	58.	30.	28.	1.07	3.	0.	3.	0.
12815A08 M	1.11	120.	7.	48.	10.	72.	31.	41.	0.76	4.	0.	4.	0.
12817A10 M	1.35	150.	7.	61.	16.	58.	32.	26.	1.23	2.	0.	2.	0.
12836A12 M	1.19	100.	6.	47.	12.	63.	34.	29.	1.17	3.	0.	3.	0.
12787A14 M	1.17	110.	5.	50.	14.	74.	34.	40.	0.85	3.	0.	3.	0.
12796A15 M	1.37	120.	5.	56.	21.	71.	37.	34.	1.09	2.	0.	2.	0.
GROUP 2		100 PPM											
12843802 M	1.13	130.	5.	51.	19.	61.	32.	29.	1.10	3.	0.	3.	0.
12786B04 M	1.00	110.	6.	61.	12.	68.	35.	33.	1.06	3.	0.	3.	0.
12853B05 M	1.18	100.	6.	52.	14.	65.	33.	32.	1.03	3.	0.	3.	0.
12841B07 M	1.02	120.	6.	51.	14.	62.	32.	30.	1.07	3.	0.	3.	0.
12764B08 M	1.07	130.	6.	45.	10.	67.	30.	37.	0.81	3.	0.	3.	0.
12804B10 M	1.25	100.	6.	45.	15.	70.	32.	38.	0.84	3.	0.	3.	0.
12753B11 M	1.09	110.	6.	47.	14.	62.	33.	29.	1.14	3.	0.	3.	0.
12765B12 M	0.95	270.	7.	63.	20.	67.	30.	37.	0.81	3.	0.	3.	0.
12761B13 M	1.09	110.	6.	47.	15.	64.	33.	31.	1.06	3.	0.	3.	0.
12839B15 M	1.09	120.	5.	44.	13.	68.	30.	38.	0.79	3.	0.	3.	0.

TABLE 7 (Continued)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL SERUM CHEMISTRY DATA AT 13 WEEKS

ANIMAL NUMBER	ALK PHOS'TSE U/L	CALCIUM mg/L	PHOS- PHOROUS MG/L	SODIUM mmol/L	POTAS- SIUM mmol/L	CHLORIDE mmol/L
GROUP 1		0 PPM				
12746A01 M	40.	97.	54.	145.	5.2	104.
12783A03 M	92.	93.	53.	147.	4.9	103.
12802A04 M	34.	98.	63.	148.	5.4	104.
12829A06 M	49.	99.	67.	146.	5.8	107.
12827A07 M	55.	91.	65.	144.	5.1	105.
12815A08 M	38.	97.	48.	148.	4.9	103.
12817A10 M	39.	97.	65.	144.	5.2	103.
12836A12 M	78.	100.	60.	146.	5.0	101.
12787A14 M	57.	102.	58.	147.	5.2	103.
12796A15 M	62.	104.	56.	143.	5.3	100.
GROUP 2		100 PPM				
12843B02 M	50.	97.	61.	147.	5.4	102.
12786B04 M	41.	102.	61.	145.	6.0	102.
12853B05 M	63.	93.	58.	146.	5.7	104.
12841B07 M	37.	97.	60.	146.	5.2	104.
12764B08 M	76.	94.	55.	142.	4.9	103.
12804B10 M	75.	96.	58.	149.	5.7	105.
12753B11 M	48.	95.	55.	145.	4.7	104.
12765B12 M	68.	93.	63.	144.	5.8	103.
12761B13 M	46.	98.	62.	147.	4.9	104.
12839B15 M	69.	94.	59.	145.	4.8	105.

TABLE 7 (Continued)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL SERUM CHEMISTRY DATA AT 13 WEEKS

ANIMAL NUMBER	GLUCOSE g/L	UREA NITROGEN mg/L	CREAT- ININE mg/L	AST U/L	ALT U/L	TOTAL PROTEIN g/L	ALBUMIN g/L	GLOBULIN g/L	A/G	TOTAL BILI- RUBIN mg/L	DIRECT BILI- RUBIN mg/L	INDIRECT BILI mg/L	GGT U/L
GROUP 3		500 PPM											
12809C01 M	0.97	110.	5.	51.	15.	68.	30.	38.	0.79	3.	0.	3.	0.
12813C04 M	1.03	130.	6.	48.	12.	69.	31.	38.	0.82	3.	0.	3.	0.
12744C06 M	0.98	110.	6.	60.	19.	58.	31.	27.	1.15	3.	0.	3.	0.
12814C08 M	1.07	120.	5.	50.	14.	72.	32.	40.	0.80	3.	0.	3.	0.
12840C09 M	1.17	130.	7.	44.	13.	63.	32.	31.	1.03	3.	0.	3.	0.
12805C11 M	1.25	110.	7.	49.	17.	65.	35.	30.	1.17	3.	0.	3.	0.
12842C12 M	1.14	110.	7.	54.	18.	68.	36.	32.	1.13	3.	0.	3.	0.
12850C13 M	1.05	110.	6.	51.	14.	62.	34.	28.	1.21	3.	0.	3.	0.
12806C14 M	1.17	110.	6.	59.	16.	59.	31.	28.	1.11	2.	0.	2.	0.
12784C15 M	1.08	110.	7.	58.	18.	63.	34.	29.	1.17	2.	0.	2.	0.
GROUP 4		1000 PPM											
12826D01 M	0.94	130.	6.	54.	13.	72.	33.	39.	0.85	3.	0.	3.	0.
12818D03 M	0.99	110.	6.	61.	14.	60.	33.	27.	1.22	3.	0.	3.	0.
12777D04 M	1.12	90.	7.	60.	22.	65.	33.	32.	1.03	3.	0.	3.	0.
12825D08 M	1.12	130.	7.	42.	13.	63.	30.	33.	0.91	3.	0.	3.	0.
12742D09 M	0.98	130.	6.	48.	14.	64.	33.	31.	1.06	3.	0.	3.	0.
12778D10 M	1.25	150.	5.	36.	7.	74.	32.	42.	0.76	3.	0.	3.	0.
12774D11 M	1.14	130.	5.	55.	16.	62.	34.	28.	1.21	2.	0.	2.	0.
12785D13 M	1.04	120.	7.	61.	17.	65.	34.	31.	1.10	3.	0.	3.	0.
12851D14 M	0.94	90.	6.	40.	9.	63.	29.	34.	0.85	3.	0.	3.	0.
12801D15 M	1.03	120.	6.	49.	14.	60.	33.	27.	1.22	4.	0.	4.	0.
GROUP 5		4000 PPM											
12763E01 M	0.87	140.	8.	72.	21.	60.	35.	25.	1.40	3.	0.	3.	0.
12762E03 M	0.94	140.	6.	50.	16.	57.	32.	25.	1.28	3.	0.	3.	0.
12767E10 M	1.03	180.	7.	63.	26.	61.	33.	28.	1.18	3.	0.	3.	0.

TABLE 7 (Continued)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL SERUM CHEMISTRY DATA AT 13 WEEKS

ANIMAL NUMBER	ALK PHOS'TSE U/L	CALCIUM mg/L	PHOS- PHOROUS MG/L	SODIUM mmol/L	POTAS- SIUM mmol/L	CHLORIDE mmol/L
GROUP 3		500 PPM				
12809C01 M	47.	90.	59.	147.	5.0	104.
12813C04 M	43.	90.	58.	140.	5.1	103.
12744C06 M	56.	94.	64.	145.	4.8	104.
12814C08 M	85.	94.	57.	142.	5.3	103.
12840C09 M	60.	97.	66.	146.	5.4	103.
12805C11 M	83.	102.	62.	145.	5.5	103.
12842C12 M	47.	98.	58.	145.	5.5	101.
12850C13 M	72.	100.	61.	145.	5.0	105.
12806C14 M	69.	95.	64.	147.	4.8	106.
12784C15 M	47.	99.	50.	145.	5.1	104.
GROUP 4		1000 PPM				
12826D01 M	89.	102.	59.	145.	5.2	103.
12818D03 M	52.	95.	52.	146.	5.4	103.
12777D04 M	57.	100.	67.	148.	6.4	106.
12825D08 M	69.	94.	51.	145.	5.3	103.
12742D09 M	41.	95.	64.	146.	5.7	103.
12778D10 M	56.	102.	57.	144.	4.9	102.
12774D11 M	48.	95.	67.	144.	5.5	102.
12785D13 M	58.	102.	60.	146.	5.1	104.
12851D14 M	63.	91.	60.	150.	4.4	103.
12801D15 M	33.	96.	72.	143.	5.5	103.
GROUP 5		4000 PPM				
12763E01 M	83.	96.	72.	145.	5.8	101.
12762E03 M	59.	91.	87.	145.	5.4	103.
12767E10 M	53.	90.	81.	144.	5.3	103.

PATH/ESK/NDMRADB9.B13/*C

TABLE 8
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL SERUM CHEMISTRY DATA AT 13 WEEKS

ANIMAL NUMBER	GLUCOSE g/L	UREA NITROGEN mg/L	CREAT- ININE mg/L	AST U/L	ALT U/L	TOTAL PROTEIN g/L	ALBUMIN g/L	GLOBULIN g/L	A/G	TOTAL BILI- RUBIN mg/L	DIRECT BILI- RUBIN mg/L	INDIRECT BILI mg/L	GGT U/L
GROUP 1		0 PPM											
12966A01 F	0.92	190.	7.	66.	19.	62.	34.	28.	1.21	3.	0.	3.	0.
12884A04 F	0.92	140.	5.	54.	24.	63.	32.	31.	1.03	3.	0.	3.	0.
12872A06 F	0.95	240.	7.	52.	15.	64.	34.	30.	1.13	5.	0.	5.	0.
12913A07 F	1.19	140.	6.	49.	19.	65.	35.	30.	1.17	3.	0.	3.	0.
12903A08 F	1.00	160.	8.	65.	25.	65.	33.	32.	1.03	3.	0.	3.	0.
12880A09 F	1.31	150.	7.	55.	15.	61.	34.	27.	1.26	3.	0.	3.	0.
12950A11 F	0.99	120.	7.	56.	15.	60.	34.	26.	1.31	4.	0.	4.	0.
12976A12 F	0.86	140.	6.	46.	11.	66.	37.	29.	1.28	3.	0.	3.	0.
12973A13 F	1.02	130.	7.	69.	23.	62.	36.	26.	1.38	4.	0.	4.	1.
12882A14 F	1.10	110.	6.	39.	9.	64.	35.	29.	1.21	3.	0.	3.	0.
GROUP 2		100 PPM											
12933B01 F	0.93	320.	7.	56.	21.	66.	QNS	68.	QNS	3.	0.	3.	0.
12936B02 F	1.11	140.	6.	57.	18.	64.	35.	29.	1.21	4.	0.	4.	0.
12888B03 F	1.23	140.	8.	53.	14.	65.	35.	30.	1.17	4.	0.	4.	0.
12909B04 F	1.12	120.	8.	70.	12.	62.	35.	27.	1.30	3.	0.	3.	0.
12899B05 F	1.15	140.	8.	54.	16.	69.	36.	33.	1.09	4.	0.	4.	0.
12932B06 F	1.12	120.	6.	61.	18.	60.	33.	27.	1.22	3.	0.	3.	0.
12955B08 F	1.26	110.	6.	54.	21.	66.	37.	29.	1.28	4.	0.	4.	0.
12906B09 F	1.11	130.	5.	51.	12.	62.	35.	27.	1.30	QNS	QNS	QNS	0.
12974B12 F	1.12	150.	7.	56.	13.	65.	38.	27.	1.41	3.	0.	3.	0.
12953B15 F	1.11	120.	7.	51.	16.	67.	36.	31.	1.16	3.	0.	3.	0.
QNS -QTY NOT SUFFICIENT													

TABLE 8 (Continued)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL SERUM CHEMISTRY DATA AT 13 WEEKS

ANIMAL NUMBER	ALK PHOS-TSE U/L	CALCIUM mg/L	PHOS- PHOROUS MG/L	SODIUM mmol/L	POTAS- SIUM mmol/L	CHLORIDE mmol/L
GROUP	1	0 PPM				
12966A01 F	27.	100.	59.	145.	6.6	107.
12884A04 F	50.	99.	61.	143.	5.3	95.
12872A06 F	49.	62.	62.	147.	5.1	107.
12913A07 F	51.	103.	45.	146.	5.1	108.
12903A08 F	27.	102.	52.	149.	5.1	107.
12880A09 F	38.	96.	49.	146.	5.1	108.
12950A11 F	44.	77.	59.	144.	5.1	105.
12976A12 F	28.	96.	63.	144.	5.9	104.
12973A13 F	34.	101.	48.	144.	5.2	107.
12882A14 F	29.	78.	50.	146.	5.1	107.
GROUP	2	100 PPM		100 PPM		
12933B01 F	38.	103.	QNS	146.	5.3	95.
12936B02 F	48.	98.	55.	148.	5.6	108.
12888B03 F	36.	99.	46.	146.	5.2	107.
12909B04 F	43.	95.	49.	145.	5.5	108.
12899B05 F	23.	103.	47.	144.	4.9	105.
12932B06 F	24.	96.	63.	146.	5.1	107.
12955B08 F	43.	88.	53.	146.	4.8	105.
12906B09 F	25.	QNS	57.	150.	5.3	108.
12974B12 F	46.	99.	44.	144.	5.1	107.
12953B15 F	33.	105.	51.	145.	4.7	107.
QNS -QTY NOT SUFFICIENT						

TABLE 8 (Continued)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL SERUM CHEMISTRY DATA AT 13 WEEKS

ANIMAL NUMBER	GLUCOSE g/L	UREA NITROGEN mg/L	CREAT- ININE mg/L	AST U/L	ALT U/L	TOTAL PROTEIN g/L	ALBUMIN g/L	GLOBULIN g/L	A/G	TOTAL BILI- RUBIN mg/L	DIRECT BILI- RUBIN mg/L	INDIRECT BILI mg/L	GGT U/L
GROUP 3	500 PPM												
12869C01 F	1.10	160.	6.	55.	18.	65.	32.	33.	0.97	3.	0.	3.	0.
12892C02 F	1.16	130.	8.	49.	10.	71.	39.	32.	1.22	3.	0.	3.	0.
12889C03 F	1.13	110.	6.	38.	7.	65.	37.	28.	1.32	4.	0.	4.	0.
12885C04 F	1.02	130.	8.	63.	12.	69.	35.	34.	1.03	3.	0.	3.	0.
12937C06 F	1.31	140.	8.	63.	13.	64.	36.	28.	1.29	3.	0.	3.	1.
12940C08 F	1.02	130.	7.	52.	13.	64.	35.	29.	1.21	4.	0.	4.	2.
12873C10 F	1.09	110.	6.	46.	14.	66.	36.	30.	1.20	3.	0.	3.	0.
12902C12 F	1.01	140.	7.	53.	16.	63.	33.	30.	1.10	3.	0.	3.	1.
12895C13 F	1.07	140.	6.	53.	12.	66.	QNS	68.	QNS	4.	0.	4.	0.
12971C15 F	1.31	170.	8.	76.	26.	64.	37.	27.	1.37	3.	0.	3.	0.
GROUP 4	1000 PPM												
12975D01 F	1.05	170.	7.	58.	21.	61.	35.	26.	1.35	3.	0.	3.	0.
12876D02 F	1.15	200.	8.	54.	18.	63.	34.	29.	1.17	4.	0.	4.	0.
12920D04 F	0.81	150.	6.	48.	12.	61.	34.	27.	1.26	4.	0.	4.	1.
12867D05 F	1.12	110.	6.	59.	16.	66.	35.	31.	1.13	3.	0.	3.	0.
12945D06 F	1.02	160.	7.	43.	16.	62.	34.	28.	1.21	3.	0.	3.	0.
12948D08 F	1.05	120.	6.	53.	19.	64.	34.	30.	1.13	3.	0.	3.	1.
12969D09 F	1.19	150.	6.	53.	16.	72.	40.	32.	1.25	3.	0.	3.	0.
12875D10 F	1.26	130.	6.	46.	13.	70.	40.	30.	1.33	4.	0.	4.	1.
12963D13 F	1.10	150.	6.	56.	15.	66.	35.	31.	1.13	4.	0.	4.	0.
12905D14 F	1.12	150.	6.	51.	12.	58.	32.	26.	1.23	4.	0.	4.	0.
GROUP 5	4000 PPM												
12979E03 F	1.12	530.	12.	64.	18.	64.	30.	34.	0.88	4.	0.	4.	0.
12926E12 F	0.92	180.	7.	60.	15.	62.	34.	28.	1.21	4.	0.	4.	0.
12897E14 F	0.83	130.	8.	57.	16.	53.	30.	23.	1.30	4.	0.	4.	0.
12947E15 F	0.81	180.	7.	61.	22.	71.	37.	34.	1.09	4.	0.	4.	0.
QNS -QTY NOT SUFFICIENT													

TABLE 8 (Continued)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL SERUM CHEMISTRY DATA AT 13 WEEKS

ANIMAL NUMBER	ALK PHOS'TSE U/L	CALCIUM mg/L	PHOS- PHOROUS MG/L	SODIUM mmol/L	POTAS- SIUM mmol/L	CHLORIDE mmol/L
GROUP 3		500 PPM				
12869C01 F	22.	104.	54.	145.	5.4	106.
12892C02 F	32.	101.	41.	146.	4.5	109.
12889C03 F	36.	105.	50.	147.	5.7	109.
12885C04 F	47.	100.	43.	147.	5.1	109.
12937C06 F	58.	97.	39.	145.	4.4	106.
12940C08 F	40.	99.	49.	147.	4.7	106.
12873C10 F	38.	101.	53.	146.	4.8	106.
12902C12 F	28.	103.	59.	149.	5.8	111.
12895C13 F	40.	102.	29.	143.	5.1	106.
12971C15 F	48.	100.	40.	145.	5.3	107.
GROUP 4		1000 PPM				
12975D01 F	43.	98.	52.	145.	5.2	106.
12876D02 F	45.	93.	51.	147.	4.9	108.
12920D04 F	21.	73.	60.	145.	5.4	105.
12867D05 F	44.	102.	50.	146.	5.9	110.
12945D06 F	31.	94.	45.	144.	5.1	104.
12948D08 F	23.	105.	61.	146.	5.6	106.
12969D09 F	39.	104.	38.	143.	5.0	105.
12875D10 F	21.	105.	52.	145.	4.5	105.
12963D13 F	41.	101.	58.	145.	4.9	105.
12905D14 F	51.	100.	53.	144.	5.6	106.
GROUP 5		4000 PPM				
12979E03 F	100.	107.	58.	146.	5.0	99.
12926E12 F	33.	97.	70.	143.	6.1	105.
12897E14 F	29.	90.	64.	146.	4.8	103.
12947E15 F	18.	105.	59.	145.	5.7	104.
PATH/ESK/NDFRADB9.B13/*C						

APPENDIX 4

Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl Benzyl
Ammonium Chloride (ADBAC) in Rats

Individual Clinical Observations

Abbreviations:

ANS = Anus
BCK = Back
BDY = Entire Body
EYB = Eye-Both
EYL = Eye-Left
EYR = Eye-Right
LAL = Legs-All
LFB = Leg Front Both
LHB = Leg-Hind-Both
MUL = Multiple Areas, NOS
NCK = Neck
PNS = Penis

(18 pages)

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL PHYSICAL EXAMINATION FINDINGS - CHRONOLOGICAL LIST
MALES

DOSAGE GROUP	ANIMAL	CATEGORY	#	STUDY DAYS	FINDING
0 PPM	12746A01	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12807A02	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12783A03	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12802A04	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12821A05	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12829A06	NORMAL	15	0- 95	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12827A07	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12815A08	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12837A09	NORMAL	7	0- 42	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
		SKIN	8	49- 95	ALOPECIA (LFB 7, MUL 1)
	12817A10	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12844A11	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12836A12	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12755A13	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12787A14	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12796A15	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
100 PPM	12793B01	NORMAL	13	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL PHYSICAL EXAMINATION FINDINGS - CHRONOLOGICAL LIST
MALES

