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FINAL REPORT

VINYLLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY
IN RATS

By

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SUMMARY

Male and female Sprague-Dawley rats (Spartan substrain) were exposed to vinylidene chloride (VDC) by inhalation for 18 months to assess chronic toxicity and oncogenic potential of the subject test material. Rats were exposed to VDC concentrations of 10 and 40 ppm for 6 hours/day, 5 days/week for the first 5 weeks of the study. Based upon the absence of observable treatment-related effects among rats sacrificed after one month of exposure, the exposure concentrations were increased to 25 and 75 ppm VDC. Exposures were continued at these concentrations through the 18th month of the study after which the surviving animals were held until 24 months and then sacrificed.

There was no observable increase in mortality of rats of either sex attributable to VDC exposure. Likewise there were no clinical signs of toxicity observed in rats exposed to 25 or 75 ppm VDC during the 18 month exposure period. Clinical chemistry, hematology, urinalysis, and body weight data obtained at selected time intervals throughout the conduct of the study revealed no changes judged as a direct effect of the test material on these parameters or the function of the organ systems evaluated by them.

Cytogenetic evaluation of bone marrow preparations from rats of both sexes exposed to 0, 25 or 75 ppm VDC for 6 months did not reveal chromosomal aberrations in either the control or treated animals.

A target organ effect resultant from VDC exposure was observed in the liver of rats exposed to either 25 or 75 ppm VDC. This effect, characterized by hepatocellular fatty change in the midzonal region of the hepatic lobule, was observed in both male and female rats of both the 25 and 75 ppm exposure groups as early as the 6 month interim sacrifice in this study. The midzonal fatty change was also observed at the 12 month sacrifice but no indication of progression of this lesion in either severity or incidence was apparent. During the last 6 months of the study, after exposures had been discontinued, this effect was no longer discernible; therefore this alteration was minimal in severity and readily reversible.

Although the incidence of several tumors and/or tumor types was found to be statistically increased or decreased in VDC exposed rats when compared to their respective control groups, none of these differences were judged to be attributable to VDC exposure. The observed absence of tumorigenic potential of VDC in rats in the present study is consistent with the findings of other investigators.

INTRODUCTION

Vinylidene chloride (1,1-dichloroethylene, VDC) is used extensively as a monomeric intermediate in the production of plastics, particularly in commercial resins and films for food packaging. Thus, potential exposure to VDC could occur by either ingestion of possible residues of unpolymerized VDC in food packaging materials or by inhalation exposure to VDC vapor in air in the workplace.

Subchronic toxicity studies of inhaled and/or ingested vinylidene chloride indicate that this material is both a central nervous system depressant and exhibits hepatotoxic (Irish, 1963; Prendergast, et al., 1967) and nephrotoxic (Maltoni, 1977; Henck, et al., 1979) properties. A brief summary of currently available information from chronic toxicity and oncogenicity studies is provided below.

Viola and Caputo (1977) have studied the chronic inhalation toxicity and oncogenic potential of vinylidene chloride in two strains of rats. In the first study, male and female Wistar rats were exposed to 0 (control), or 200 ppm vinylidene chloride 4 hours/day, 5 days/week for approximately 5 months. Due to the extent of toxicity observed in the initial portion of this experiment, the exposure concentration of vinylidene chloride was reduced to 100 ppm for the subsequent 6 through 12 month exposure period. Following 12 months of exposure, these animals were held for their lifetime (approximately 22-24 months). In the second study conducted by the same investigators, male and female Sprague-Dawley rats were exposed to 0, 75 and 100 ppm vinylidene chloride for one year and subsequently held for their lifetime. Neither of these studies resulted in any grossly observable oncogenic effects which could be attributed to vinylidene chloride exposure. Histopathologic findings are as yet unreported.

A series of studies conducted by Maltoni (1977a, b) investigated the chronic toxicity and oncogenic potential of vinylidene chloride by both the oral and inhalation routes of exposure. Male and female Sprague-Dawley rats were administered vinylidene chloride by gavage in an olive oil solution at dose levels of 0, 0.5, 5, 10 and 20 mg/kg per day. The test material was administered 4-5 days/week for a total period of 52 weeks, after which the animals were allowed to survive until they died spontaneously. Chronic inhalation exposures have been conducted in Sprague-Dawley rats, Swiss mice, and Chinese hamsters. Rats were exposed

to 0, 10, 25, 50, 100 and 150 ppm vinylidene chloride, 4 hrs/day, 4-5 days/week for 52 weeks and then allowed to survive until they died spontaneously. Similar experiments were conducted in Swiss mice at exposure concentrations of 0, 10 and 25 ppm and in Chinese hamsters at 0 and 25 ppm. In these studies, no evidence for an oncogenic effect associated with vinylidene chloride treatment was recognized in rats or hamsters. However, mice exposed to 25 ppm vinylidene chloride developed a statistically significant increase in kidney adenocarcinomas when compared to control animals. Mice exposed to 10 ppm vinylidene chloride for one year did not show a significant difference in the incidence of kidney tumors from the control group.