DOSAGE GROUP	ANIMAL	CATEGORY	#	STUDY DAYS	FINDING
100 PPM	12793B01	DEAD	1	95- 95	SCHEDULED SACRIFICE
		EYES/EARS/NOSE	1	84	PERIOcular ENCRUSTATION (EYL 1)
	12843B02	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12831B03	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12786B04	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12853B05	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12756B06	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12841B07	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12764B08	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12808B09	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12804B10	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12753B11	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12765B12	NORMAL	15	0- 95	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12761B13	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12834B14	NORMAL	9	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
		SKIN	5	35- 63	ULCER (NCK 5)
	12839B15	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
500 PPM	12809C01	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL PHYSICAL EXAMINATION FINDINGS - CHRONOLOGICAL LIST
MALES

DOSAGE GROUP	ANIMAL	CATEGORY	#	STUDY DAYS	FINDING
500 PPM					
	12809C01	DEAD	1	95- 95	SCHEDULED SACRIFICE
	12846C02	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12848C03	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12813C04	NORMAL	13	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
		EYES/EARS/NOSE	1	77	PERIOULAR ENCRUSTATION (EYB 1)
		ORAL/DENTAL	1	77	OVERGROWN INCISORS
	12772C05	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12744C06	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12773C07	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12814C08	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12840C09	NORMAL	7	0- 42	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
		EYES/EARS/NOSE	5	70- 95	PERIOULAR ENCRUSTATION (EYR 5)
			3	49- 63	OCULAR DISCHARGE (EYB 3)
		ORAL/DENTAL	7	49- 91	OVERGROWN INCISORS
	12855C10	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12805C11	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12842C12	NORMAL	15	0- 95	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12850C13	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12806C14	NORMAL	8	0- 49	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL PHYSICAL EXAMINATION FINDINGS - CHRONOLOGICAL LIST
MALES

DOSAGE GROUP	ANIMAL	CATEGORY	#	STUDY DAYS	FINDING
500 PPM	12806C14	SKIN	7	56- 95	ALOPECIA (LFB 7)
	12784C15	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
1000 PPM	12826D01	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12819D02	NORMAL	13	0- 84	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
		EYES/EARS/NOSE	2	91- 95	PERIOCULAR ENCRUSTATION (EYR 2)
	12818D03	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12777D04	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12835D05	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12782D06	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12823D07	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12825D08	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12742D09	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12778D10	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12774D11	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12849D12	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12785D13	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
	12851D14	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL PHYSICAL EXAMINATION FINDINGS - CHRONOLOGICAL LIST
MALES

DOSAGE GROUP	ANIMAL	CATEGORY	#	STUDY DAYS	FINDING
1000 PPM	12801D15	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
4000 PPM	12763E01	NORMAL	2	0- 42	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
		BODY	29	10- 38	EMACIATED
			2	7- 35	SWELLING (ANS 2)
			1	14- 14	URINE STAINS
		EXCRETA	82	7- 95	LOOSE FECES
		SKIN	2	7- 35	RED CUTIS (ANS 2)
	12791E02	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	8	FOUND DEAD
		BODY	1	7- 7	UNKEMPT
		EXCRETA	2	4- 7	LOOSE FECES
		SKIN	1	7	RED CUTIS (ANS 1)
	12762E03	NORMAL	7	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
		BODY	3	7- 35	SWELLING (ANS 3)
			26	9- 35	EMACIATED
			1	21- 21	ABDOMINAL DISTENSION
			1	14- 14	URINE STAINS
		EXCRETA	51	7- 65	LOOSE FECES
		SKIN	3	7- 35	RED CUTIS (ANS 3)
	12797E04	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	11	FOUND DEAD
		BODY	3	8- 10	EMACIATED
			1	7	SWELLING (ANS 1)
		EXCRETA	4	7- 10	LOOSE FECES
		SKIN	1	7	RED CUTIS (ANS 1)
	12749E05	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	19	FOUND DEAD
		BODY	10	9- 18	EMACIATED
			1	14- 14	HUNCHED POSTURE

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL PHYSICAL EXAMINATION FINDINGS - CHRONOLOGICAL LIST
MALES

DOSAGE GROUP	ANIMAL	CATEGORY	#	STUDY DAYS	FINDING
4000 PPM					
	12749E05	EXCRETA	13	4- 18	LOOSE FECES
		SKIN	1	14	RED CUTIS (ANS 1)
	12798E06	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	11	FOUND DEAD
		BODY	1	10	EMACIATED
			1	7	SWELLING (ANS 1)
		EXCRETA	4	7- 10	LOOSE FECES
		SKIN	1	7	RED CUTIS (ANS 1)
	12828E07	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	12	FOUND DEAD
		BODY	2	10- 11	EMACIATED
			1	7	SWELLING (ANS 1)
		EXCRETA	5	7- 11	LOOSE FECES
		SKIN	1	7	RED CUTIS (ANS 1)
	12792E08	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	7	FOUND DEAD
	12820E09	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	10	FOUND DEAD
		BODY	1	9	EMACIATED
			1	7- 7	UNKEMPT
		EXCRETA	4	4- 9	LOOSE FECES
		SKIN	1	7	RED CUTIS (ANS 1)
	12767E10	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	95- 95	SCHEDULED SACRIFICE
		BODY	3	7- 35	SWELLING (ANS 3)
			19	12- 35	EMACIATED
		EXCRETA	82	7- 95	LOOSE FECES
		SKIN	8	14- 63	ALOPECIA (MUL 8)
			3	7- 35	RED CUTIS (ANS 3)
	12771E11	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	11	FOUND DEAD
		BODY	3	9- 11	EMACIATED

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL PHYSICAL EXAMINATION FINDINGS - CHRONOLOGICAL LIST
MALES

DOSAGE GROUP	ANIMAL	CATEGORY	#	STUDY DAYS	FINDING
4000 PPM	12771E11	EXCRETA	5	7- 11	LOOSE FECES
	12856E12	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	8- 8	SACRIFICED MORIBUND
		BODY	1	7	SWELLING (ANS 1)
		EXCRETA	2	7- 8	LOOSE FECES
		SKIN	1	7	RED CUTIS (ANS 1)
	12758E13	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	8	FOUND DEAD
		BODY	1	8	EMACIATED
			1	7- 7	UNKEMPT
		EXCRETA	2	7- 8	LOOSE FECES
	12845E14	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	10	FOUND DEAD
		BODY	1	9	EMACIATED
			1	7- 7	UNKEMPT
			1	7	SWELLING (ANS 1)
		EXCRETA	4	4- 9	LOOSE FECES
		SKIN	1	7	RED CUTIS (ANS 1)
	12816E15	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	8- 8	SACRIFICED MORIBUND
		EXCRETA	3	4- 8	LOOSE FECES
		SKIN	1	7	RED CUTIS (ANS 1)
8000 PPM	12811F01	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	6	FOUND DEAD
	12788F02	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	7	FOUND DEAD
	12766F03	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	7	FOUND DEAD
		BEHAVIOR/CNS	1	7- 7	HYPOACTIVE
			1	7- 7	ATAXIA
			1	7- 7	PROSTRATION
		BODY	1	7	EMACIATED

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL PHYSICAL EXAMINATION FINDINGS - CHRONOLOGICAL LIST
MALES

DOSAGE GROUP	ANIMAL	CATEGORY	#	STUDY DAYS	FINDING
8000 PPM	12766F03	BODY	1	7	DEHYDRATED
			1	7-	UNKEMPT
			1	7-	URINE STAINS
			1	7	COLD EXTREMITIES (LAL 1)
			1	7	PALLOR (BDY 1)
		CARDIO-PULMONARY	1	7-	GASPING
		EXCRETA	1	7	LOOSE FECES
	12752F04	NORMAL	1	0-	0 NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	6	FOUND DEAD
	12830F05	NORMAL	1	0-	0 NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	6	FOUND DEAD
		BODY	1	6	EMACIATED
	12824F06	NORMAL	1	0-	0 NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	8	FOUND DEAD
		BODY	1	7	SWELLING (PNS 1)
			1	7-	UNKEMPT
			1	7-	PILOERECTION
		EXCRETA	1	7	LOOSE FECES
		SKIN	1	7	RED CUTIS (PNS 1)
	12781F07	NORMAL	1	0-	0 NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	7	FOUND DEAD
	12760F08	NORMAL	1	0-	0 NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	8	FOUND DEAD
		BODY	1	7-	7 PILOERECTION
			1	7-	UNKEMPT
		EXCRETA	1	7	LOOSE FECES
	12812F09	NORMAL	1	0-	0 NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	8	FOUND DEAD
		BODY	1	7-	7 UNKEMPT
			1	7-	7 URINE STAINS
			1	7-	7 HUNCHED POSTURE
			1	7-	7 UROGENITAL DISCHARGE, RED

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL PHYSICAL EXAMINATION FINDINGS - CHRONOLOGICAL LIST
MALES

DOSAGE GROUP	ANIMAL	CATEGORY	#	STUDY DAYS	FINDING

8000 PPM					
	12812F09	BODY	1	7- 7	PILOERECTION
		EXCRETA	1	7	LOOSE FECES
	12775F10	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	8	FOUND DEAD
		BODY	1	7- 7	URINE STAINS
			1	7- 7	UNKEMPT
		EXCRETA	1	7	LOOSE FECES
		SKIN	1	7	RED CUTIS (ANS 1)
	12745F11	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	6	FOUND DEAD
		BODY	1	6	EMACIATED
		CARDIO-PULMONARY	1	6- 6	GASPING
	12751F12	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	6	FOUND DEAD
		BODY	1	6	EMACIATED
		CARDIO-PULMONARY	1	6- 6	GASPING
	12750F13	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	8	FOUND DEAD
		BODY	1	7	EMACIATED
			1	7	SWELLING (ANS 1)
			1	7- 7	UNKEMPT
		EXCRETA	1	7	LOOSE FECES
		SKIN	1	7	RED CUTIS (ANS 1)
			1	7	ALOPECIA (MUL 1)
	12847F14	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	7	FOUND DEAD
		BODY	1	7	EMACIATED
			1	7- 7	UNKEMPT
			1	7- 7	URINE STAINS
			1	7	PALLOR (BDY 1)
			1	7- 7	HUNCHED POSTURE
		EXCRETA	1	7	LOOSE FECES

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL PHYSICAL EXAMINATION FINDINGS - CHRONOLOGICAL LIST
MALES

DOSAGE GROUP	ANIMAL	CATEGORY	#	STUDY DAYS	FINDING
8000 PPM	12800F15	NORMAL	1	0- 0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	8	FOUND DEAD
		BODY	1	7- 7	UNKEMPT
			1	7- 7	URINE STAINS
			1	7- 7	UROGENITAL WETNESS
			1	7	LOOSE FECES
		EXCRETA	1		
		SKIN	1	7	RED CUTIS (ANS 1)

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL PHYSICAL EXAMINATION FINDINGS - CHRONOLOGICAL LIST
FEMALES

DOSAGE GROUP	ANIMAL	CATEGORY	#	STUDY DAYS	FINDING
0 PPM	12966A01	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12931A02	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12919A03	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12884A04	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12977A05	NORMAL	13	0- 84	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
		SKIN	2	91- 96	ALOPECIA (MUL 2)
	12872A06	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12913A07	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12903A08	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12880A09	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12962A10	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12950A11	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12976A12	NORMAL	9	0- 56	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
		EYES/EARS/NOSE	7	63- 96	PERIOULAR ENCRUSTATION (EYL 1, EYR 6)
			5	63- 91	OCULAR DISCHARGE (EYR 5)
		ORAL/DENTAL	3	77- 91	OVERGROWN INCISORS
	12973A13	NORMAL	13	0- 84	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
		EYES/EARS/NOSE	1	96	PERIOULAR ENCRUSTATION (EYR 1)
			1	96	LACRIMATION (EYR 1)

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL PHYSICAL EXAMINATION FINDINGS - CHRONOLOGICAL LIST
FEMALES

DOSAGE GROUP	ANIMAL	CATEGORY	#	STUDY DAYS	FINDING
0 PPM	12973A13	EYES/EARS/NOSE	1	91	OCULAR DISCHARGE (EVR 1)
	12882A14	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12893A15	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
100 PPM		DEAD	1	96	SCHEDULED SACRIFICE
	12933B01	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12936B02	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12888B03	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12909B04	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12899B05	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12932B06	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12970B07	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12955B08	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12906B09	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12887B10	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12878B11	NORMAL	9	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
		SKIN	5	49- 77	EXCORIATED (BCK 5)
	12974B12	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12923B13	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL PHYSICAL EXAMINATION FINDINGS - CHRONOLOGICAL LIST
FEMALES

DOSAGE GROUP	ANIMAL	CATEGORY	#	STUDY DAYS	FINDING
100 PPM	12942B14	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12953B15	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
500 PPM	12869C01	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12892C02	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12889C03	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12885C04	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12941C05	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12937C06	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12894C07	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12940C08	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12928C09	NORMAL	13	0- 84	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
		SKIN	2	91- 96	ALOPECIA (MUL 2)
	12873C10	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12935C11	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12902C12	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12895C13	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12900C14	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL PHYSICAL EXAMINATION FINDINGS - CHRONOLOGICAL LIST
FEMALES

DOSAGE GROUP	ANIMAL	CATEGORY	#	STUDY DAYS	FINDING
500 PPM	12900C14	DEAD	1	96	SCHEDULED SACRIFICE
	12971C15	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
1000 PPM	12975D01	NORMAL	13	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
		EXCRETA	6	40- 52	LOOSE FECES
	12876D02	NORMAL	13	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
		EXCRETA	6	40- 52	LOOSE FECES
	12978D03	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12920D04	NORMAL	12	0- 84	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
		BODY	2	42- 43	EMACIATED
		EXCRETA	4	40- 43	LOOSE FECES
		SKIN	2	91- 96	ALOPECIA (LHB 1, MUL 1)
	12867D05	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12945D06	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12958D07	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12948D08	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12969D09	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12875D10	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12921D11	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12980D12	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL PHYSICAL EXAMINATION FINDINGS - CHRONOLOGICAL LIST
FEMALES

DOSAGE GROUP	ANIMAL	CATEGORY	#	STUDY DAYS	FINDING
1000 PPM	12963D13	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12905D14	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
4000 PPM	12877D15	NORMAL	14	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
	12911E01	NORMAL	2	0- 7	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	8	SACRIFICED MORIBUND
		EXCRETA	2	7- 8	LOOSE FECES
		SKIN	1	7	RED CUTIS (ANS 1)
	14621E02	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	7	FOUND DEAD
	12979E03	NORMAL	9	0- 91	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
		BODY	12	9- 30	EMACIATED
			1	21	ABDOMINAL DISTENSION
			1	7	SWELLING (ANS 1)
		EXCRETA	30	7- 43	LOOSE FECES
		SKIN	1	7	RED CUTIS (ANS 1)
	12957E04	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	8	FOUND DEAD
		BODY	1	7	UNKEMPT
			1	7	HUNCHED POSTURE
			1	7	UROGENITAL DISCHARGE, RED
		SKIN	1	7	RED CUTIS (ANS 1)
	12925E05	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	8	SACRIFICED MORIBUND
		BODY	2	7- 8	EMACIATED
			1	7	UNKEMPT
		EXCRETA	2	7- 8	LOOSE FECES
		SKIN	1	7	RED CUTIS (ANS 1)
	12965E06	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL PHYSICAL EXAMINATION FINDINGS - CHRONOLOGICAL LIST
FEMALES

DOSAGE GROUP	ANIMAL	CATEGORY	#	STUDY DAYS	FINDING
4000 PPM	12965E06	DEAD BODY	1 1 1 1	7 7 7 7	SACRIFICED MORIBUND EMACIATED UNKEMPT UROGENITAL DISCHARGE, RED
		EXCRETA	2	4-	7 LOOSE FECES
		SKIN	1	7	RED CUTIS (ANS 1)
	12874E07	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	8	SACRIFICED MORIBUND
		BODY	2 1	7- 7	8 EMACIATED UNKEMPT
		EXCRETA	2	7-	8 LOOSE FECES
	12952E08	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	7	FOUND DEAD
		EXCRETA	1	4	LOOSE FECES
	12930E09	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	8	SACRIFICED MORIBUND
		EXCRETA	3	4-	8 LOOSE FECES
	12886E10	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	7	SACRIFICED MORIBUND
		BODY	1 1	7 7	UNKEMPT EMACIATED
		EXCRETA	1	7	LOOSE FECES
	12934E11	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	11	FOUND DEAD
		BODY	3	9- 11	EMACIATED
		EXCRETA	5	7- 11	LOOSE FECES
	12926E12	NORMAL	2	0- 49	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
		BODY	3 1 1 1 10	7- 21 21 21 9- 18	21 SWELLING (ANS 3) 21 ABDOMINAL DISTENSION 21 URINE STAINS 18 EMACIATED

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL PHYSICAL EXAMINATION FINDINGS - CHRONOLOGICAL LIST
FEMALES

DOSAGE GROUP	ANIMAL	CATEGORY	#	STUDY DAYS	FINDING
4000 PPM	12926E12	BODY	2	7- 14	UNKEMPT
		EXCRETA	80	4- 96	LOOSE FECES
		SKIN	3	7- 21	RED CUTIS (ANS 3)
	12960E13	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	8	FOUND DEAD
		BODY	1	7	UNKEMPT
			1	7	ABDOMINAL DISTENSION
	12897E14	EXCRETA	1	7	LOOSE FECES
		NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
		BODY	17	9- 96	EMACIATED
			1	21	ABDOMINAL DISTENSION
	12947E15		1	7	UNKEMPT
		EXCRETA	85	4- 96	LOOSE FECES
		NORMAL	6	0- 56	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	96	SCHEDULED SACRIFICE
		BODY	11	10- 26	EMACIATED
			1	21	ABDOMINAL DISTENSION
		EXCRETA	59	7- 96	LOOSE FECES
8000 PPM	12908F01	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	6	FOUND DEAD
	12918F02	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	4	FOUND DEAD
	12891F03	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	7	FOUND DEAD
		CARDIO-PULMONARY	1	6	GASPING
	12907F04	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	4	FOUND DEAD
	12915F05	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	5	FOUND DEAD
	12972F06	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	4	FOUND DEAD

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL PHYSICAL EXAMINATION FINDINGS - CHRONOLOGICAL LIST
FEMALES

DOSAGE GROUP	ANIMAL	CATEGORY	#	STUDY DAYS	FINDING
8000 PPM	12927F07	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	5	FOUND DEAD
	12881F08	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	6	FOUND DEAD
	12914F09	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	5	FOUND DEAD
	12944F10	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	6	FOUND DEAD
	12939F11	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	4	FOUND DEAD
	12910F12	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	6	FOUND DEAD
	12956F13	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	5	FOUND DEAD
		BEHAVIOR/CNS	1	5	PARALYSIS (LHB 1)
	12871F14	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	5	FOUND DEAD
	12924F15	NORMAL	1	0	NO SIGNIFICANT CLINICAL OBSERVATIONS
		DEAD	1	6	FOUND DEAD

APPENDIX 5

Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl Benzyl
Ammonium Chloride (ADBAC) in Rats

Individual Animal Fate

(8 pages)

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL ANIMAL FATE
MALES

DOSAGE GROUP	ANIMAL	TYPE OF DEATH	AGE IN WEEKS	DATE OF DEATH	DAYS ON STUDY	DATE OF NECROPSY	DAYS TO NECROPSY
0 PPM	12746A01	SCH SAC ^a	21	21-SEP-87	95	21-SEP-87	95
	12807A02	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12783A03	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12802A04	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12821A05	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12829A06	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12827A07	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12815A08	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12837A09	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12817A10	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12844A11	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12836A12	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12755A13	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12787A14	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12796A15	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
100 PPM	12793B01	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12843B02	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12831B03	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12786B04	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12853B05	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12756B06	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12841B07	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12764B08	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12808B09	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12804B10	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12753B11	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12765B12	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12761B13	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12834B14	SCH SAC	21	21-SEP-87	95	21-SEP-87	95

^aSCH SAC = SCHEDULED SACRIFICE

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL ANIMAL FATE
MALES

DOSAGE GROUP	ANIMAL	TYPE OF DEATH	AGE IN WEEKS	DATE OF DEATH	DAYS ON STUDY	DATE OF NECROPSY	DAYS TO NECROPSY
100 PPM	12839B15	SCH SAC ^a	21	21-SEP-87	95	21-SEP-87	95
500 PPM	12809C01	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12846C02	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12848C03	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12813C04	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12772C05	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12744C06	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12773C07	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12814C08	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12840C09	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12855C10	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12805C11	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12842C12	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12850C13	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12806C14	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12784C15	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
1000 PPM	12826D01	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12819D02	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12818D03	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12777D04	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12835D05	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12782D06	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12823D07	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12825D08	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12742D09	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12778D10	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12774D11	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12849D12	SCH SAC	21	21-SEP-87	95	21-SEP-87	95

^aSCH SAC = SCHEDULED SACRIFICE

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL ANIMAL FATE
MALES

DOSAGE GROUP	ANIMAL	TYPE OF DEATH	AGE IN WEEKS	DATE OF DEATH	DAYS ON STUDY	DATE OF NECROPSY	DAYS TO NECROPSY
1000 PPM	12785D13	SCH SAC ^a	21	21-SEP-87	95	21-SEP-87	95
	12851D14	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12801D15	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
4000 PPM	12763E01	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12791E02	FD DEAD ^b	8	26-JUN-87	8	26-JUN-87	8
	12762E03	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12797E04	FD DEAD	9	29-JUN-87	11	29-JUN-87	11
	12749E05	FD DEAD	10	7-JUL-87	19	7-JUL-87	19
	12798E06	FD DEAD	9	29-JUN-87	11	29-JUN-87	11
	12828E07	FD DEAD	9	30-JUN-87	12	30-JUN-87	12
	12792E08	FD DEAD	8	25-JUN-87	7	25-JUN-87	7
	12820E09	FD DEAD	8	28-JUN-87	10	28-JUN-87	10
	12767E10	SCH SAC	21	21-SEP-87	95	21-SEP-87	95
	12771E11	FD DEAD	9	29-JUN-87	11	29-JUN-87	11
	12856E12	SAC MORB ^c	8	26-JUN-87	8	26-JUN-87	8
	12758E13	FD DEAD	8	26-JUN-87	8	26-JUN-87	8
	12845E14	FD DEAD	8	28-JUN-87	10	28-JUN-87	10
	12816E15	SAC MORB	8	26-JUN-87	8	26-JUN-87	8
8000 PPM	12811F01	FD DEAD	8	24-JUN-87	6	24-JUN-87	6
	12788F02	FD DEAD	8	25-JUN-87	7	25-JUN-87	7
	12766F03	FD DEAD	8	25-JUN-87	7	25-JUN-87	7
	12752F04	FD DEAD	8	24-JUN-87	6	24-JUN-87	6
	12830F05	FD DEAD	8	24-JUN-87	6	24-JUN-87	6
	12824F06	FD DEAD	8	26-JUN-87	8	26-JUN-87	8
	12781F07	FD DEAD	8	25-JUN-87	7	25-JUN-87	7
	12760F08	FD DEAD	8	26-JUN-87	8	26-JUN-87	8
	12812F09	FD DEAD	8	26-JUN-87	8	26-JUN-87	8
	12775F10	FD DEAD	8	26-JUN-87	8	26-JUN-87	8

^aSCH SAC = SCHEDULED SACRIFICE

^bFD DEAD = FOUND DEAD

^cSAC MORB = SACRIFICED MORIBUND

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL ANIMAL FATE
MALES

DOSAGE GROUP	ANIMAL	TYPE OF DEATH	AGE IN WEEKS	DATE OF DEATH	DAYS ON STUDY	DATE OF NECROPSY	DAYS TO NECROPSY
8000 PPM	12745F11	FD DEAD ^a	8	24-JUN-87	6	24-JUN-87	6
	12751F12	FD DEAD	8	24-JUN-87	6	24-JUN-87	6
	12750F13	FD DEAD	8	26-JUN-87	8	26-JUN-87	8
	12847F14	FD DEAD	8	25-JUN-87	7	25-JUN-87	7
	12800F15	FD DEAD	8	26-JUN-87	8	26-JUN-87	8

^aFD DEAD = FOUND DEAD

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL ANIMAL FATE
FEMALES

DOSAGE GROUP	ANIMAL	TYPE OF DEATH	AGE IN WEEKS	DATE OF DEATH	DAYS ON STUDY	DATE OF NECROPSY	DAYS TO NECROPSY
0 PPM	12966A01	SCH SAC ^a	21	22-SEP-87	96	22-SEP-87	96
	12931A02	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12919A03	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12884A04	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12977A05	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12872A06	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12913A07	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12903A08	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12880A09	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12962A10	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12950A11	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12976A12	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12973A13	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12882A14	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12893A15	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
100 PPM	12933B01	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12936B02	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12888B03	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12909B04	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12899B05	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12932B06	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12970B07	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12955B08	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12906B09	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12887B10	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12878B11	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12974B12	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12923B13	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12942B14	SCH SAC	21	22-SEP-87	96	22-SEP-87	96

^aSCH SAC = SCHEDULED SACRIFICE

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL ANIMAL FATE
FEMALES

DOSAGE GROUP	ANIMAL	TYPE OF DEATH	AGE IN WEEKS	DATE OF DEATH	DAYS ON STUDY	DATE OF NECROPSY	DAYS TO NECROPSY
100 PPM	12953B15	SCH SAC ^a	21	22-SEP-87	96	22-SEP-87	96
500 PPM	12869C01	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12892C02	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12889C03	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12885C04	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12941C05	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12937C06	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12894C07	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12940C08	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12928C09	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12873C10	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12935C11	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12902C12	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12895C13	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12900C14	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12971C15	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
1000 PPM	12975D01	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12876D02	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12978D03	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12920D04	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12867D05	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12945D06	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12958D07	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12948D08	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12969D09	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12875D10	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12921D11	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12980D12	SCH SAC	21	22-SEP-87	96	22-SEP-87	96

^aSCH SAC = SCHEDULED SACRIFICE

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL ANIMAL FATE
FEMALES

DOSAGE GROUP	ANIMAL	TYPE OF DEATH	AGE IN WEEKS	DATE OF DEATH	DAYS ON STUDY	DATE OF NECROPSY	DAYS TO NECROPSY
1000 PPM	12963D13	SCH SAC ^a	21	22-SEP-87	96	22-SEP-87	96
	12905D14	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12877D15	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
4000 PPM	12911E01	SAC MORB ^b	8	26-JUN-87	8	26-JUN-87	8
	14621E02	FD DEAD ^c	8	25-JUN-87	7	25-JUN-87	7
	12979E03	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12957E04	FD DEAD	8	26-JUN-87	8	26-JUN-87	8
	12925E05	SAC MORB	8	26-JUN-87	8	26-JUN-87	8
	12965E06	SAC MORB	8	25-JUN-87	7	25-JUN-87	7
	12874E07	SAC MORB	8	26-JUN-87	8	26-JUN-87	8
	12952E08	FD DEAD	8	25-JUN-87	7	25-JUN-87	7
	12930E09	SAC MORB	8	26-JUN-87	8	26-JUN-87	8
	12886E10	SAC MORB	8	25-JUN-87	7	25-JUN-87	7
	12934E11	FD DEAD	9	29-JUN-87	11	29-JUN-87	11
	12926E12	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12960E13	FD DEAD	8	26-JUN-87	8	26-JUN-87	8
	12897E14	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
	12947E15	SCH SAC	21	22-SEP-87	96	22-SEP-87	96
8000 PPM	12908F01	FD DEAD	8	24-JUN-87	6	24-JUN-87	6
	12918F02	FD DEAD	8	22-JUN-87	4	22-JUN-87	4
	12891F03	FD DEAD	8	25-JUN-87	7	25-JUN-87	7
	12907F04	FD DEAD	8	22-JUN-87	4	22-JUN-87	4
	12915F05	FD DEAD	8	23-JUN-87	5	23-JUN-87	5
	12972F06	FD DEAD	8	22-JUN-87	4	22-JUN-87	4
	12927F07	FD DEAD	8	23-JUN-87	5	23-JUN-87	5
	12881F08	FD DEAD	8	24-JUN-87	6	24-JUN-87	6
	12914F09	FD DEAD	8	23-JUN-87	5	23-JUN-87	5
	12944F10	FD DEAD	8	24-JUN-87	6	24-JUN-87	6

^aSCH SAC = SCHEDULED SACRIFICE
^bSAC MORB = SACRIFICED MORIBUND
^cFD DEAD = FOUND DEAD

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL ANIMAL FATE
FEMALES

DOSAGE GROUP	ANIMAL	TYPE OF DEATH	AGE IN WEEKS	DATE OF DEATH	DAYS ON STUDY	DATE OF NECROPSY	DAYS TO NECROPSY
8000 PPM	12939F11	FD DEAD ^a	8	22-JUN-87	4	22-JUN-87	4
	12910F12	FD DEAD	8	24-JUN-87	6	24-JUN-87	6
	12956F13	FD DEAD	8	23-JUN-87	5	23-JUN-87	5
	12871F14	FD DEAD	8	23-JUN-87	5	23-JUN-87	5
	12924F15	FD DEAD	8	24-JUN-87	6	24-JUN-87	6

^aFD DEAD = FOUND DEAD

APPENDIX 6

Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl Benzyl
Ammonium Chloride (ADBAC) in Rats

Individual Food Consumption

(20 pages)

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL FOOD CONSUMPTION (GRAMS/ANIMAL/DAY)
MALE GROUP: 0 PPM

WEEK	1	2	3	4	5	6	7	8	9	10
ANIMAL										
12746A01	23.4	23.9	24.8	24.3	25.5	24.3	24.2	24.2	24.5	24.1
12807A02	24.0	24.6	25.7	23.8	24.1	23.3	24.0	23.9	24.1	23.6
12783A03	22.1	22.9	24.0	24.5	25.0	24.2	24.3	23.7	24.1	24.3
12802A04	23.3	24.3	25.6	25.7	25.8	25.4	25.7	26.2	26.0	25.5
12821A05	25.1	25.5	25.6	24.9	25.8	26.8	27.4	26.6	26.6	27.0
12829A06	22.5	23.3	24.2	24.3	25.2	24.8	24.4	24.2	24.4	24.4
12827A07	24.6	26.1	27.6	25.4	26.2	27.0	25.3	24.4	26.2	26.2
12815A08	23.4	26.4	26.4	27.4	27.5	27.4	27.6	26.9	26.8	27.2
12837A09	24.5	24.1	25.2	25.3	24.9	24.5	23.9	23.2	23.9	23.7
12817A10	26.6	29.8	29.8	30.0	30.7	29.2	27.9	28.0	28.0	28.9
12844A11	26.8	28.5	32.1	29.5	30.1	29.1	30.1	30.2	29.9	28.7
12836A12	27.9	29.9	31.8	28.4	30.6	29.1	30.7	29.6	29.5	28.8
12755A13	25.1	26.2	27.6	26.2	22.0	24.8	23.8	24.9	24.3	24.2
12787A14	27.3	29.8	30.0	28.5	31.9	30.2	29.3	30.4	29.1	28.0
12796A15	26.5	28.0	30.4	29.9	30.0	29.0	27.2	27.8	27.3	25.7
MEAN	24.9	26.2	27.4	26.5	27.0	26.6	26.4	26.3	26.3	26.0
S.D.	1.79	2.45	2.77	2.20	2.92	2.29	2.39	2.46	2.09	1.97
N	15	15	15	15	15	15	15	15	15	15

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL FOOD CONSUMPTION (GRAMS/ANIMAL/DAY)
MALE GROUP: 100 PPM

WEEK	1	2	3	4	5	6	7	8	9	10
ANIMAL										
12793B01	23.3	25.5	26.5	25.8	26.3	25.0	25.8	24.8	24.2	23.9
12843B02	26.6	24.7	23.2	23.6	25.2	25.0	25.1	24.5	23.9	23.3
12831B03	26.3	27.0	27.6	26.9	27.0	27.2	25.9	25.8	24.3	25.2
12786B04	23.7	24.8	25.7	25.9	25.2	26.0	24.6	25.3	24.9	24.3
12853B05	23.2	24.5	25.5	25.1	25.0	24.7	23.4	23.7	23.7	23.0
12756B06	25.5	26.6	28.5	28.6	28.3	27.9	27.1	27.0	27.5	27.3
12841B07	24.1	23.6	25.2	24.9	25.7	25.4	25.0	24.7	25.1	23.8
12764B08	23.3	25.5	26.8	27.2	27.8	27.1	25.5	27.1	27.0	25.9
12808B09	22.7	24.0	24.6	25.3	25.9	24.7	24.7	24.2	24.8	23.9
12804B10	23.1	24.3	23.3	24.1	23.8	23.7	23.5	22.9	23.0	22.5
12753B11	25.5	27.1	28.5	28.1	28.1	28.5	27.2	27.3	26.4	26.3
12765B12	25.1	26.0	26.9	25.1	23.8	22.5	23.9	24.1	24.8	24.3
12761B13	24.8	25.6	27.4	28.0	28.1	29.0	28.2	28.2	27.7	28.8
12834B14	25.3	25.4	26.2	27.0	27.8	28.6	26.8	27.5	27.3	27.5
12839B15	26.0	27.8	28.7	28.1	28.5	28.0	27.1	26.8	26.9	27.9
MEAN	24.6	25.5	26.3	26.3	26.4	26.2	25.6	25.6	25.4	25.2
S.D.	1.30	1.23	1.74	1.57	1.63	1.97	1.46	1.61	1.56	1.98
N	15	15	15	15	15	15	15	15	15	15

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL FOOD CONSUMPTION (GRAMS/ANIMAL/DAY)
MALE GROUP: 500 PPM

WEEK	1	2	3	4	5	6	7	8	9	10
ANIMAL										
12809C01	22.5	24.3	25.4	25.5	26.4	26.4	26.9	26.1	25.7	25.9
12846C02	23.3	23.5	25.7	24.4	24.3	25.4	25.2	24.3	24.7	24.1
12848C03	25.3	26.9	27.9	27.7	28.0	28.2	28.7	27.7	27.7	27.0
12813C04	25.4	25.5	26.1	25.5	26.2	27.0	25.7	25.2	24.6	24.4
12772C05	21.5	22.5	23.3	23.3	23.2	22.9	22.8	22.4	23.5	22.7
12744C06	22.1	23.5	25.4	24.4	25.5	24.0	24.0	24.0	23.1	23.0
12773C07	22.3	22.9	25.3	24.2	24.3	24.4	24.0	24.7	23.5	23.7
12814C08	26.6	27.4	28.6	28.0	27.4	24.9	25.6	24.7	25.0	26.1
12840C09	24.2	25.5	26.3	26.1	25.9	22.1	23.0	22.3	25.2	24.3
12855C10	24.1	24.4	24.8	26.9	27.3	27.0	25.5	25.8	26.5	26.0
12805C11	25.0	25.5	26.4	26.4	28.1	27.5	27.0	26.4	26.0	25.2
12842C12	24.6	24.9	25.5	24.5	24.6	25.0	24.7	24.7	24.5	24.0
12850C13	27.0	29.5	30.1	30.3	31.3	32.0	30.7	31.7	29.3	28.6
12806C14	22.7	23.5	24.5	24.7	25.4	24.7	25.7	26.1	26.1	24.7
12784C15	24.4	25.4	25.2	25.1	25.3	26.8	24.4	23.9	24.2	25.7
MEAN	24.1	25.0	26.0	25.8	26.2	25.9	25.6	25.3	25.3	25.0
S.D.	1.65	1.87	1.70	1.82	2.01	2.41	2.09	2.27	1.66	1.56
N	15	15	15	15	15	15	15	15	15	15

TABLE 1
 NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
 AMMONIUM CHLORIDE (ADBAC) IN RATS
 INDIVIDUAL FOOD CONSUMPTION (GRAMS/ANIMAL/DAY)
 MALE GROUP: 1000 PPM

WEEK	1	2	3	4	5	6	7	8	9	10
ANIMAL										
12826D01	22.7	22.4	23.8	24.2	24.4	24.1	24.8	24.6	24.5	25.0
12819D02	23.7	23.1	25.1	25.2	25.0	23.8	22.6	24.5	23.3	23.2
12818D03	23.6	21.3	21.4	22.5	22.4	23.3	23.7	25.2	24.0	24.4
12777D04	23.6	23.7	24.1	24.6	24.0	23.8	22.6	24.0	22.7	22.6
12835D05	20.9	20.7	23.1	24.2	24.8	26.0	24.8	24.0	25.5	26.1
12782D06	23.9	24.2	24.6	24.9	25.5	25.8	25.2	25.7	25.2	25.6
12823D07	24.5	24.7	25.4	26.0	26.8	26.6	24.1	24.5	25.2	25.3
12825D08	23.8	25.4	24.6	24.2	24.7	25.1	23.8	22.5	23.4	23.4
12742D09	24.6	25.6	26.5	27.1	28.2	28.0	26.4	26.0	26.6	26.2
12778D10	23.4	24.9	25.8	25.5	26.9	26.8	26.8	27.1	27.9	27.7
12774D11	26.5	25.7	29.0	26.7	26.4	26.6	25.3	24.4	24.8	24.5
12849D12	25.4	26.9	28.6	27.6	28.2	28.5	26.5	27.8	28.7	28.9
12785D13	26.4	25.2	25.3	25.6	25.8	24.7	23.8	23.8	22.5	23.1
12851D14	23.1	22.8	24.9	24.3	24.0	23.7	23.1	23.1	22.3	23.1
12801D15	26.7	28.5	27.4	27.1	28.6	27.9	28.3	29.3	26.4	28.4
MEAN	24.2	24.4	25.3	25.3	25.7	25.6	24.8	25.1	24.9	25.2
S.D.	1.55	2.08	1.98	1.41	1.79	1.72	1.65	1.83	1.94	2.01
N	15	15	15	15	15	15	15	15	15	15

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL FOOD CONSUMPTION (GRAMS/ANIMAL/DAY)
MALE GROUP: 4000 PPM

WEEK	1	2	3	4	5	6	7	8	9	10
ANIMAL										
12763E01	6.8	11.4	17.8	*	20.8					
12791E02	5.0									
12762E03	*	21.9								
12797E04	5.9									
12749E05	8.2	11.2								
12798E06										
12828E07	8.3									
12792E08										
12820E09	5.4									
12767E10	*	19.9	*	*	25.6					
12771E11	7.7									
12856E12										
12758E13	5.8									
12845E14	6.6									
12816E15										
MEAN	6.7	16.1	17.8		23.2					
S.D.	1.21	5.60	0.00		3.40					
N	9	4	1		2					

On this page, an asterisk indicates that food spillage was observed and the animal was removed from food consumption for a given period; all other blanks indicate dead animals.

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL FOOD CONSUMPTION (GRAMS/ANIMAL/DAY)
MALE GROUP: 8000 PPM

WEEK	1	2	3	4	5	6	7	8	9	10
ANIMAL										
12811F01										
12788F02										
12766F03										
12752F04										
12830F05										
12824F06										
12781F07										
12760F08	1.6									
12812F09										
12775F10										
12745F11										
12751F12										
12750F13	2.6									
12847F14	1.5									
12800F15	2.5									
MEAN	2.1									
S.D.	0.57									
N	4									

Blank spaces on this page indicate dead animals.