Lee et al.(1978) exposed CD rats and CD-1 mice to 0 or 55 ppm vinylidene chloride 6 hrs/day, 5 days/week for 12 months with no resultant evidence of a significant increase in tumors due to vinylidene chloride.

Finally, in a study conducted in this laboratory (Rampy, et al., 1977; Humiston, et al., 1978) male and female Sprague-Dawley rats were administered vinylidene chloride in their drinking water for a period of 2 years at concentrations of 0, 60, 100 and 200 ppm. This corresponded to daily doses calculated on the basis of water consumption of 0, 5.9, 10.0 and 19.3 mg/kg/day for male rats, and 0, 7.5, 12.6 and 25.6 mg/kg/day for female rats. Of the statistically significant deviations from the control group that were seen in this study, only those affecting the liver were considered to be treatment-related. These lesions, evident only upon microscopic examination, were characterized by a minimal amount of hepatocellular fatty change and periportal hepatocellular hypertrophy. This finding occurred in female rats at all exposure concentrations and in male rats only at the highest dose level. There was a similar trend towards an increase in liver lesions in male rats of the 100 ppm exposure group; however, this was not statistically significant. The only statistically significant tumor incidences detected were a decrease in pancreatic nodules in male rats of the 100 ppm treatment group, and an increase in mammary gland fibroadenomas or adenofibromas in the female rats of the 50 ppm treatment group. However these alterations in tumor incidence were not considered to be related to exposure to vinylidene chloride.

The studies discussed in this report are part of the toxicologic investigations on VDC conducted in the Toxicology Research Laboratory, Dow Chemical USA. These studies were being sponsored by a number of participating companies under the auspices of the Chemical Manufacturer's Association. The objective of this study reported herein was to evaluate the chronic toxicity and oncogenic potential of vinylidene chloride by the inhalation route in male and female Sprague-Dawley rats. Interim results of this study (lacking complete histopathology) have been published previously (Rampy, et al., 1977). This report constitutes the final report for the completed inhalation study and includes data from interim sacrifices conducted at 1 month, 6 months, 12 months and the terminal sacrifice (2 years), as well as all tumor incidence data.

MATERIALS AND METHODS

General Study Design.

Groups of Sprague-Dawley rats equally divided by sex were exposed to vinylidene chloride vapors 6 hr/day, 5 days/week (except holidays) for 18 months. After this treatment period, the remaining animals were allowed to survive until 24 months, at which time they were sacrificed. Initially, exposure concentrations of vinylidene chloride were selected at 0, 10 and 40 ppm. After 5 weeks of exposure the concentrations of VDC were increased to 0, 25 and 75 ppm. These exposure concentrations were maintained throughout the remainder of the 18 month duration of the exposure portion of this study. Interim sacrifices were conducted after 1, 6, and 12 months of exposure to vinylidene chloride. A separate group of 4 rats per sex per exposure level were exposed to 0, 25 or 75 ppm VDC for 6 months at the end of which time these animals were sacrificed and their bone marrow evaluated for cytogenetics.

Test Material.

Production grade vinylidene chloride was obtained from the Michigan Division plant of Dow Chemical U S A., Midland, MI. The test material was stabilized by the presence of an inhibitor (hydroquinonemonomethylether, MEHQ). Samples of the test material were obtained as needed throughout the duration of the study. Upon receipt of a new sample of test material from the production facility, an aliquot of the sample was analyzed by gas chromatography for trace impurities and inhibitor (MEHQ) content. A summary of the trace impurity and inhibitor content analyses may be found in Appendix V of this report. Analytical data from these samples indicate that the test material was of a minimum purity of 99%.

Exposure Chambers, Vapor Generation and Analysis.

Exposures were conducted in 3.7 cubic meter stainless steel chambers under dynamic airflow conditions. Vinylidene chloride vapor atmospheres were generated by metering the liquid test material into a glass vaporization flask at a controlled rate. The temperature of the flask was maintained at approximately 30°C. The concentrated VDC vapor was swept by tempered, filtered air into the exposure chamber at an airflow rate calculated to produce the desired concentration.

Analysis of the chamber atmosphere was normally performed 2-5 times during the 6 hour daily exposure period. Analyses were conducted by vapor phase infrared spectrometry. A Perkin Elmer model 12A infrared spectrophotometer was employed, a path length of 10 meters and a wavelength of 12.6 μ were used for the analysis. Chamber concentration was determined by interpolating from a standard curve using peak height measurements. Standards were prepared by injecting a known volume of vinylidene chloride into a SARAN bag filled with a measured amount of filtered, compressed air.

Animals and Husbandry.

Three groups of Sprague-Dawley (Spartan Research Animals, Haslett, MI) weanling rats, equally divided by sex, were employed in this study. The animals were assigned to treatment groups using a table of random numbers. At the start of exposures, male rats were in the body weight range of 250-300 g and females weighed 190-230 g. Animals were exposed 6 hours a day, 5 days a week; food and water were not available to either exposed or control animals during daily exposures. Animals assigned to VDC-exposure groups were held in an animal holding room during the non-exposure period. The control animals were maintained in ambient conditions in an animal holding room (not an exposure chamber), during the daily exposure period. Food and water were available ad libitum at all times other than during exposure.