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL FOOD CONSUMPTION (GRAMS/ANIMAL/DAY)
MALE GROUP: 0 PPM

WEEK	11	12	13
ANIMAL			
12746A01	24.1	24.9	23.4
12807A02	22.0	23.1	22.2
12783A03	24.0	24.0	18.1
12802A04	26.6	25.8	25.3
12821A05	25.3	25.6	24.8
12829A06	24.4	23.5	23.8
12827A07	25.2	25.8	24.1
12815A08	26.1	26.5	26.1
12837A09	23.0	22.8	23.2
12817A10	27.8	28.4	27.3
12844A11	28.3	29.6	27.0
12836A12	27.6	28.0	27.3
12755A13	24.0	24.3	24.4
12787A14	26.6	28.7	26.1
12796A15	27.1	27.7	25.4
MEAN	25.5	25.9	24.6
S.D.	1.87	2.17	2.36
N	15	15	15

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL FOOD CONSUMPTION (GRAMS/ANIMAL/DAY)
MALE GROUP: 100 PPM

WEEK	11	12	13
ANIMAL			
12793B01	25.0	23.7	23.3
12843B02	23.7	21.9	22.4
12831B03	24.9	23.6	24.5
12786B04	24.5	24.4	24.7
12853B05	23.4	22.4	22.2
12756B06	25.8	26.8	25.8
12841B07	24.3	23.0	24.2
12764B08	25.1	25.7	26.1
12808B09	24.0	23.7	22.0
12804B10	22.3	22.0	22.5
12753B11	25.8	25.9	24.5
12765B12	24.4	23.3	19.5
12761B13	26.6	26.7	26.0
12834B14	26.8	27.3	27.2
12839B15	25.7	25.6	25.7
MEAN	24.8	24.4	24.0
S.D.	1.22	1.80	2.05
N	15	15	15

TABLE 1
 NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
 AMMONIUM CHLORIDE (ADBAC) IN RATS
 INDIVIDUAL FOOD CONSUMPTION (GRAMS/ANIMAL/DAY)
 MALE GROUP: 500 PPM

WEEK	11	12	13
ANIMAL			
12809C01	23.2	23.6	24.4
12846C02	23.3	23.1	23.9
12848C03	26.3	26.6	24.7
12813C04	22.9	19.9	23.4
12772C05	22.4	22.1	22.5
12744C06	23.1	23.4	21.6
12773C07	22.4	23.6	22.5
12814C08	23.4	24.4	22.8
12840C09	23.2	24.5	24.1
12855C10	24.3	23.8	24.0
12805C11	25.3	25.3	24.1
12842C12	23.7	23.0	23.1
12850C13	30.0	30.7	*
12806C14	25.9	26.5	25.1
12784C15	24.4	24.2	24.8
MEAN	24.2	24.3	23.6
S.D.	1.98	2.41	1.02
N	15	15	14

An asterisk indicates that food spillage was observed and animal was removed from food consumption.

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL FOOD CONSUMPTION (GRAMS/ANIMAL/DAY)
MALE GROUP: 1000 PPM

WEEK	11	12	13
ANIMAL			
12826D01	24.0	24.6	22.3
12819D02	22.4	22.4	20.1
12818D03	23.3	24.0	21.5
12777D04	22.3	22.2	20.4
12835D05	24.1	23.3	23.6
12782D06	22.4	24.4	23.4
12823D07	24.6	25.3	24.5
12825D08	22.8	22.8	23.2
12742D09	24.8	25.5	24.8
12778D10	26.5	26.0	25.8
12774D11	24.2	24.2	24.5
12849D12	27.5	26.7	24.2
12785D13	22.4	23.3	22.5
12851D14	22.4	22.1	20.2
12801D15	27.9	28.3	25.9
MEAN	24.1	24.4	23.1
S.D.	1.88	1.78	1.91
N	15	15	15

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL FOOD CONSUMPTION (GRAMS/ANIMAL/DAY)
MALE GROUP: 4000 PPM

WEEK	11	12	13
ANIMAL			
12763E01			
12791E02			
12762E03	*	*	23.2
12797E04			
12749E05			
12798E06			
12828E07			
12792E08			
12820E09			
12767E10			
12771E11			
12856E12			
12758E13			
12845E14			
12816E15			
MEAN			23.2
S.D.			0.00
N			1

On this page, an asterisk indicates that food spillage was observed and the animal was removed from food consumption for a given period; all other blanks indicate dead animals.

TABLE 2
 NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
 AMMONIUM CHLORIDE (ADBAC) IN RATS
 INDIVIDUAL FOOD CONSUMPTION (GRAMS/ANIMAL/DAY)
 FEMALE GROUP: 0 PPM

WEEK	1	2	3	4	5	6	7	8	9	10
ANIMAL										
12966A01	14.1	14.5	*	19.5	20.3	17.4	*	*	*	15.3
12931A02	15.1	15.6	16.9	16.7	17.1	17.3	16.5	16.3	15.7	15.5
12919A03	15.6	17.6	15.7	17.1	15.4	16.8	16.7	17.1	17.0	16.8
12884A04	16.5	17.8	17.0	17.8	16.6	18.6	17.7	18.2	17.6	16.5
12977A05	15.1	16.4	15.9	16.4	16.0	16.9	15.9	16.4	18.3	15.6
12872A06	14.8	15.2	15.1	14.1	15.2	15.9	14.7	16.2	16.4	15.2
12913A07	17.1	18.8	19.2	18.5	18.0	20.0	19.0	19.2	18.0	18.4
12903A08	18.9	19.5	19.4	20.3	17.9	23.0	22.9	20.5	22.1	22.5
12880A09	17.9	18.4	18.9	19.5	19.2	19.1	17.4	18.6	18.6	18.9
12962A10	*	16.9	*	*	18.3	18.4	17.2	18.4	19.1	18.9
12950A11	18.5	19.4	21.0	21.3	22.4	22.0	20.9	20.9	20.2	19.1
12976A12	15.7	16.8	17.8	18.5	18.6	18.0	16.9	17.3	16.7	17.4
12973A13	17.8	19.1	18.9	18.7	20.0	21.0	20.3	19.2	19.1	19.8
12882A14	18.5	18.9	18.0	20.4	20.8	19.9	19.4	20.2	18.5	16.0
12893A15	17.2	18.9	17.8	18.2	18.2	19.7	18.6	18.5	18.6	18.6
MEAN	16.6	17.6	17.8	18.4	18.3	18.9	18.1	18.4	18.3	17.6
S.D.	1.58	1.62	1.69	1.88	2.05	2.02	2.19	1.56	1.64	2.08
N	14	15	13	14	15	15	14	14	14	15

An asterisk indicates that food spillage was observed and animal was removed from food consumption.

TABLE 2
 NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
 AMMONIUM CHLORIDE (ADBAC) IN RATS
 INDIVIDUAL FOOD CONSUMPTION (GRAMS/ANIMAL/DAY)
 FEMALE GROUP: 100 PPM

WEEK	1	2	3	4	5	6	7	8	9	10
ANIMAL										
12933801	15.5	16.5	17.6	18.4	17.0	18.2	18.5	17.5	16.3	15.7
12936802	16.7	17.0	19.6	18.8	19.2	18.9	18.7	17.5	17.4	17.4
12888803	16.8	18.6	17.9	20.2	19.4	20.7	20.4	20.3	20.6	21.5
12909804	13.7	15.4	15.6	17.4	16.0	17.5	15.7	16.4	18.1	16.0
12899805	17.7	19.2	20.1	19.6	19.6	19.8	18.2	19.4	18.6	19.0
12932806	17.0	17.8	17.8	18.8	17.0	17.9	17.4	17.1	16.3	17.4
12970807	20.2	20.1	20.7	20.8	20.2	20.2	19.4	19.7	19.6	17.6
12955808	*	15.7	17.2	15.4	17.4	16.2	16.3	15.3	16.3	16.1
12906809	16.2	17.4	15.9	18.3	18.4	18.1	18.3	19.0	17.0	16.6
12887810	16.3	17.5	17.5	17.6	17.0	17.8	17.4	17.2	18.5	17.8
12878811	16.5	15.7	17.1	17.5	18.1	19.0	16.3	18.7	19.3	19.0
12974812	19.5	17.4	18.9	21.0	23.6	22.7	22.0	22.3	21.4	21.1
12923813	17.7	21.9	18.7	19.9	19.9	20.3	20.2	19.9	19.9	19.2
12942814	19.1	20.0	21.7	22.0	22.5	22.2	19.8	21.4	21.7	20.9
12953815	18.4	14.6	19.5	20.9	15.8	16.1	16.0	17.6		17.0
MEAN	17.2	17.6	18.4	19.1	18.7	19.0	18.3	18.6	18.6	18.2
S.D.	1.70	2.01	1.72	1.74	2.26	1.94	1.82	1.90	1.85	1.91
N	14	15	15	15	15	15	15	15	14	15

An asterisk indicates that food spillage was observed and animal was removed from food consumption.

TABLE 2
 NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
 AMMONIUM CHLORIDE (ADBAC) IN RATS
 INDIVIDUAL FOOD CONSUMPTION (GRAMS/ANIMAL/DAY)
 FEMALE GROUP: 500 PPM

WEEK	1	2	3	4	5	6	7	8	9	10
ANIMAL										
12869C01	14.8	15.2	*	15.5	14.9	14.7	15.5	14.9	13.4	14.0
12892C02	15.8	16.3	16.9	16.5	19.0	16.9	15.3	15.5	18.3	16.2
12889C03	*	15.5	*	17.4	17.0	16.0	16.0	15.7	15.3	14.8
12885C04	17.9	18.3	17.7	19.7	18.7	19.4	19.4	18.8	19.0	19.1
12941C05	16.4	17.4	17.7	18.4	21.2	17.8	16.4	17.0	15.8	16.3
12937C06	15.9	17.4	17.9	19.3	20.0	20.3	19.3	18.8	18.0	18.3
12894C07	16.6	16.3	13.9	16.5	17.5	17.0	16.7	16.0	17.3	15.9
12940C08	17.1	18.2	17.7	17.7	24.2	19.2	18.5	18.8	17.8	17.4
12928C09	15.9	17.1	18.3	18.4	20.3	19.4	19.9	18.3	18.2	19.0
12873C10	16.2	16.5	16.7	17.1	15.8	15.6	14.6	15.4	14.6	15.8
12935C11	16.6	17.7	17.6	19.0	17.9	18.0	18.2	18.4	17.4	16.8
12902C12	*	15.7	*	17.2	16.4	16.9	16.0	17.4	17.3	17.4
12895C13	17.8	19.3	19.1	20.1	18.5	19.6	18.4	18.4	15.4	17.4
12900C14	18.2	18.8	19.8	21.5	22.2	22.1	20.6	21.4	22.3	20.2
12971C15	19.3	17.9	19.7	20.8	19.7	20.1	19.2	18.9	18.8	18.0
MEAN	16.8	17.2	17.8	18.3	18.9	18.2	17.6	17.6	17.3	17.1
S.D.	1.22	1.25	1.56	1.70	2.49	2.04	1.91	1.80	2.15	1.68
N	13	15	12	15	15	15	15	15	15	15

An asterisk indicates that food spillage was observed and animal was removed from food consumption.

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL FOOD CONSUMPTION (GRAMS/ANIMAL/DAY)
FEMALE GROUP: 1000 PPM

WEEK	1	2	3	4	5	6	7	8	9	10
ANIMAL										
12975D01	17.8	18.7	18.4	18.9	19.4	*	22.5	19.2	19.2	18.8
12876D02	16.8	17.2	18.6	18.9	18.1	8.3	24.0	18.8	17.8	17.7
12978D03	17.4	18.4	18.2	18.2	18.0	16.8	16.6	16.3	17.3	16.8
12920D04	16.5	16.7	16.9	17.9	17.2	3.5	26.3	21.0	15.5	16.0
12867D05	*	15.1	*	16.5	15.4	14.6	15.4	16.0	*	14.9
12945D06	16.1	16.9	17.8	18.0	17.1	18.3	17.9	17.2	18.0	17.4
12958D07	15.5	15.4	15.8	16.8	17.1	16.8	17.1	16.6	16.8	15.3
12948D08	17.1	18.3	19.4	19.8	19.9	20.3	19.8	18.9	18.0	18.4
12969D09	17.1	18.7	18.4	18.6	17.0	18.3	17.9	18.3	18.0	18.2
12875D10	15.7	16.4	16.1	17.1	16.7	16.3	15.7	15.7	16.4	15.1
12921D11	18.2	19.3	20.3	21.2	20.0	19.7	20.7	20.1	19.4	19.2
12980D12	16.0	17.3	16.8	18.7	17.0	16.8	17.3	16.1	17.8	16.5
12963D13	18.0	18.2	19.9	19.5	20.2	22.7	21.3	19.6	21.0	20.4
12905D14	18.3	18.9	19.4	19.0	18.4	20.0	16.7	16.9	18.2	19.3
12877D15	16.1	16.4	17.8	17.5	18.3	18.3	17.4	17.6	18.8	18.2
MEAN	16.9	17.5	18.1	18.4	18.0	16.5	19.1	17.9	18.0	17.5
S.D.	0.96	1.30	1.37	1.22	1.39	5.01	3.23	1.67	1.36	1.67
N	14	15	14	15	15	14	15	15	14	15

An asterisk indicates that food spillage was observed and animal was removed from food consumption.

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL FOOD CONSUMPTION (GRAMS/ANIMAL/DAY)
FEMALE GROUP: 4000 PPM

WEEK	1	2	3	4	5	6	7	8	9	10
ANIMAL										
12911E01										
14621E02										
12979E03	8.6	12.2	16.1	15.9	16.4	*	14.4	*	10.5	12.0
12957E04	3.7									
12925E05	7.1									
12965E06										
12874E07										
12952E08										
12930E09	6.1									
12886E10										
12934E11	7.7									
12926E12	10.3	12.3	15.0	18.5	18.9	*	17.5	*	16.5	
12960E13										
12897E14	6.9	11.1	*	21.0						
12947E15	*	15.6	16.3	20.2	20.4					
MEAN	7.2	12.8	15.8	18.9	18.5		15.9		13.5	12.0
S.D.	2.05	1.94	0.70	2.25	2.04		2.20		4.22	0.00
N	7	4	3	4	3		2		2	1

On this page, an asterisk indicates that food spillage was observed and the animal was removed from food consumption for a given period; all other blanks indicate dead animals.

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL FOOD CONSUMPTION (GRAMS/ANIMAL/DAY)
FEMALE GROUP: 0 PPM

WEEK	11	12	13
ANIMAL			
12966A01	15.9	14.4	15.4
12931A02	16.1	15.7	14.1
12919A03	16.7	16.7	17.1
12884A04	16.7	17.1	17.5
12977A05	16.5	18.0	15.9
12872A06	14.4	15.9	16.3
12913A07	18.2	17.9	16.8
12903A08	22.9	20.3	20.0
12880A09	18.2	18.5	18.0
12962A10	18.9	18.0	18.9
12950A11	19.3	19.7	22.3
12976A12	15.5	16.7	14.5
12973A13	18.9	18.6	18.5
12882A14	20.8	19.6	18.3
12893A15	17.7	17.9	18.0
MEAN	17.8	17.6	17.4
S.D.	2.21	1.61	2.12
N	15	15	15

TABLE 2
 NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
 AMMONIUM CHLORIDE (ADBAC) IN RATS
 INDIVIDUAL FOOD CONSUMPTION (GRAMS/ANIMAL/DAY)
 FEMALE GROUP: 100 PPM

WEEK	11	12	13
ANIMAL			
12933B01	18.0	17.0	15.5
12936B02	17.1	17.2	16.3
12888B03	20.3	20.0	18.4
12909B04	15.7	16.0	16.5
12899B05	18.6	18.5	17.3
12932B06	19.0	17.6	15.3
12970B07	17.5	18.6	17.2
12955B08	15.5	16.2	15.8
12906B09	16.5	16.2	14.7
12887B10	15.1	16.1	15.8
12878B11	18.1	18.2	18.8
12974B12	*	21.3	21.7
12923B13	18.4	19.2	18.4
12942B14	20.5	19.7	19.2
12953B15	17.3	16.2	15.9
MEAN	17.7	17.9	17.1
S.D.	1.64	1.67	1.88
N	14	15	15

An asterisk indicates that food spillage was observed and animal was removed from food consumption.

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL FOOD CONSUMPTION (GRAMS/ANIMAL/DAY)
FEMALE GROUP: 500 PPM

WEEK	11	12	13
<hr/>			
ANIMAL			
12869C01	13.6	15.1	14.8
12892C02	15.8	16.9	19.6
12889C03	15.5	14.8	13.9
12885C04	22.0	20.2	26.2
12941C05	15.6	15.7	14.9
12937C06	16.6	16.4	18.6
12894C07	16.5	15.2	14.8
12940C08	16.2	16.3	17.6
12928C09	*	*	*
12873C10	13.7	15.0	14.1
12935C11	18.2	18.0	17.0
12902C12	16.8	17.5	15.2
12895C13	19.0	17.9	16.2
12900C14	20.1	19.5	18.7
12971C15	17.6	19.1	18.9
MEAN	17.0	17.0	17.2
S.D.	2.31	1.79	3.25
N	14	14	14

An asterisk indicates that food spillage was observed and animal was removed from food consumption.

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL FOOD CONSUMPTION (GRAMS/ANIMAL/DAY)
FEMALE GROUP: 1000 PPM

WEEK	11	12	13
ANIMAL			
12975D01	17.7	17.2	16.0
12876D02	16.3	17.0	16.6
12978D03	16.2	15.4	15.3
12920D04	17.1	16.5	14.0
12867D05	14.7	15.7	14.6
12945D06	16.2	16.3	14.7
12958D07	16.3	16.6	16.1
12948D08	19.4	18.3	16.7
12969D09	17.4	18.7	18.5
12875D10	14.9	15.4	14.8
12921D11	20.4	19.3	18.0
12980D12	17.7	15.4	16.8
12963D13	18.7	18.5	18.4
12905D14	17.4	16.7	18.1
12877D15	17.4	17.8	17.9
MEAN	17.2	17.0	16.4
S.D.	1.54	1.30	1.52
N	15	15	15

APPENDIX 7

Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl Benzyl
Ammonium Chloride (ADBAC) in Rats

Individual Body Weights

(22 pages)

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL BODY WEIGHTS (GRAMS)
MALE GROUP: 0 PPM

WEEK	0	1	2	3	4	5	6	7	8	9
ANIMAL										
12746A01	225.0	273.4	319.2	351.4	373.5	398.1	414.9	431.5	447.9	463.9
12807A02	227.4	273.2	312.1	347.6	353.3	376.8	390.4	404.3	420.6	434.2
12783A03	228.2	266.9	305.0	332.2	355.6	377.8	395.2	413.8	437.1	448.4
12802A04	229.6	275.9	324.7	364.0	395.0	415.4	435.1	456.6	475.6	487.2
12821A05	232.5	285.3	328.5	355.5	389.0	414.6	438.4	466.4	489.1	510.0
12829A06	233.3	276.6	315.0	350.5	363.7	380.1	401.7	412.8	432.4	438.4
12827A07	233.6	277.5	328.5	364.5	389.4	409.8	431.7	448.6	462.2	473.3
12815A08	239.1	288.7	345.2	380.3	413.5	442.6	461.0	488.6	518.5	523.7
12837A09	239.7	286.5	325.6	358.4	384.0	405.6	421.4	435.3	445.7	458.0
12817A10	240.6	297.4	359.5	390.3	434.2	460.7	472.6	492.8	509.2	523.3
12844A11	246.2	300.0	353.7	399.6	436.4	462.3	465.6	510.3	531.6	551.0
12836A12	250.5	306.5	367.3	411.4	442.1	471.0	469.4	511.6	529.2	546.8
12755A13	244.1	299.3	346.2	385.1	407.8	410.2	433.9	458.7	476.1	486.3
12787A14	248.5	303.0	360.3	401.8	415.4	466.3	487.6	513.0	536.9	553.7
12796A15	250.9	299.0	352.3	395.9	423.1	448.9	464.6	485.6	504.0	519.4
MEAN	237.9	287.3	336.2	372.6	398.4	422.7	438.9	462.0	481.1	494.5
S.D.	8.73	12.86	19.82	23.87	29.18	33.38	30.37	37.37	39.18	41.15
N	15	15	15	15	15	15	15	15	15	15

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL BODY WEIGHTS (GRAMS)
MALE GROUP: 100 PPM

WEEK	0	1	2	3	4	5	6	7	8	9
ANIMAL										
12793801	225.9	268.0	312.7	348.4	370.3	389.4	399.8	425.1	435.0	444.6
12843802	233.6	281.3	321.6	351.0	382.3	401.0	421.0	450.5	467.1	476.7
12831803	232.8	280.3	326.8	361.7	391.9	409.4	440.7	457.5	476.0	483.8
12786804	230.9	280.8	325.1	354.8	374.1	396.1	413.2	433.3	448.3	461.0
12853805	234.2	280.9	326.3	359.7	380.1	403.0	418.1	435.5	454.2	468.1
12756806	237.6	290.8	338.1	372.5	410.8	427.7	444.8	462.4	485.6	501.9
12841807	235.0	276.1	309.5	342.1	370.7	382.8	399.6	424.3	437.6	448.8
12764808	237.8	284.1	334.2	372.0	432.0	430.1	441.3	456.3	482.8	498.9
12808809	237.3	279.3	320.9	356.9	378.8	398.8	420.0	435.4	450.6	466.5
12804810	241.5	283.6	329.6	356.9	381.2	398.9	418.7	435.5	450.4	466.4
12753811	239.0	287.8	335.3	374.4	396.9	427.1	447.4	466.1	489.4	497.9
12765812	237.5	285.5	331.6	349.1	381.7	394.2	397.0	412.1	430.1	443.8
12761813	240.9	290.9	341.6	386.5	416.4	440.5	467.6	492.3	519.6	533.0
12834814	245.5	294.8	337.9	372.4	401.1	419.1	441.6	458.5	481.5	493.4
12839815	247.8	296.5	348.4	380.2	407.4	428.0	445.4	467.3	484.9	497.4
MEAN	237.1	284.0	329.3	362.6	391.7	409.7	427.7	447.5	466.2	478.8
S.D.	5.54	7.39	10.56	13.02	18.46	17.58	20.93	21.06	25.04	25.15
N	15	15	15	15	15	15	15	15	15	15

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL BODY WEIGHTS (GRAMS)
MALE GROUP: 500 PPM

WEEK	0	1	2	3	4	5	6	7	8	9
ANIMAL										
12809C01	225.6	269.4	314.8	344.3	374.0	398.3	419.5	440.2	455.8	475.7
12846C02	225.6	269.2	309.4	346.0	369.1	381.3	403.0	427.0	447.1	465.0
12848C03	234.4	283.7	332.7	368.3	399.9	419.3	439.0	459.3	472.7	487.3
12813C04	234.9	278.2	316.7	352.9	377.6	400.1	419.5	436.2	458.3	468.1
12772C05	228.3	268.5	311.8	337.5	361.2	378.7	397.0	411.7	428.2	443.8
12744C06	233.8	276.9	322.7	357.1	381.5	403.3	418.1	432.9	447.5	458.8
12773C07	231.5	276.5	317.5	353.0	379.8	396.2	418.7	433.7	455.8	461.1
12814C08	236.6	295.7	344.3	380.0	415.8	437.3	453.4	474.8	493.6	503.3
12840C09	239.6	285.9	329.1	364.1	392.2	413.1	416.6	432.4	452.0	471.9
12855C10	239.2	274.2	312.6	349.3	379.9	406.0	431.7	441.1	462.7	479.1
12805C11	240.9	291.0	337.6	372.4	402.2	426.8	449.6	471.6	488.3	503.6
12842C12	238.2	292.6	335.1	373.7	391.5	419.8	438.4	456.4	475.4	487.4
12850C13	247.2	298.1	351.5	388.7	415.1	440.6	465.8	488.8	512.4	524.6
12806C14	237.3	267.5	307.9	338.1	386.9	376.0	387.4	403.7	431.1	461.1
12784C15	247.0	291.2	339.3	368.5	397.1	416.6	442.4	455.9	471.9	491.5
MEAN	236.0	281.2	325.5	359.6	388.3	407.6	426.7	444.4	463.5	478.8
S.D.	6.58	10.63	13.91	15.51	15.85	19.91	21.81	23.38	22.85	21.10
N	15	15	15	15	15	15	15	15	15	15

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL BODY WEIGHTS (GRAMS)
MALE GROUP: 1000 PPM

WEEK	0	1	2	3	4	5	6	7	8	9
ANIMAL										
12826D01	225.3	268.7	309.9	340.3	369.3	389.5	405.4	430.8	454.3	470.4
12819D02	226.8	274.6	319.1	351.0	384.3	409.9	422.4	432.4	454.3	465.0
12818D03	232.1	272.0	298.5	322.2	341.5	357.3	375.6	403.8	425.0	443.0
12777D04	230.9	277.4	311.0	341.4	366.6	381.8	394.8	409.4	423.4	435.3
12835D05	229.5	262.9	300.0	332.2	359.4	387.3	415.2	434.4	450.3	464.3
12782D06	233.2	276.9	316.3	343.5	366.8	390.3	410.7	431.9	448.7	468.0
12823D07	235.3	281.5	324.3	358.3	386.1	411.4	435.9	452.1	471.8	485.8
12825D08	242.0	293.9	339.5	373.0	400.2	422.3	439.3	458.4	468.6	477.6
12742D09	238.6	286.4	329.0	361.8	394.6	426.4	446.1	459.8	478.0	497.3
12778D10	243.3	289.5	333.9	372.7	399.4	426.8	450.8	481.1	504.2	528.7
12774D11	238.6	285.9	328.8	361.8	388.7	407.6	422.5	441.1	454.1	468.8
12849D12	241.8	293.3	338.3	375.2	396.0	420.0	443.1	460.9	482.8	501.9
12785D13	242.6	286.5	324.4	355.2	379.9	395.0	409.0	423.2	441.7	443.5
12851D14	242.1	285.3	320.1	350.4	376.2	395.3	414.5	433.6	451.9	457.8
12801D15	247.2	297.7	348.0	381.3	409.3	435.9	456.8	485.5	503.0	514.0
MEAN	236.6	282.2	322.7	354.7	381.2	403.8	422.8	442.6	460.8	474.8
S.D.	6.69	9.93	14.24	16.90	18.14	21.12	22.54	23.59	24.09	26.67
N	15	15	15	15	15	15	15	15	15	15

TABLE 1
 NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
 AMMONIUM CHLORIDE (ADBAC) IN RATS
 INDIVIDUAL BODY WEIGHTS (GRAMS)
 MALE GROUP: 4000 PPM

WEEK	0	1	2	3	4	5	6	7	8	9
ANIMAL										
12763E01	221.6	180.8	194.1	219.4	242.6	264.2	304.1	307.7	328.9	342.5
12791E02	227.7	171.3	dead							
12762E03	225.0	192.6	176.5	200.8	231.2	271.2	302.1	305.0	314.7	328.8
12797E04	228.9	176.0	dead							
12749E05	230.8	185.4	163.9							
12798E06	232.5	187.8	dead							
12828E07	235.3	189.0	dead							
12792E08	234.3	dead								
12820E09	237.9	185.8	dead							
12767E10	233.5	202.5	192.2	218.3	256.7	284.8	313.6	325.1	344.8	356.2
12771E11	236.6	197.3	dead							
12856E12	242.9	186.7	dead							
12758E13	239.4	185.7	dead							
12845E14	250.1	191.7	dead							
12816E15	245.3	202.1	dead							
MEAN	234.8	188.2	181.7	212.8	243.5	273.4	306.6	312.6	329.5	342.5
S.D.	7.66	8.88	14.24	10.41	12.78	10.44	6.10	10.92	15.09	13.73
N	15	14	4	3	3	3	3	3	3	3

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL BODY WEIGHTS (GRAMS)
MALE GROUP: 8000 PPM

WEEK	0	1	2	3	4	5	6	7	8	9
ANIMAL										
12811F01	227.0	dead								
12788F02	225.0	dead								
12766F03	231.6	157.0	dead							
12752F04	229.5	dead								
12830F05	235.5	dead								
12824F06	231.7	152.4	dead							
12781F07	235.7	dead								
12760F08	234.5	153.9	dead							
12812F09	237.8	160.8	dead							
12775F10	234.4	157.9	dead							
12745F11	234.6	dead								
12751F12	236.8	dead								
12750F13	240.6	165.4	dead							
12847F14	247.4	163.2	dead							
12800F15	249.4	165.1	dead							
MEAN	235.4	159.5								
S.D.	6.65	4.97								
N	15	8								

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL BODY WEIGHTS (GRAMS)
MALE GROUP: 0 PPM

WEEK	10	11	12	13
ANIMAL				
12746A01	477.5	484.8	494.5	499.5
12807A02	445.6	442.5	451.7	456.9
12783A03	465.5	470.7	487.4	484.5
12802A04	505.9	520.6	529.9	539.4
12821A05	520.3	529.5	542.4	551.1
12829A06	456.7	462.6	474.4	483.5
12827A07	494.7	498.3	510.9	510.6
12815A08	540.0	547.3	562.1	571.6
12837A09	468.2	475.4	484.5	492.8
12817A10	540.4	548.9	561.8	566.8
12844A11	564.3	570.3	588.9	597.0
12836A12	561.5	570.2	585.9	591.2
12755A13	503.7	510.8	518.9	530.3
12787A14	566.7	567.1	588.7	595.4
12796A15	527.6	544.3	559.2	577.8
MEAN	509.2	516.2	529.4	536.6
S.D.	40.63	42.12	44.67	46.32
N	15	15	15	15

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL BODY WEIGHTS (GRAMS)
MALE GROUP: 100 PPM

WEEK	10	11	12	13
ANIMAL				
12793B01	455.3	463.2	474.7	478.3
12843B02	495.4	499.5	507.3	517.6
12831B03	509.6	506.1	516.6	530.7
12786B04	481.1	483.2	495.4	502.3
12853B05	482.7	487.9	503.5	509.9
12756B06	516.7	520.2	532.2	544.6
12841B07	458.3	472.3	479.3	496.9
12764B08	511.5	518.7	528.8	541.7
12808B09	479.0	487.4	496.9	501.3
12804B10	473.2	481.0	491.2	498.6
12753B11	514.5	520.8	532.1	537.9
12765B12	456.9	463.7	473.3	462.9
12761B13	561.2	562.2	581.1	589.2
12834B14	512.4	519.3	534.1	542.0
12839B15	519.0	519.3	537.1	536.7
MEAN	495.1	500.3	512.2	519.4
S.D.	29.34	27.03	29.27	31.41
N	15	15	15	15

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL BODY WEIGHTS (GRAMS)
MALE GROUP: 500 PPM

WEEK	10	11	12	13
ANIMAL				
12809C01	482.1	488.1	499.5	509.9
12846C02	471.7	478.9	493.6	504.9
12848C03	505.8	513.3	521.7	528.8
12813C04	472.7	463.3	479.4	489.3
12772C05	459.8	464.8	474.5	478.4
12744C06	465.3	470.3	485.0	487.0
12773C07	475.3	478.6	495.4	500.5
12814C08	522.5	525.8	541.1	544.1
12840C09	479.0	494.2	503.6	512.2
12855C10	487.8	493.2	507.5	519.3
12805C11	511.0	522.7	537.7	542.3
12842C12	501.5	510.2	527.0	531.8
12850C13	536.2	548.4	563.8	573.5
12806C14	459.6	473.6	493.5	497.3
12784C15	504.3	511.0	536.0	548.4
MEAN	489.0	495.8	510.6	517.9
S.D.	23.44	25.28	26.01	26.66
N	15	15	15	15

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL BODY WEIGHTS (GRAMS)
MALE GROUP: 1000 PPM

WEEK	10	11	12	13
ANIMAL				
12826D01	487.4	498.1	515.8	523.7
12819D02	479.7	487.4	498.7	476.5
12818D03	457.9	466.2	481.5	488.7
12777D04	440.2	447.1	455.5	457.5
12835D05	475.7	484.6	496.4	511.1
12782D06	478.1	478.2	494.4	499.3
12823D07	502.5	510.7	532.2	542.3
12825D08	487.3	495.4	511.1	520.8
12742D09	509.6	518.1	530.9	538.0
12778D10	550.0	561.3	576.1	590.5
12774D11	481.1	490.3	505.7	511.4
12849D12	515.7	521.7	537.4	529.2
12785D13	447.9	457.8	471.3	472.4
12851D14	472.4	481.8	496.5	498.9
12801D15	531.3	548.1	563.6	566.5
MEAN	487.8	496.4	511.1	515.1
S.D.	29.97	31.45	32.71	35.62
N	15	15	15	15

TABLE 1
 NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
 AMMONIUM CHLORIDE (ADBAC) IN RATS
 INDIVIDUAL BODY WEIGHTS (GRAMS)
 MALE GROUP: 4000 PPM

WEEK	10	11	12	13
ANIMAL				
12763E01	354.7	370.6	363.4	376.9
12762E03	332.6	340.2	358.7	361.6
12767E10	378.9	390.6	406.3	403.0
MEAN	355.4	367.1	376.1	380.5
S.D.	23.16	25.39	26.23	20.92
N	3	3	3	3

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL BODY WEIGHTS (GRAMS)
FEMALE GROUP: 0 PPM

WEEK	0	1	2	3	4	5	6	7	8	9
ANIMAL										
12966A01	152.8	173.9	184.9	203.1	220.1	229.0	230.4	241.9	248.1	248.2
12931A02	152.4	172.3	190.3	207.8	220.7	228.5	234.0	245.8	251.3	254.1
12919A03	151.0	166.8	188.0	196.6	204.3	202.7	212.5	228.8	235.9	240.3
12884A04	150.9	164.9	180.1	191.9	198.9	199.9	212.2	227.1	231.0	231.2
12977A05	158.6	169.6	183.7	191.8	203.9	211.5	216.8	225.9	240.2	249.2
12872A06	150.0	168.6	184.6	192.9	194.7	205.6	214.1	224.3	231.3	237.3
12913A07	155.4	169.5	184.8	196.4	213.4	225.0	232.9	246.3	258.8	263.9
12903A08	161.6	185.4	208.3	217.1	231.2	228.2	270.2	270.4	279.0	282.2
12880A09	157.3	178.6	194.9	208.6	214.3	227.0	235.0	245.1	245.7	257.6
12962A10	154.5	173.5	196.8	207.0	218.1	221.3	235.9	245.0	250.4	253.1
12950A11	161.7	182.4	202.8	212.0	225.4	234.4	240.8	250.9	259.1	261.9
12976A12	159.5	184.0	203.1	222.8	236.3	243.9	247.0	259.0	266.3	266.6
12973A13	162.2	181.1	202.2	215.9	227.9	236.0	245.7	265.4	266.5	268.2
12882A14	162.7	186.3	207.2	219.5	232.4	246.3	251.7	258.6	268.0	276.0
12893A15	170.4	185.6	212.9	225.7	227.9	230.8	240.2	257.5	262.3	260.2
MEAN	157.4	176.2	195.0	207.3	218.0	224.7	234.6	246.1	252.9	256.7
S.D.	5.74	7.53	10.57	11.52	12.83	14.12	16.15	14.64	14.42	14.11
N	15	15	15	15	15	15	15	15	15	15

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL BODY WEIGHTS (GRAMS)
FEMALE GROUP: 100 PPM

WEEK	0	1	2	3	4	5	6	7	8	9
ANIMAL										
12933B01	152.3	166.7	180.0	201.7	211.9	216.6	218.9	234.9	242.9	242.3
12936B02	152.6	170.7	185.4	208.0	218.9	228.9	235.8	247.1	256.2	259.1
12888B03	153.6	173.6	195.4	205.6	220.3	228.5	237.7	253.0	257.2	271.5
12909B04	150.1	162.8	180.1	186.9	193.3	195.6	212.3	215.7	217.6	224.1
12899B05	153.8	172.8	189.2	204.1	206.9	214.0	225.9	232.0	238.3	244.5
12932B06	157.8	173.6	184.8	198.7	211.2	209.5	212.4	226.4	233.5	232.9
12970B07	161.1	188.0	203.0	215.3	223.4	232.7	239.8	247.5	254.7	261.1
12955B08	157.4	176.1	187.9	203.9	211.8	219.3	225.9	234.7	243.4	249.3
12906B09	158.0	171.8	189.5	193.9	204.1	216.2	223.2	235.7	247.5	253.0
12887B10	156.5	174.1	191.9	207.2	217.8	219.4	231.1	244.6	251.1	257.2
12878B11	160.7	176.7	202.0	207.3	210.3	221.2	234.5	241.2	251.1	256.3
12974B12	164.1	190.6	208.8	220.3	227.1	251.9	264.9	278.6	283.3	293.2
12923B13	169.7	178.5	204.0	221.1	234.2	238.9	255.8	272.4	279.9	282.7
12942B14	174.1	198.9	214.5	239.3	253.6	266.4	276.7	278.4	297.9	296.3
12953B15	173.0	190.9	212.2	232.7	257.8	240.5	254.5	261.1	270.5	277.6
MEAN	159.7	177.7	195.3	209.7	220.2	226.6	236.6	246.9	255.0	260.1
S.D.	7.55	10.00	11.42	13.99	17.45	17.67	18.98	18.83	20.73	20.96
N	15	15	15	15	15	15	15	15	15	15

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL BODY WEIGHTS (GRAMS)
FEMALE GROUP: 500 PPM

WEEK	0	1	2	3	4	5	6	7	8	9
ANIMAL										
12869C01	150.1	168.8	183.8	193.6	204.4	214.9	222.8	223.4	233.4	237.4
12892C02	150.6	161.4	179.9	186.1	192.1	199.4	208.3	217.4	219.6	227.5
12889C03	151.4	173.6	190.8	210.8	219.5	227.6	232.6	241.1	251.4	254.3
12885C04	157.4	173.9	191.6	199.9	214.0	224.8	232.2	230.0	237.1	245.1
12941C05	154.7	177.8	199.2	212.4	228.2	238.4	246.6	248.4	260.6	264.0
12937C06	149.2	170.4	181.6	202.1	218.4	234.9	248.8	262.3	266.0	274.1
12894C07	156.8	176.6	186.0	179.5	200.3	207.1	208.5	223.8	229.9	235.3
12940C08	157.0	181.7	201.7	214.2	223.9	239.9	248.6	255.6	263.5	270.1
12928C09	159.1	175.6	188.9	209.9	223.6	231.3	235.8	254.9	262.7	265.5
12873C10	161.3	176.9	191.2	207.7	218.2	221.4	228.4	238.4	244.6	242.3
12935C11	163.8	178.1	190.8	194.4	208.2	215.9	221.3	227.9	241.1	249.5
12902C12	164.7	182.1	201.9	225.0	238.8	245.4	252.4	265.0	278.5	285.6
12895C13	169.9	188.2	207.9	224.2	236.7	239.1	246.1	259.7	270.9	268.2
12900C14	165.7	184.0	206.2	221.6	231.3	242.6	262.5	272.4	280.6	297.2
12971C15	171.5	186.9	206.5	219.0	231.4	235.1	243.3	254.5	252.8	260.2
MEAN	158.9	177.1	193.9	206.7	219.3	227.8	235.9	245.0	252.8	258.4
S.D.	7.14	7.08	9.36	13.85	13.54	13.69	15.95	17.39	18.26	19.41
N	15	15	15	15	15	15	15	15	15	15

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL BODY WEIGHTS (GRAMS)
FEMALE GROUP: 1000 PPM

WEEK	0	1	2	3	4	5	6	7	8	9
ANIMAL										
12975D01	152.6	171.2	181.5	199.6	213.3	224.1	188.2	216.4	231.0	241.0
12876D02	153.2	168.6	179.9	198.9	210.3	217.0	202.1	230.6	232.5	235.8
12978D03	159.3	178.9	195.7	206.0	217.0	226.4	230.1	233.4	240.1	243.5
12920D04	154.4	173.9	185.9	190.8	207.4	214.9	170.1	239.7	245.6	241.4
12867D05	147.7	170.0	185.6	193.3	208.7	215.0	214.8	223.9	230.2	239.7
12945D06	159.3	178.5	195.5	208.7	220.6	226.3	232.6	245.2	252.7	256.7
12958D07	155.7	170.2	184.2	195.4	208.3	218.9	226.2	236.1	239.5	246.3
12948D08	162.4	184.5	200.1	223.6	236.0	243.3	251.9	265.9	271.0	272.7
12969D09	156.7	181.3	199.2	211.0	222.3	224.3	235.1	241.8	251.7	249.5
12875D10	154.3	178.2	195.7	203.5	212.5	224.8	231.1	233.1	236.8	244.2
12921D11	162.8	184.3	201.4	226.3	237.6	249.6	252.4	271.1	281.0	281.0
12980D12	170.6	185.0	211.2	223.3	232.6	245.3	246.1	264.1	259.7	272.2
12963D13	167.4	184.2	194.7	213.6	229.2	244.1	258.2	269.1	274.9	286.1
12905D14	170.5	188.6	212.0	225.7	233.3	239.1	252.1	251.2	257.0	263.6
12877D15	169.7	190.6	208.4	228.6	240.1	254.4	262.1	265.1	272.1	286.6
MEAN	159.8	179.2	195.4	209.9	221.9	231.2	230.2	245.8	251.7	257.4
S.D.	7.22	7.11	10.39	13.06	11.85	13.42	26.66	17.65	17.08	18.09
N	15	15	15	15	15	15	15	15	15	15

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL BODY WEIGHTS (GRAMS)
FEMALE GROUP: 4000 PPM

WEEK	0	1	2	3	4	5	6	7	8	9
ANIMAL										
12911E01	154.1	125.4	dead							
14621E02	153.2	dead								
12979E03	150.9	138.0	146.7	170.3	177.5	191.2	205.7	213.0	214.1	188.4
12957E04	156.6	118.1	dead							
12925E05	155.6	123.3	dead							
12965E06	160.3	130.5	dead							
12874E07	156.9	117.4	dead							
12952E08	159.3	dead								
12930E09	160.2	133.3	dead							
12886E10	162.4	136.6	dead							
12934E11	161.0	132.7	dead							
12926E12	165.4	131.3	146.2	182.9	197.4	225.7	234.5	248.4	246.2	243.8
12960E13	163.7	133.6	dead							
12897E14	169.4	144.9	152.1	187.6	199.0	213.9	225.1	232.4	231.1	237.3
12947E15	174.3	148.4	175.4	184.0	201.0	228.1	237.7	242.4	252.2	253.4
MEAN	160.2	131.8	155.1	181.2	193.7	214.7	225.8	234.1	235.9	230.7
S.D.	6.26	9.26	13.82	7.54	10.91	16.85	14.40	15.50	17.06	28.98
N	15	13	4	4	4	4	4	4	4	4

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL BODY WEIGHTS (GRAMS)
FEMALE GROUP: 8000 PPM

WEEK	0	1	2	3	4	5	6	7	8	9
ANIMAL										
12908F01	150.6	dead								
12918F02	152.1	dead								
12891F03	152.9	dead								
12907F04	150.1	dead								
12915F05	156.5	dead								
12972F06	162.4	dead								
12927F07	153.6	dead								
12881F08	155.1	dead								
12914F09	163.2	dead								
12944F10	158.9	dead								
12939F11	166.6	dead								
12910F12	161.1	dead								
12956F13	165.4	dead								
12871F14	171.1	dead								
12924F15	174.4	dead								
MEAN	159.6									
S.D.	7.53									
N	15									

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL BODY WEIGHTS (GRAMS)
FEMALE GROUP: 0 PPM

WEEK	10	11	12	13

ANIMAL				
12966A01	258.3	255.4	265.6	268.9
12931A02	258.6	263.5	272.2	273.3
12919A03	249.5	258.2	257.9	257.3
12884A04	238.0	246.2	254.8	252.7
12977A05	248.7	248.6	258.6	260.6
12872A06	242.4	243.6	248.0	254.0
12913A07	263.8	272.3	278.4	277.1
12903A08	289.6	305.2	305.2	305.5
12880A09	265.9	266.7	271.9	275.8
12962A10	257.4	269.0	271.8	277.1
12950A11	266.5	274.9	287.0	283.0
12976A12	277.1	277.0	283.5	283.4
12973A13	278.8	287.2	295.1	296.4
12882A14	267.8	279.9	286.9	289.7
12893A15	268.8	278.2	282.6	280.1
MEAN	262.1	268.4	274.6	275.7
S.D.	13.96	16.62	15.94	15.29
N	15	15	15	15

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL BODY WEIGHTS (GRAMS)
FEMALE GROUP: 100 PPM

WEEK	10	11	12	13
ANIMAL				
12933801	238.3	250.1	257.8	257.9
12936802	265.6	271.9	280.3	282.9
12888803	286.5	290.6	296.2	298.1
12909804	230.3	231.4	233.2	238.5
12899805	248.9	254.3	257.1	254.6
12932806	231.1	243.8	254.0	247.5
12970807	261.3	260.5	268.1	269.0
12955808	261.7	260.8	265.1	260.1
12906809	254.9	258.2	262.8	264.7
12887810	267.9	270.1	278.2	279.1
12878811	267.8	269.0	270.1	276.9
12974812	301.7	307.3	306.0	317.6
12923813	292.1	300.5	313.2	307.7
12942814	309.4	315.5	311.6	318.3
12953815	294.1	305.9	299.8	299.0
MEAN	267.5	272.7	276.9	278.1
S.D.	24.98	25.53	23.79	25.29
N	15	15	15	15

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL BODY WEIGHTS (GRAMS)
FEMALE GROUP: 500 PPM

WEEK	10	11	12	13
ANIMAL				
12869C01	244.5	242.5	251.7	260.0
12892C02	236.9	238.6	242.5	241.1
12889C03	256.4	266.9	276.3	274.5
12885C04	251.6	251.8	261.1	266.1
12941C05	270.5	273.3	281.4	283.0
12937C06	278.0	282.7	294.9	307.6
12894C07	236.4	239.3	246.1	244.2
12940C08	279.1	280.3	282.8	288.3
12928C09	268.3	266.2	280.1	277.6
12873C10	254.0	255.9	262.9	262.3
12935C11	252.9	253.6	264.0	268.5
12902C12	290.3	298.7	310.4	307.6
12895C13	272.1	279.5	286.1	285.0
12900C14	303.9	312.1	316.9	318.6
12971C15	266.5	266.0	273.9	276.3
MEAN	264.1	267.2	275.4	277.4
S.D.	19.19	21.33	21.63	22.20
N	15	15	15	15

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL BODY WEIGHTS (GRAMS)
FEMALE GROUP: 1000 PPM

WEEK	10	11	12	13
ANIMAL				
12975D01	248.3	255.6	265.9	264.8
12876D02	242.6	244.7	247.1	251.2
12978D03	246.4	252.5	252.5	253.3
12920D04	236.8	243.6	250.7	244.6
12867D05	242.9	238.1	248.1	252.5
12945D06	264.5	265.3	275.7	270.6
12958D07	251.0	254.4	256.3	259.3
12948D08	276.6	286.2	293.2	294.3
12969D09	265.9	253.5	267.1	274.9
12875D10	250.1	247.2	252.1	252.6
12921D11	284.3	299.2	304.5	310.1
12980D12	281.1	290.2	281.9	293.6
12963D13	289.3	294.1	302.9	306.3
12905D14	275.6	276.9	282.8	285.1
12877D15	286.9	287.3	293.9	306.3
MEAN	262.8	265.9	271.7	274.6
S.D.	18.33	20.91	20.52	22.91
N	15	15	15	15

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL BODY WEIGHTS (GRAMS)
FEMALE GROUP: 4000 PPM

WEEK	10	11	12	13
ANIMAL				
12979E03	192.6	208.9	219.6	217.7
12926E12	251.2	259.5	262.6	249.7
12897E14	241.5	239.6	241.2	243.9
12947E15	264.2	253.8	265.2	264.4
MEAN	237.4	240.4	247.2	243.9
S.D.	31.27	22.63	21.31	19.50
N	4	4	4	4

APPENDIX 8

Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl Benzyl
Ammonium Chloride (ADBAC) in Rats

Individual Ophthalmic Findings

(6 pages)

TABLE 1
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL OPHTHALMIC EXAMINATION RESULTS

MALE GROUP: 0 PPM

<u>Animal</u>	<u>Right Eye</u>	<u>Left Eye</u>
12746A01	CC (minimal)	CC (minimal)
12807A02	PH, CC (minimal)	CC (minimal)
12783A03	Normal	Normal
12802A04	CC (minimal)	Normal
12821A05	CC (minimal)	CC (minimal)
12829A06	PH, CC (minimal)	Normal
12827A07	CC (minimal)	Normal
12815A08	CC (minimal)	CC (minimal)
12837A09	CC (minimal)	CC (minimal)
12817A10	CC (minimal)	CC (minimal)
12844A11	CC (minimal)	CC (minimal)
12836A12	CC (minimal)	CC (minimal)
12755A13	CC (minimal)	CC (minimal)
12787A14	CC (minimal)	CC (minimal)
12796A15	CC (minimal)	Normal

MALE GROUP: 100 PPM

<u>Animal</u>	<u>Right Eye</u>	<u>Left Eye</u>
12793B01	CC (minimal)	CC (minimal)
12843B02	CC (minimal)	CC (mild), Syn
12831B03	Normal	Normal
12786B04	CC (minimal)	CC (minimal)
12853B05	CC (minimal)	CC (minimal)
12756B06	CC (minimal)	CC (minimal)
12841B07	CC (minimal)	CC (minimal)
12764B08	CC (minimal)	Normal
12808B09	CC (minimal)	CC (minimal)
12804B10	CC (minimal)	CC (minimal)
12753B11	CC (minimal)	CC (minimal)
12765B12	CC (mild)	CC (minimal)
12761B13	CC (minimal)	CC (minimal)
12834B14	Normal	Normal
12839B15	CC (minimal)	CC (minimal)

CC = Corneal Crystals; PH = Persistent Hyaloid; Syn = Synechia (Anterior); RB Dis = Red-brown Discharge; I= Iritis

TABLE 1 (CONTINUED)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL OPHTHALMIC EXAMINATION RESULTS

MALE GROUP: 500 PPM

<u>Animal</u>	<u>Right Eye</u>	<u>Left Eye</u>
12809C01	CC (minimal)	CC (minimal)
12846C02	CC (minimal)	CC (minimal)
12848C03	Normal	CC (minimal)
12813C04	Normal	Normal
12772C05	CC (minimal)	CC (minimal)
12744C06	CC (minimal)	CC (minimal)
12773C07	CC (minimal)	Normal
12814C08	Normal	Normal
12840C09	CC (minimal), RB Dis	CC (minimal)
12855C10	Normal	CC (minimal)
12805C11	CC (minimal)	CC (minimal)
12842C12	CC (minimal)	CC (minimal)
12850C13	CC (minimal)	CC (minimal)
12806C14	Normal	CC (minimal)
12784C15	CC (mild)	CC (mild)

MALE GROUP: 1000 PPM

<u>Animal</u>	<u>Right Eye</u>	<u>Left Eye</u>
12826D01	CC (minimal)	CC (minimal)
12819D02	CC (minimal), RB Dis	CC (minimal)
12818D03	CC (minimal)	CC (minimal)
12777D04	CC (minimal)	CC (minimal)
12835D05	CC (minimal)	CC (minimal)
12782D06	CC (minimal)	CC (minimal)
12823D07	CC (minimal)	CC (minimal)
12825D08	CC (minimal)	CC (minimal)
12742D09	CC (minimal)	CC (minimal)
12778D10	CC (minimal)	CC (minimal)
12774D11	CC (minimal)	CC (minimal)
12849D12	CC (minimal)	CC (minimal)
12785D13	CC (minimal)	CC (minimal)
12851D14	CC (minimal)	CC (minimal), I
12801D15	CC (minimal)	CC (minimal)

CC = Corneal Crystals; PH = Persistent Hyaloid; Syn = Synechia (Anterior); RB Dis = Red-brown Discharge; I = Iritis

TABLE 1 (CONTINUED)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL OPHTHALMIC EXAMINATION RESULTS

MALE GROUP: 4000 PPM

<u>Animal</u>	<u>Right Eye</u>	<u>Left Eye</u>
12763E01	PH	Normal
12762E03	Normal	Normal
12767E10	PH	*

CC = Corneal Crystals; PH = Persistent Hyaloid; Syn = Synchia (Anterior); RB Dis = Red-brown Discharge; I = Iritis
* = Recording inadvertently omitted

TABLE 2
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL OPHTHALMIC EXAMINATION RESULTS

FEMALE GROUP: 0 PPM

<u>Animal</u>	<u>Right Eye</u>	<u>Left Eye</u>
12966A01	Normal	Normal
12931A02	CC (minimal)	CC (minimal)
12919A03	CC (minimal)	CC (mild)
12884A04	Normal	Normal
12977A05	Normal	Normal
12872A06	CC (minimal)	Normal
12913A07	CC (minimal), PH	PH
12903A08	CC (minimal)	CC (minimal)
12880A09	CC (minimal)	CC (minimal)
12962A10	CC (minimal)	CC (minimal)
12950A11	CC (minimal)	CC (minimal)
12976A12	CC (minimal)	CC (minimal)
12973A13	CC (minimal)	CC (minimal)
12882A14	Normal	Normal
12893A15	Normal	Normal

FEMALE GROUP: 100 PPM

<u>Animal</u>	<u>Right Eye</u>	<u>Left Eye</u>
12933B01	Normal	Normal
12936B02	CC (minimal)	CC (minimal)
12888B03	CC (minimal)	CC (minimal)
12909B04	Normal	Normal
12899B05	CC (minimal)	CC (minimal)
12932B06	CC (minimal)	Normal
12970B07	CC (minimal)	CC (minimal)
12955B08	CC (minimal)	CC (minimal)
12906B09	CC (minimal)	CC (minimal)
12887B10	CC (minimal)	Normal
12878B11	CC (minimal)	CC (minimal), PH
12974B12	Normal	Normal
12923B13	CC (minimal)	CC (minimal), PH
12942B14	CC (minimal)	CC (minimal)
12953B15	CC (minimal)	CC (minimal)

CC = Corneal Crystals; PH = Persistent Hyaloid; Syn = Synechia (Anterior); RB Dis = Red-brown Discharge; I = Iritis

TABLE 2 (CONTINUED)
NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
AMMONIUM CHLORIDE (ADBAC) IN RATS
INDIVIDUAL OPHTHALMIC EXAMINATION RESULTS

FEMALE GROUP: 500 PPM

<u>Animal</u>	<u>Right Eye</u>	<u>Left Eye</u>
12869C01	CC (minimal)	CC (minimal)
12892C02	CC (minimal)	CC (minimal)
12889C03	CC (minimal)	CC (minimal)
12885C04	CC (minimal)	CC (minimal)
12941C05	CC (minimal)	CC (minimal)
12937C06	CC (minimal)	CC (minimal)
12894C07	CC (minimal)	CC (minimal), PH
12940C08	CC (minimal)	CC (minimal)
12928C09	Normal	CC (minimal)
12873C10	CC (minimal)	Normal
12935C11	Normal	CC (minimal)
12902C12	CC (minimal)	Normal
12895C13	CC (mild)	CC (minimal), PH
12900C14	CC (minimal)	CC (mild)
12971C15	CC (minimal)	CC (minimal)

FEMALE GROUP: 1000 PPM

<u>Animal</u>	<u>Right Eye</u>	<u>Left Eye</u>
12975D01	CC (minimal)	CC (minimal)
12876D02	CC (minimal)	CC (minimal)
12978D03	CC (minimal)	CC (minimal)
12920D04	Normal	Normal
12867D05	CC (minimal)	CC (minimal)
12945D06	CC (minimal)	CC (minimal)
12958D07	CC (minimal)	CC (minimal)
12948D08	CC (minimal)	CC (minimal)
12969D09	CC (minimal)	CC (minimal)
12875D10	Normal	CC (minimal)
12921D11	CC (minimal)	Normal
12980D12	Normal	CC (minimal)
12963D13	CC (minimal)	CC (minimal)
12905D14	Normal	CC (minimal)
12877D15	Normal	Normal

CC = Corneal Crystals; PH = Persistent Hyaloid; Syn = Synechia (Anterior); RB Dis = Red-brown Discharge; I = Iritis

TABLE 2 (CONTINUED)
 NINETY-DAY DIETARY TOXICITY STUDY WITH ALKYL DIMETHYL BENZYL
 AMMONIUM CHLORIDE (ADBAC) IN RATS
 INDIVIDUAL OPHTHALMIC EXAMINATION RESULTS

FEMALE GROUP: 4000 PPM

<u>Animal</u>	<u>Right Eye</u>	<u>Left Eye</u>
12979E03	Normal	Normal
12926E12	Normal	Normal
12897E14	Normal	Normal
12947E15	Normal	Normal

CC = Corneal Crystals; PH = Persistent Hyaloid; Syn = Synechia (Anterior); RB Dis = Red-brown Discharge; I = Iritis

MRADB9EYE, JVM/*T
 011287

APPENDIX 9

Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl Benzyl
Ammonium Chloride (ADBAC) in Rats

Protocol and Protocol Amendments

(28 Pages)



BUSHY RUN RESEARCH CENTER

R. D. 4, Mellon Road, Export, Pennsylvania 15632

Telephone (412) 733-5200

PROTOCOL

TITLE: Ninety-Day Dietary Dose Range Finding Study with Alkyl Dimethyl Benzyl Ammonium Chloride (ADBAC) in Rats

BRRC PROJECT NUMBER: 87-37-97101

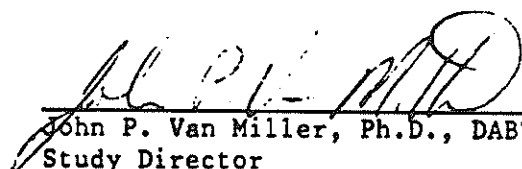
TESTING FACILITY: Bushy Run Research Center
Union Carbide Corporation
RD 4, Mellon Road
Export, PA 15632

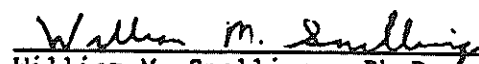
SPONSOR: ADBAC QUAT Joint Venture/
Chemical Specialties Manufacturing Association
Suite 1120
1001 Connecticut Ave., N.W.
Washington, D.C. 20036


SPONSOR'S REPRESENTATIVE: Gerald P. Schoenig, Ph.D.
54 Canterbury Road
Charlottesville, VA 22901


Reviewed and Approved by:

Bushy Run Research Center:


John P. Van Miller, Ph.D., DABT
Study Director
5-18-87
Date


William M. Snellings, Ph.D.
Project Manager
5-19-87
Date


Linda J. Calisti, B.S.
Group Leader, Good Laboratory
Practices/Quality Assurance
5-19-87
Date


Fred R. Frank, Ph.D.
Director
5/19/87
Date

Sponsor's Representative:


Gerald P. Schoenig, Ph.D.
May 27, 1987
Date

PURPOSE

The purposes of this study will be to define the subchronic toxicological potential of ADBAC and to obtain information which can be used to select dosage levels for a rat toxicity/oncogenicity feeding study and a rat two-generation reproduction study scheduled to be conducted on ADBAC.

GENERAL

Sponsor ADBAC QUAT Joint Venture/
Chemical Specialties Manufacturing Association

Project Monitor Gerald P. Schoenig, Ph.D.

Testing Facility Bushy Run Research Center, Export, PA 15632

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M. A. Vrbanic, B.A.

Starting Date of Acclimation To be supplied by amendment
Starting Date of Administration To be supplied by amendment
Proposed Date for Completion of In-Life Phase To be supplied by amendment
Proposed Date for Submission of the Draft Final Report To be supplied by amendment

Basis for the Study

This study will be performed in compliance with the following guidelines and standards.

Good Laboratory Practice Regulations, FIFRA, 40CFR Part 160.

Alteration of Design

Alterations to this protocol may be made as the study progresses. No changes in the protocol will be made without the specific written request or consent of the Sponsor. In the event that the Sponsor authorizes a protocol change verbally, such change will be honored. However, it then becomes the responsibility of the Sponsor to follow such verbal change with a written verification. BRRC reserves the right to revise the protocol or deviate therefrom solely at the discretion of the Study Director, if prior approval of the Sponsor cannot be obtained and the integrity of the study is considered in jeopardy. In this event, the Sponsor shall be notified of the alteration as soon as possible, and written verification of the change will be the responsibility of the Study Director. All protocol modifications will be signed by the Study Director and a representative of the Sponsor.

METHODS

Test Animals

Species	Sprague-Dawley CD® rats
Supplier	Charles River Breeding Laboratories, Portage, Michigan
Rationale	The albino rat is one of the species of choice for sub-chronic toxicity testing. In addition, the information from this study will be used to select dosage levels for chronic toxicity/oncogenicity and two-generation reproduction studies scheduled to be conducted in this species and strain.
Number and Sex	A total of 120 males and 120 females will be obtained from which 90 males and 90 females will be selected for the study.

Age and Weight	The animals will be approximately 35 days of age on the scheduled animal receipt date. Dosing will begin before the animals are 8 weeks old. Body weight range at first dose will be stated in the final report.
Acclimation and Pretest Evaluations	<p>Upon their arrival at the laboratory, the animals will be transported to the room selected for the study. Once in the room, the animals will be removed from the shipping cartons and examined. All animals with evidence of disease or physical abnormalities will be discarded. If an unusually large number of rats show evidence of disease or physical abnormalities, the batch of rats will be rejected for use in the study. A total of 20 rats (10 male and 10 female) will be randomly selected for a health screen discussed below.</p> <p>All remaining animals will be housed two per cage for approximately one week in order to acquaint the rats with the automatic watering system. After this period, the animals will be housed individually.</p> <p>During the three-week pretest period, animals will be fed the same basal diet which will be used during the study. Animals will be observed twice daily for any clinical signs of disease or abnormality and individual detailed physical examinations will be conducted weekly. Animals showing abnormalities deemed by the Study Director or other appropriate supervisory personnel to render the animal unacceptable for placement on the study will be sacrificed and discarded on the day observed. If an unusually large number of rats show abnormalities, the batch of rats will be rejected for use in the study.</p> <p>Ten days before the study is scheduled to begin, all rats will be weighed. The rats will be weighed again approximately seven days later (but no sooner than three days prior to dosing). Any rat whose weight gain during this period is not considered normal for this age and strain of rat, or whose absolute body weight at the second weighing is outside $\pm 20\%$ of the population mean for each sex, will not be considered for the study.</p>
Quality Control	Quality control will be performed within two days after the receipt of the animals. The pretest health screen will consist of clinical laboratory studies, a viral screen, examinations for fecal parasites, gross necropsy examinations, and histopathological evaluations of selected tissues. The screen will be performed on 10 animals/sex selected directly from the shipping cartons with as many cartons as possible being represented. The clinical laboratory studies and gross necropsy examinations will be conducted on all 20 rats selected for the health screen. The following clinical laboratory studies will be conducted:

Hematology

Hematocrit
Hemoglobin
Erythrocyte count
Total leukocyte count
Differential leukocyte count
Platelet count

Clinical Chemistry

AST (SGPT)
ALT (SGOT)
BUN

The viral screen will be conducted on five animals/sex selected from the 20 rats designated for the health screen. The following viruses will be included in the viral screen:

Pneumonia virus of mice (PVM)
Reovirus type 3 (Reo3)
Kilham rat virus (KRV)
Toolen H-1
Sendai
Lymphocytic choriomeningitis (LCM)
Rat coronavirus
SDA
Mycoplasma pulmonis
Minute virus of mice (MVM)
Polyoma virus
CARB

Fecal examination for parasites will be conducted using a cellophane tape test on 5 animals/sex from the 20 animals selected for the prestudy screen, and by zinc sulfate flotation from cecal contents obtained at necropsy on 5 animals/sex.

Histopathology will be performed on three sacrificed animals/sex. At least the following tissues will be examined: liver, kidneys, trachea, lungs, heart, spleen, salivary glands, submandibular lymph nodes, and nasal cavities.

The purpose of this screen is to determine the suitability of the population of animals proposed for this study. Therefore, the results of this screen will be available before the study begins.

Identification Animals shall be uniquely identified prior to initiation of the study by cage identification and a toe clip and ear notch procedure. The method and numbers will be documented in the study records.

Culled
Animals

Animals received with the shipment but not used in the study will be euthanized. Records will be kept documenting the fate of all animals received for the study.

Husbandry

Conditions

The experiment will be carried out under standard laboratory conditions in the Chemical Hygiene Fellowship Building of BRRRC. The animals will be housed two per cage during the first week of the acclimation period. Thereafter, they will be individually housed. Stainless steel cages with wire mesh floors will be used. Cages will be changed and sanitized at least once every two weeks. Paperboard kept under each cage will be changed at least three times per week. Faces of racks will be spaced at least four feet apart and away from walls. The racks will be rotated once every two weeks according to a predetermined schedule in order to better assure equivalent environmental conditions for all animals. Rack rotation will be documented.

All animals will be housed in a single BRRRC animal room (room number to be supplied by amendment), from arrival to termination of the study. Temperature and humidity will be recorded continuously using an automatic recorder. The animal room will be maintained at a temperature of $22 \pm 3^{\circ}\text{C}$ and a relative humidity of 40-70%. The temperature and humidity will be checked by a technician at each room check and a record will be kept indicating it was done. Appropriate corrective action will be taken whenever readings outside the specified limits are observed. If the temperature or humidity remains outside the prescribed range for more than 24 hours, the Sponsor's representative will be notified.

The accuracy of the temperature and humidity recording devices will be checked periodically and calibrated when necessary. The verification and calibration data will be recorded. Any time the continuous recording equipment is found to be malfunctioning, the temperature and humidity of the animal room will be manually measured and recorded at each room check.

Fluorescent lighting will provide illumination 12 hours per day. There will be at least eight air changes per hour.

Diet Certified Rodent Chow® (#5002, Ralston Purina Company) will be available ad libitum. The analyses of chemical composition and possible contaminants of each batch of diet will be performed by Ralston Purina Company (St. Louis, MO). Feed jars will be changed and sanitized once per week.

Water Tap water (Municipal Authority of Westmoreland County, Greensburg, PA) will be available ad libitum by automatic watering system with demand control valves mounted on each rack. Water pressure and function of the individual cage rack systems will be checked at each room check and a record will be kept indicating it was done. Drinking water contaminant levels will be measured at regular intervals per EPA specifications, to include the 129 "priority" pollutants, identified in the Federal Register 45 (98), Appendix D, Part 122, and shall comply with human requirements.

Test Substance

Name	Alkyl dimethyl benzyl ammonium chloride (ADBAC) 80% Manufacturers Use Product (MUP)
CAS Registry No.	To be added by amendment if available
Sponsor Identification Number	To be added by amendment
BRRC Number	To be added by amendment
Description	Very viscous, white opaque liquid
Purity	Approximately 80%; Composition to be provided by the Sponsor
Stability of Test Material	The test substance is considered to be stable at room temperature for the duration of the study. Stability will be verified at the end of the study.
Storage Conditions	In an environmentally controlled area: Temperature $70 \pm 10^{\circ}\text{F}$; Relative Humidity $50 \pm 20\%$
Estimated Quantity Needed	To be added by amendment; After the assigned study(ies) have been completed, all unused materials will be returned to the Sponsor.

Safety A Material Safety Data Sheet (MSDS) will be supplied by the Sponsor. The MSDS and this protocol will be reviewed by all personnel prior to the initiation of the study. This review will be documented. Normal precautions for untested chemicals will be used. These procedures include the use of disposable paper or plastic coats or jumpsuits, hats, booties or shoe covers, and rubber gloves while in the animal rooms. Eye protection will include the use of safety glasses at all times. Disposable paper coats and rubber gloves will be worn during preparation of diets. In addition, monogoggles will be used when handling the test material, and dust masks may be used if exposure to the feed dust is anticipated.

Administration of Test Material

Route Oral; mixed in the diet. The oral route of administration is considered to be a meaningful way to evaluate the toxicity of chemicals with the use pattern of ADBAC. The oral route is also a potential route of human exposure.

Dose Selection Five graduated dosage levels of the test material will be evaluated in five groups of rats. The test substance will be administered in the diet on a constant concentration or ppm basis. It is anticipated that at the higher dosage level(s), some toxicological or pharmacological effect(s) will be observed and that at the lower dosage level(s) no treatment-related effects will be seen. Dosage levels used in this study will be 0, 100, 500, 1000, 4000, and 8000 ppm ADBAC. Dosage levels will be expressed in terms of actual ADBAC concentrations.

Preparation of Diets and Storage Test diets will be prepared by direct addition of ADBAC 80% MUP to ground rodent feed. A concentrated premix will be prepared to ensure maximal loss of the ethanol (approximately 12% by weight) from the test material during the original mixing time of 1 hour. Test diets will be prepared by appropriate dilutions of the concentrated premix or higher diet concentrations. Diets will be prepared based on active ingredient of the test material and corrections will be made (if sufficient alcohol is lost to impact on the total amount of the preparation) for the alcohol lost during initial mixing. Storage will be in a manner consistent with the stability of the test material in the diet as described below.

Analysis of Diets

Before initiation of the study, trial batches of treated diets will be prepared to assess the homogeneity and stability of the prepared diets. Homogeneity (3 samples each from the top, middle, and bottom of the mixing bowl) will be established for the high and low diet concentrations selected for use in the study. In addition, homogeneity of the three middle doses will be examined by analyzing one sample, in duplicate, from the top, middle and bottom of the mixing bowl. Stability and longer term homogeneity will be evaluated by determining the ADBAC concentration in triplicate samples from the high and low diet concentrations selected for use in the study after storage at conditions to be used in the study. Subsamples of all diets collected for homogeneity (initial and longer term) will be frozen immediately after collection and forwarded to the Sponsor for confirmation analyses.

Each week, subsamples of approximately 100 g each will be taken from the top, middle, and bottom of each batch of prepared diet (including control). These subsamples will be mixed thoroughly and analyzed in duplicate for ADBAC concentration (prior to being administered to the animals) during study weeks 1 through 4. In subsequent weeks, the samples will be stored frozen and analyzed in weeks 8 and 13. A portion of all samples will be retained frozen until termination of the in-life portion of the study, and these samples will be discarded upon review of the results and authorization by the Sponsor. Alternatively, these samples will be sent to the Sponsor following termination of the in-life portion of the study.

Standards for acceptable accuracy of mixing will be: the mean of the analyzed samples must be within $\pm 10\%$ of nominal; the difference between duplicate analyses will not exceed 15%; and individual analyses will be within $\pm 15\%$ of nominal. If one or more of these standards are not met, the diets will not be fed to the animals (for cases of prospective analyses) until the problem is resolved. For retrospective analyses, additional analyses will be conducted to help establish the cause of the problem. If additional analyses or diet preparations are necessary, these will be performed at no cost to the sponsor. The Study Director and the Sponsor's representative will be notified immediately when problems of this nature occur.

At the termination of the study, a sample of the test substance will be returned to the Sponsor for stability analysis.

Duration of
Treatment

The feeding period will be seven days/week for at least 90 consecutive days. Fresh diets will be administered once a week.

Study Design

Group
Assignment

Based on the second pretest body weights, 90 males and 90 females will be selected for the study from the remaining population. These animals will be divided equally into six groups, each consisting of 15 males and 15 females, using a weight stratified randomization procedure.

Animals not selected for the study will remain housed in the study room until the study begins and will be used as replacements in the event any of the selected animals dies prior to the start of the study. After the selected animals have received their first treatment, all animals not selected for the study will be removed from the study room, and no further replacement of animals will be made.

Following body weight measurement just prior to the first treatment, statistical evaluation of the body weights for groups will be conducted, and statistical equivalence and homogeneity of variance will be examined. In the event that either criterion is not met, changes will be made prior to dosing to ensure statistically equivalent body weights for all groups. Animals with any abnormal clinical signs will also be replaced prior to treatment and the statistical criterion reevaluated.

Organization

<u>Group</u>	<u>Number of Animals</u>		<u>ADBAC Dietary Concentrations(ppm)</u>
	<u>Male</u>	<u>Female</u>	
Control	15	15	0
Low	15	15	100
Mid-1	15	15	500
Mid-2	15	15	1000
Mid-3	15	15	4000
High	15	15	8000

Experimental Evaluations

Daily Room Checks	All animals will be observed for mortality and signs of overt toxicity twice each day, seven days a week. The first daily room check will generally be conducted before 9:00 a.m. and the second one will generally be conducted after 3:00 p.m. A minimum of 10 person-minutes will be spent during each room check, and these times will be recorded. Should mortality and/or signs of overt toxicity be observed, it will be recorded on the day observed. This will mean recording each finding initially and following with an examination (results recorded) of that specific animal at each subsequent room check, until that finding is no longer observed or the animal dies. An exception to this would be a recurring, frequently observed reaction for which a general statement will suffice, e.g. diarrhea has been observed at both daily room checks in most animals in the high dose group since (<u>date</u>). This general statement will be dated and updated at appropriate intervals.
Detailed Physical Examinations	During each study week, a detailed examination of each animal will be performed. These examinations will include, but not necessarily be limited to, an external physical exam, gentle palpation of internal organs and an assessment for abnormal behavior or clinical signs. Findings, or lack thereof, will be recorded for each individual animal.
Sacrifice of Moribund Animals	Any rat showing signs of severe debility, particularly if death appears imminent, will be sacrificed to prevent loss of tissues through autolysis.
Body Weight	<p>Individual body weights will be measured weekly. These data will be reviewed by appropriate laboratory personnel within two working days of being collected. This review will routinely be done on the same day as the data are collected by the technical staff involved in the data collection (data checked, appropriate edits made, and raw data sheets initialed and dated). Individual body weight gains will be computed.</p> <p>The last body weight test period for both sexes will be weights obtained prior to fasting of the first sex. Fasted body weights will be obtained prior to sacrifice for calculations of organ weights relative to final body weights.</p>
Food Consumption	Individual food consumption measurements will be conducted weekly. The area under the cage will be examined for food spillage during each room check and significant food spilled will be noted. Significant food spillage will be

defined as any amount that can be easily measured (although no effort will be made to make this measurement) including "piles" or "mounds" of feed but not a "dusting" or "sprinkling" of feed. Food consumption data for animals with significant observed spills will not be used. Sufficient food will be offered to each animal to ensure ad libitum feeding. If additional food is offered to an animal, it will be weighed and included in the food consumption measurement. Food consumption data will be reviewed by appropriate laboratory personnel within two working days of being collected as described above for body weight data. Compound consumption (mg test material/kg body weight/day) will be calculated.

Clinical
Laboratory
Investigations

Clinical investigations (hematology and clinical chemistry, will be conducted for 10 randomly selected animals/sex/group at termination. The order of bleeding and analysis will be alternating (one animal from each dose group, then repeating) in order to reduce handling and time biases. All blood samples will be obtained from methoxyflurane anesthetized animals via puncture of the orbital sinus. Animals will be fasted overnight (approximately 16 to 18 hours) prior to the bleeding procedures. The exact time period the animals are fasted will be documented. Body weights will be obtained prior to fasting. The following procedures will be performed:

Hematology

- total leukocyte count
- erythrocyte count
- hemoglobin
- hematocrit
- erythrocyte indices
- platelet count
- differential leukocyte count
- reticulocyte count

Clinical Chemistry

- glucose
- blood urea nitrogen
- AST (SGPT)
- ALT (SGOT)
- creatinine
- alkaline phosphatase
- total protein
- albumin

Clinical Chemistry (Continued)

globulin (calculated)
A/G ratio (calculated)
total bilirubin
direct bilirubin
indirect bilirubin (calculated)
calcium
phosphorus
sodium
potassium
chloride

Anatomic
Pathology

At the end of treatment, all surviving animals will be anesthetized with methoxyflurane and killed by severing the brachial vessels to permit exsanguination. Any animal showing severe debility or intoxication (i.e. moribund) will be killed to prevent loss of tissues through autolysis. All animals, including those which die or are sacrificed during the study, will be given complete gross necropsy examinations under the direct supervision of a necropsy pathologist, and the tissues will be fixed in 10% neutral buffered formalin. During this gross examination, the prosector will have the most recent ante mortem findings available. All recorded ante mortem lesions that are verifiable post mortem will be confirmed or denied on the gross pathology record. Those denied will be initialed by the pathologist or other appropriate laboratory personnel.

Necropsies of animals which die or are sacrificed in extremis will be performed seven days a week. Animals found dead will be refrigerated when necessary, but every attempt will be made to necropsy all moribund animals as rapidly as possible.

The order of sacrifice, necropsy, removal and weighing of organs at the terminal sacrifice will be alternating (one animal from each dose group, then repeating) in order to reduce observation, tissue trimming, and organ weighing biases.

The following tissues will be saved from all animals:

- adrenals
- bone marrow (sternum)
- brain (medulla/pons, cerebellar cortex, cerebral cortex)
- ovaries
- testes with epididymides¹
- heart
- kidneys¹
- liver (2 lobes)
- lungs with mainstem bronchi²
- lymph nodes (mediastinal and mesenteric)
- pancreas
- pituitary
- spinal cord (cervical, mid-thoracic, lumbar)
- spleen
- thymic region³
- thyroid - parathyroid complex⁴
- esophagus
- stomach
- duodenum
- jejunum
- ileum
- cecum
- colon

Feet and ears will be saved for identification purposes.

In addition to the above listing, all gross lesions observed in any other tissue will be harvested. Whenever possible, a border of normal appearing tissue will be harvested with the lesions.

¹The right testis/kidney will be sectioned crosswise and the left testis/kidney will be sectioned longitudinally for histological processing.

²Lungs will be inflated with formalin via the trachea.

³At times, these tissues cannot be identified with the unaided eye because of physiologic variation in size. However, tissue from the region will be fixed for microscopic evaluation.

⁴Parathyroids cannot always be identified during slide preparation. They will be examined if they are in the plane of the section and in all cases where they are noted as grossly enlarged.

Organ Weights The following fresh organs from all surviving animals at the terminal sacrifice will be trimmed, blotted and weighed:

liver	testes
kidneys	ovaries
adrenals	brain with stem
heart	spleen

Histopathology All tissues to be examined microscopically will be processed for paraffin embedding, sectioned at 5 microns, and stained with hematoxylin and eosin. Lesions will be graded as to severity, where possible, into 5 categories (minimal, mild, moderate, marked, or severe).

All harvested tissues from 10 randomly selected male and female rats (total of 20/group) in the control group and the highest dose group without significant mortality will be processed histologically and examined microscopically. In addition, the liver, kidneys, testes, and stomach will be processed from 10 randomly selected male and female rats (total of 20/group) in the lower dose groups.

Multiple embedding will be used for compatible, normal appearing tissues, but tissues with gross lesions and tissues masses will be embedded individually. If, during routine sectioning of the paraffin blocks, a tissue is missed, the block will be either resectioned or, if necessary, melted down and the tissues reembedded at the discretion of the Sponsor. Following sectioning, all blocks will be dipped in paraffin.

If pathological lesions are observed from evaluation of the tissues from animals in the high dose group, these tissues will be examined for animals in the lower dose groups. These target organs will be examined at additional cost to the Sponsor.

**Statistical
Analyses**

The data for continuous, parametric variables will be intercompared for the dose and control groups by use of Levene's test for homogeneity of variances, by analysis of variance, and by pooled variance t-tests. The t-tests will be used, if the analysis of variance is significant, to delineate which groups differ from the control group. If Levene's test indicates heterogeneous variances, the groups will be compared by an analysis of variance for unequal variances followed, if necessary, by separate variance t-tests. For discontinuous data, the Kruskal-

Wallace test followed, if necessary, by Mann-Whitney U-tests will be used. Frequency data will be compared using R x C chi-square and/or Fisher's exact tests if appropriate. All statistical tests, except the frequency comparisons will be performed using BMDP Statistical Software (Dixon, 1985). The frequency data tests are described in Biometry (Sokal, R. R. and Rohlf, F. J., W. H. Freeman and Company: San Francisco, 1969). The fiducial limit of 0.05 will be used as the critical level of significance for all tests.

RECORDS

All raw data, reports and a sample of test substance from this study will be retained at BRRC for at least 10 years after completion of the study. Tissues preserved in fixative will be retained for at least five years. Paraffin blocks and tissue slides will be retained indefinitely. The test diet samples will be retained for two years after completion of the study.

Prior to discarding any of the above data or materials, the Sponsor will be contacted and given the option of obtaining it or arranging for continued storage. All data and materials mentioned above will remain the sole property of the Sponsor and can be removed from BRRC at the Sponsor's discretion.

REPORT

Status Report

An unaudited status report covering all parameters evaluated in the study except the microscopic examination of the tissues will be prepared and issued approximately one month after the completion of the terminal sacrifice. Data on continuous variables will be summarized on tables as means and standard deviations while data on discrete variables will be summarized on incidence tables. Narratives will be included where necessary, but the purpose of this report will not be to provide definitive data analyses or conclusions.

Draft Final Report

A draft of the final report will be submitted to the Sponsor within four months after the completion of the terminal sacrifice. This report will be a comprehensive report which will include all information necessary to provide a complete and accurate description and evaluation of the test procedures and results. It will include: a summary; appropriate text discussions of the experimental design, materials and methods, and results; and summary mean or incidence tables of in-life and pathology data.

Final Report

The draft final report will be reviewed by the Sponsor, and comments on the report will be provided to BRRC. BRRC will consider these comments in preparing the final report. Assuming that no major changes in format or text are necessary, a final report will be issued approximately 30 days after the laboratory receives the comments from the Sponsor on the draft final report. A total of 12 bound and 3 unbound copies of the final report will be provided (extra copies above the four copies designated in the study contract will be at additional cost to the Sponsor).

The final report will be audited by the QA department and contain a signed quality assurance statement. In addition, it will contain appendices with individual animal data and other pertinent information. It will also conform to the formatting specifications of EPA PR notice 86-5.

GOOD LABORATORY PRACTICE COMPLIANCE

The Bushy Run Research Center, through the administration of a quality assurance program by the Good Laboratory Practices Committee and Quality Assurance Unit, assures compliance of all phases of toxicological studies with existing regulations and generally accepted good laboratory practices.

The study will be subjected to periodic inspections and the final report will be reviewed by the BRRC Quality Assurance Unit. All quality assurance inspection records and the Master Schedule will be made available to the Sponsor during Sponsor visits.

PADBAC.9FR/OD
051487



BUSHY RUN RESEARCH CENTER

R. D. 4, Mellon Road, Export, Pennsylvania 15632

Telephone (412) 733-5200

PROTOCOL AMENDMENT #1

TITLE: Ninety-Day Dietary Dose Range Finding Study with Alkyl Dimethyl
Benzyl Ammonium Chloride (ADBAC) in Rats

BRRC PROJECT NUMBER: 87-37-97101

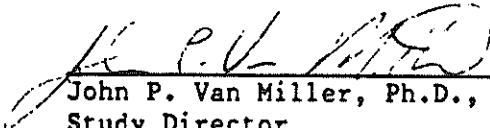
TESTING FACILITY: Bushy Run Research Center
Union Carbide Corporation
RD 4, Mellon Road
Export, PA 15632

SPONSOR: ADBAC QUAT Joint Venture/
Chemical Specialties Manufacturing Association
Suite 1120
1001 Connecticut Ave., N.W.
Washington, D.C. 20036

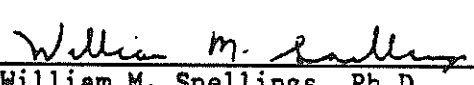
SPONSOR'S REPRESENTATIVE: Gerald P. Schoenig, Ph.D.
54 Canterbury Road
Charlottesville, VA 22901

Reviewed and Approved by:

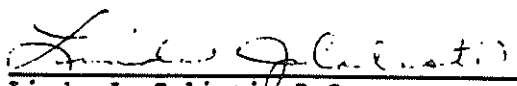
Bushy Run Research Center:


John P. Van Miller, Ph.D., DABT
Study Director

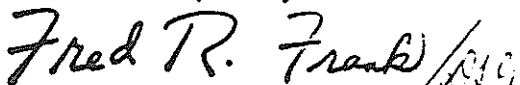
6-10-87
Date


William M. Snellings, Ph.D.
Project Manager

6-11-87
Date


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

6-12-87
Date


Fred R. Frank, Ph.D.
Director

6-12-87
Date

Sponsor's Representative:


Gerald P. Schoenig, Ph.D.

6/15/87
Date

Protocol Amendment #1
Page 2

The protocol is amended as follows:

1. Location of Protocol Change: Personnel (page 2)

Description of Protocol Change:

C. L. Wagner has been added to the Oral/Dermal Toxicology staff of BRRC and will assist in this project.

Reason for Change:

Addition to BRRC staff.

2. Location of Protocol Change: Starting Date of Acclimation (page 3)

Description of Protocol Change:

Starting date of acclimation will be June 2, 1987.

Reason for Change:

Information to be added by amendment to the protocol.

3. Location of Protocol Change: Starting Date of Administration (page 3)

Description of Protocol Change:

Starting date of administration of the test substance will be June 18, 1987.

Reason for Change:

Information to be added by amendment to the protocol.

4. Location of Protocol Change: Proposed Date for Completion of In-Life Phase (page 3)

Description of Protocol Change:

The in-life phase of the study will be completed on September 22, 1987.

Reason for Change:

Information to be added by amendment to the protocol.

Protocol Amendment #1
Page 3

5. Location of Protocol Change: Proposed Date for Submission of the
Draft Final Report (page 3)

Description of Protocol Change:

The draft final report will be submitted to the sponsor on
January 22, 1988.

Reason for Change:

Information to be added by amendment to the protocol.

6. Location of Protocol Change: Husbandry--Conditions (page 6)

Description of Protocol Change:

The animals will be housed in room 101 of the CHF building of BRRC.

Reason for Change:

Information to be added by amendment to the protocol.

7. Location of Protocol Change: Test Materials (page 7)

Description of Protocol Change:

Test Substance:

Name	Alkyl dimethyl benzyl ammonium chloride (ADBAC) 80% Manufacturers Use Product (MUP)
Sponsor Identification Number	6158-59-60
BRRC Number	50-268
Quantity Needed	Approximately 2000 g

Reason for Change:

Information to be added by amendment to the protocol.

AADBAC1.9FR
061087



BUSHY RUN RESEARCH CENTER

R. D. 4, Mellon Road, Export, Pennsylvania 15632

Telephone (412) 733-5200

PROTOCOL AMENDMENT #2

TITLE: Ninety-Day Dietary Dose Range Finding Study with Alkyl Dimethyl
Benzyl Ammonium Chloride (ADBAC) in Rats

BRRC PROJECT NUMBER: 87-37-97101

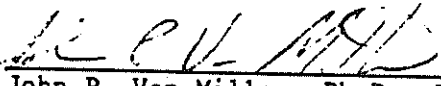
TESTING FACILITY: Bushy Run Research Center
Union Carbide Corporation
RD 4, Mellon Road
Export, PA 15632

SPONSOR: ADBAC QUAT Joint Venture/
Chemical Specialties Manufacturing Association
Suite 1120
1001 Connecticut Ave., N.W.
Washington, D.C. 20036

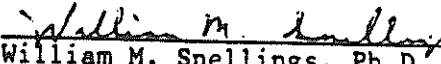
SPONSOR'S REPRESENTATIVE: Gerald P. Schoenig, Ph.D.
54 Canterbury Road
Charlottesville, VA 22901

Reviewed and Approved by:

Bushy Run Research Center:


John P. Van Miller, Ph.D., DABT
Study Director

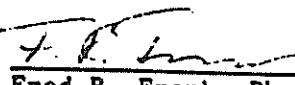
7-30-87
Date


William M. Snellings, Ph.D.
Project Manager

9-30-87
Date



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

10-5-87
Date


Fred R. Frank, Ph.D.
Director

10/1/87
Date

Sponsor's Representative:


Gerald P. Schoenig, Ph.D.

10/13/87
Date

Protocol Amendment #2
Page 2

The protocol is amended as follows:

1. Location of Protocol Change: Quality Control (page 5)

Description of Protocol Change:

The following parameters were included in the prestudy hematology screen: MCV, MCH, MCHC.

Reason for Change:

The instrumentation used at BRRRC automatically calculates these erythrocyte indices and they were, therefore, included in the raw data for the prestudy screen.

2. Location of Protocol Change: Test Materials (page 7)

Description of Protocol Change:

Test Substance:

CAS Registry No. 68391-01-5

Reason for Change:

Information to be added by amendment to the protocol.

3. Location of Protocol Change: Test Materials (page 7) and Protocol Amendment 1 (page 3)

Description of Protocol Change:

A second lot of test material was used starting in the 5th week of the study. The material was obtained from the Sherex Chemical Company (Dublin, Ohio) on 7-7-87. The information different from that of the original material that was used for weeks 1-4 diet preparations is as follows:

Sponsor Identification Number #SC132-65

BRRRC Number 50-328

Purity 79.7%

Reason for Change:

A detailed analysis of the composite material initially prepared to be used for the ADBAC Quat toxicology program was undertaken concurrently with the conduct of this study. During this detailed analysis, an unacceptable level of an impurity was identified in the original composite material supplied by Ethyl Corporation (BRRRC #50-268). The Sponsor prepared a new composite material which contained normal levels of the impurity and authorized the use of the new composite for the remainder of this study (i.e. starting with the week 5 diet preparation). The low levels of the impurity actually in the treated diets (approximately 1.4 ppm in the diet for the high dose group) and the short exposure would not be expected to have any impact on the results or interpretation of the findings in this study.

Protocol Amendment #2
Page 3

4. Location of Protocol Change: Analysis of Diets (page 9)

Description of Protocol Change:

The sentence "These subsamples will be mixed thoroughly and analyzed in duplicate for ADBAC concentration (prior to being administered to the animals) during study weeks 1 through 4." has been changed to read "These subsamples will be mixed thoroughly and analyzed in duplicate for ADBAC concentration (prior to being administered to the animals) during study weeks 1 through 5."

Reason for Change:

The additional analysis was performed prior to dosing due to the change in the test material lot described in #3 above. This was done to ensure that the proper concentration was obtained using the mixing procedures developed for the original test material.

5. Location of Protocol Change: Daily Room Checks (page 11)

Description of Protocol Change:

The following statements: "Should mortality and/or signs of overt toxicity be observed, it will be recorded on the day observed. This will mean recording each finding initially and following with an examination (results recorded) of that specific animal at each subsequent room check, until that finding is no longer observed or the animal dies. An exception to this would be a recurring, frequently observed reaction for which a general statement will suffice, e.g. diarrhea has been observed at both daily room checks in most animals in the high dose group since (date). This general statement will be dated and updated at appropriate intervals." will be changed to read: "The Laboratory's Standard Operating Procedures (SOP #1.6.67; effective date 2/18/87) for observing animals and collecting data on clinical signs during room checks will be followed. These procedures include detailed observations of all animals at each morning room check with entry of the overt signs, for any animal exhibiting a recordable sign, into the computer file for this animal and more cursory observations, mainly for survival, during the afternoon room check."

Reason for Change:

Following a site visit shortly after the initiation of the study, the Sponsor's representative decided that unnecessary data were being collected during the afternoon room checks to satisfy the Laboratory's perception as to the intent of the protocol regarding the recording of clinical signs. After a review of the Laboratory's Standard Operating Procedures for observing animals and collecting data on clinical signs, it was decided that the standard operating procedure for collection of overt signs was adequate to satisfy the intent of the protocol. Data collected using the initial procedures will remain part of the official study file, but will not be used in the form collected to prepare the report on the study. The initial form of observing the animals and collecting data on clinical signs was followed during the first 9 days of the study. Beginning on the 10th day, these activities were conducted according to BRRC Standard Operating Procedures.

Protocol Amendment #2
Page 4

6. Location of Protocol Change: Experimental Evaluations (page 11)

Description of Protocol Change:

Ophthalmic examinations will be performed prior to final sacrifice for all animals remaining on study.

Reason for Change:

These changes were made to bring this portion of the protocol into general compliance with EPA Pesticide Assessment Guidelines (Subdivision F, Section 82-1, November 1984) and OECD Guidelines for Testing of Chemicals (No. 408, May 12, 1981).

7. Location of Protocol Change: Clinical Chemistry (page 12)

Description of Protocol Change:

Gamma glutamyl transpeptidase will be added to the list of clinical chemistry tests to be performed.

Reason for Change:

These changes were made to bring this portion of the protocol into general compliance with EPA Pesticide Assessment Guidelines (Subdivision F, Section 82-1, November 1984) and OECD Guidelines for Testing of Chemicals (No. 408, May 12, 1981).

8. Location of Protocol Change: Anatomic Pathology (page 14)

Description of Protocol Change:

a. The entire liver (rather than "2 lobes") will be saved for all animals that die or are sacrificed after June 25, 1987.

b. The following additional tissues will be harvested at final sacrifice:

Femur	Lacrymal glands
Salivary glands	Aorta
Rectum	Urinary bladder
Prostate	Vagina
Uterus (corpus and cervix)	Skeletal muscle
Sciatic nerve	Mammary gland (female)
Skin	Eyes
Trachea	Submandibular lymph node

c. The statement: "The right testis/kidney will be sectioned crosswise and the left testis/kidney will be sectioned longitudinally for histological processing." has been changed to read: "The right kidney will be sectioned crosswise and the left kidney will be sectioned longitudinally for histological processing."

Protocol Amendment #2
Page 5

Reason for Change:

a. Request for change of standard BRRC procedure for the collection of the liver by the Sponsor's representative. The change is requested to ensure that all liver is available should additional sections be required for evaluation of lesions.

b. The tissues other than the submandibular lymph node were added to the harvesting list to bring this portion of the protocol into general compliance with EPA Pesticide Assessment Guidelines (Subdivision F, Section 82-1, November 1984) and OECD Guidelines for Testing of Chemicals (No. 408, May 12, 1981). The submandibular lymph node is routinely harvested with the salivary glands under BRRC standard operating procedures.

c. Following discussions with the head of pathology, Dr. E. H. Fowler, the Sponsor's representative agreed that the standard BRRC procedure of not cutting through the tunic of the testes was acceptable since such handling alters the morphology of the organ while doing little for fixation.

9. Location of Protocol Change: Histopathology (page 15)

Description of Protocol Change:

a. The following additional tissues will be microscopically examined for all animals from the control group and the highest dosage group without significant mortality:

Salivary gland	Aorta
Rectum	Trachea
Prostate	Urinary bladder
Sciatic nerve	Uterus (corpus and cervix)
Submandibular lymph node ¹	

¹Effort will be made to process the salivary glands such that the submandibular lymph nodes are available for microscopic examination. No additional sections will be made, however, if the lymph node is not present on the final microscopic slide.

b. The statement "In addition, the liver, kidneys, testes, and stomach will be processed from 10 randomly selected male and female rats (total of 20/group) in the lower dose groups." will be changed to read, "In addition, the liver, kidneys, testes, stomach, lungs, duodenum, and gross lesions will be processed from 10 male and female rats (total of 20/group) in the other dose groups. These animals will be selected at random from the sacrificed animals in

Protocol Amendment #2
Page 6

the groups at doses lower than the group selected for complete histopathology. In the groups with significant mortality, the following criterion will be used for selecting the 10 animals/sex for histopathology: in general, the tissues from the animals that survived the longest will be examined; when more than one animal must be selected from the same day of death, animals sacrificed moribund will be selected first, animals with lesser degrees of gross autolysis will be selected next; in the event animals cannot be selected based on grossly observed autolysis the animals selected will be based only on group order (the first animal in the group selected first etc.); when more animals then necessary fall into the sacrifice moribund category described above, the animals for histopathology will be selected randomly by choosing lots (record of these randomizations will not be retained in the data)."

Reason for Change:

a. These changes were made to bring this portion of the protocol into general compliance with EPA Pesticide Assessment Guidelines (Subdivision F, Section 82-1, November 1984) and OECD Guidelines for Testing of Chemicals (No. 408, May 12, 1981).

b. The additional tissues (other than the duodenum) were added to bring this portion of the protocol into general compliance with EPA Pesticide Assessment Guidelines (Subdivision F, Section 82-1, November 1984) and OECD Guidelines for Testing of Chemicals (No. 408, May 12, 1981). Duodenum is a potential target organ for ADBAC. The method of selection of animals for histopathology in the groups with significant mortality was changed to provide the most meaningful information for dose selection for the scheduled chronic study.

AADBAC2.9FR
091487



BUSHY RUN RESEARCH CENTER

R. D. 4, Mellon Road, Export, Pennsylvania 15632

Telephone (412) 733-5200

PROTOCOL AMENDMENT #3

TITLE: Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl
Benzyl Ammonium Chloride (ADBAC) in Rats

BRRC PROJECT NUMBER: 87-37-97101


TESTING FACILITY: Bushy Run Research Center
Union Carbide Corporation
RD 4, Mellon Road
Export, PA 15632

SPONSOR: ADBAC QUAT Joint Venture/
Chemical Specialties Manufacturing Association
Suite 1120
1001 Connecticut Ave., N.W.
Washington, D.C. 20036

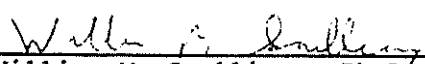
SPONSOR'S REPRESENTATIVE: Gerald P. Schoenig, Ph.D.
54 Canterbury Road
Charlottesville, VA 22901

Reviewed and Approved by:


Bushy Run Research Center:


John P. Van Miller, Ph.D., DABT
Study Director

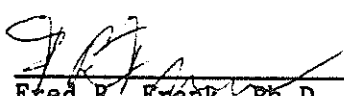
5-22-88
Date


William M. Snellings, Ph.D.
Project Manager

3-23-88
Date

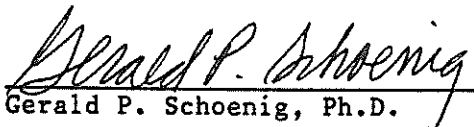

Linda J. Calisti, B.S.
Group Leader, Good Laboratory
Practices/Quality Assurance

3-24-88
Date


Fred R. Frank, Ph.D.
Director

3/27/88
Date

Sponsor's Representative:


Gerald P. Schoenig, Ph.D.

3/28/88
Date

Protocol Amendment #3
Page 2

The protocol is amended as follows:

1. Location of Protocol Change: TITLE, (page 1)

Description of Protocol Change:

The title of the study is 'Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl Benzyl Ammonium Chloride (ADBAC) in Rats'.

Reason for Change:

The title of this study was changed from 'Ninety-Day Dietary Dose Range Finding Study with Alkyl Dimethyl Benzyl Ammonium Chloride (ADBAC) in Rats' to the present title since changes were made to the original protocol such that the study complied with FIFRA guidelines (Protocol Amendment #2). The title change was made to indicate that the study is acceptable as a 90-day subchronic study under these guidelines.

2. Location of Protocol Change: Protocol Amendment #2,
Protocol Amendment Change 3, (page 2)

Description of Protocol Change:

The concentration of the impurity found in the composite material initially prepared for use in this study was calculated to be approximately 14 ppm in the diet used for the high dose level.

Reason for Change:

The level of the impurity found in the high dose diet was stated to be 1.4 ppm in the original protocol amendment due to a calculation error.

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032288

REPORT AMENDMENT

Study Title

Ninety-Day Dietary Toxicity Study with
Alkyl Dimethyl Benzyl Ammonium Chloride (ADBAC) in Rats

MRID No. 40746601

Author

John P. Van Miller, Ph.D., DABT
Laboratory Director, Bushy Run Research Center

Final Report Date

June 20, 1988

Amended Report Date

April 14, 1995

Sponsor

ADBAC Quat Joint Venture/
Chemical Specialties Manufacturers Association
1913 Eye Street, N.W.
Washington, DC 20006

Performing Laboratory

Bushy Run Research Center
6702 Mellon Road
Export, PA 15632-8902

Laboratory Project ID

53-503


STATEMENT OF NO DATA CONFIDENTIALITY CLAIMS

No claim of confidentiality is made for any information contained in this document on the basis of its falling within the scope of FIFRA Section 10 (d)(1)(A), (B) or (C).

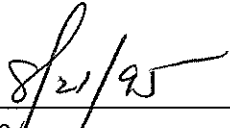
Company: ADBAC Quat Joint Venture/Chemical Specialties Manufacturers Association

Agent:

Ralph Engel



President, Chemical Specialties
Manufacturers Association



Date

GOOD LABORATORY PRACTICE COMPLIANCE STATEMENT

This report amendment, documenting removal of all data for this study from Bushy Run Research Center to EPL Archives, meets Good Laboratory Practice Standards, 40 CFR Part 160.

Laboratory Director
for Study Director:



John P. Van Miller, Ph.D., DABT

7-31-95

Date

Study Submitter/Sponsor:



Ralph Engel
President of Chemical Specialties
Manufacturers Association

8/21/95

Date

BUSHY RUN RESEARCH CENTER

6702 Mellon Road, Export, Pennsylvania 15632-8902

LABORATORY PROJECT ID

51-503 - Amendment

STUDY TITLE

Ninety-Day Dietary Toxicity Study with Alkyl Dimethyl Benzyl Ammonium Chloride (ADBAC) in Rats

AMENDMENT DATE

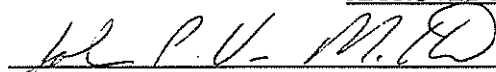
April 14, 1995

Location of Report Amendment: RETENTION OF RECORDS

Description of Report Amendment: The data, documentation, the protocol and any amendments, any specimens and reserve chemical samples, and the final report have been moved to EPL Archives, Inc. (P.O. Box 1253, Sterling, VA).

Rationale: Due to the closing of the Bushy Run Research Center testing facility, the archived records were moved at the request of the Sponsor. This amendment was prepared and signed based on the requirements of the Environmental Protection Agency as outlined in correspondence from Richard Colbert, Office of Compliance, to Union Carbide Corporation received 2/13/95. This procedure is also consistent with guidance from Mr. Stan W. Woolen, Bioresearch Monitoring Program Coordinator, Food and Drug Administration, received 12/2/94.

APPROVED BY



John P. Van Miller, Ph.D., DABT

Director of BRRC/Acting Study Director for the Purpose of this Amendment

4-14-95

Date