Animals were housed 2 or 3 per cage for the duration of the study. Individual animal identification was assigned when the animal was submitted for necropsy in the pathology laboratory.

Routine In-Life Observations.

Animals were observed daily during the exposure period for changes in appearance or demeanor. Special attention was given to observing for possible eye or nasal irritation. Body weights were recorded weekly for the first month of exposure, biweekly during the second month of exposure, and a minimum of monthly thereafter for the entire 24 month period of the experiment. Records of mortality were maintained.

Clinical Laboratory Studies.

Test animals were not predesignated for either interim sacrifice or clinical laboratory parameters. However clinical laboratory evaluations were performed, where appropriate, on the same animals subsequently sacrificed

at scheduled interim sacrifices. In all cases these animals were selected from each group prior to the scheduled sacrifice using a table of random numbers.

Hematology. Hematologic parameters including red blood cell count, hemoglobin concentration, packed cell volume, total and differential white blood cell counts were determined on 5 rats per sex per exposure group shortly before the 6 and 12 month interim kills. Ten animals/sex/exposure group were used for these evaluations at the 2 year terminal sacrifice. Blood for hematologic determinations was obtained from the tail vein.

Urinalysis. Random urine specimens were obtained for 5 rats/sex/exposure group at 6 and 12 months and from 10 rats/sex/exposure group prior to the 24 month terminal kill. Urinalyses included determinations of specific gravity, pH, glucose, protein, ketones, occult blood, bilirubin and urobilinogen (24 months only). Specific gravity measurements were made using a T.S.Meter (American Optical Company, Buffalo, NY); all other parameters were evaluated using Bililabstix (Ames Company, Elkhart, IN).

Clinical Chemistry. Clinical chemistry determinations were carried out on serum samples collected from all animals at both the interim and terminal sacrifices. Determinations included serum glutamic pyruvic transaminase (SGPT), blood urea nitrogen (BUN), and alkaline phosphatase (AP). SGPT determinations were also performed on a selected group of animals 2 and 7 weeks after initiation of exposures. Blood samples for these SGPT determinations were obtained by orbital sinus puncture. Blood glucose values at the 12 month interim sacrifice suggested a treatment-related effect and consequently were repeated at 18 months on 5 rats/sex/exposure group. All the above parameters were performed on all surviving animals at the time of sacrifice (24 month terminal kill). Blood for clinical chemistry parameters, unless specified otherwise, was collected from the severed cervical vessel during the necropsy procedure.

Cytogenetic Analyses. Animals for cytogenetic analysis were added to the study following the 1 month interim sacrifice. These rats were caged separately and identified by cage in order to identify them separately from the remainder of the test animals.

Following the 1 month interim sacrifice, 4 rats/sex/exposure group were added to the study for cytogenetic evaluation. These rats were exposed for 6 months to 0, 25 or 75 ppm VDC. At the end of the 6 month exposure period, the animals were injected interperitoneally with 4 mg/kg colchicine four hours prior to sacrifice. Femoral bone marrow was

obtained from each rat, the cells were processed using Hank's balanced salt solution, a 0.5% KCL solution and a 10% acetic acid in methanol fixative (Legator, et al., 1969). The cells were then scored for chromosomal aberrations according to established guidelines (Bender, 1969; Evans, 1962).

Pathology

During the course of the 24-month experimental period, a concerted effort was made to minimize postmortem autolysis by selecting moribund rats for necropsy examination prior to their natural death. Regardless of whether the rats died during the study, were culled during the study or survived to the terminal necropsy after 734-736 days, a complete gross pathologic examination was performed on each rat by a veterinary pathologist. Every effort was made at autopsy to collect the tissues listed in Table 1 from each rat and preserve in buffered 10% formalin fixative.

Rats submitted alive during the course of the study or at the terminal necropsy were anesthetized with methoxyflurane, and the trachea was clamped prior to killing by decapitation. The lungs, trachea and adjacent tissues of all rats were removed from the thoracic cavity as a unit, and the lungs were distended with formalin fixative to their approximate normal inspiratory volume.

At the time of a scheduled necropsy (interim or terminal), body weights were recorded after an overnight fast. The brain, heart, liver, kidneys and testes from these rats were removed and weighed. The tissues preserved in formalin fixative were subsequently processed by routine histologic procedures, embedded in embedding medium, sectioned (5-6 μ) and stained with hematoxylin and eosin. The tissues taken at autopsy from all rats of the control and high exposure groups, regardless of whether they died, were culled or survived to termination, were processed and examined by light microscopy. Similarly, for rats of the lower exposure group the liver, kidneys, heart, lungs, trachea, spleen, thyroid gland, parathyroid gland, pituitary gland, adrenal glands, stomach, brain (cerebral cortex and cerebellum), and any grossly-visible lesions suggestive of a possible neoplastic process were microscopically examined. The actual number of organs and tissues processed and examined by light microscopy from each exposure group are listed in Tables 18 and 23 for male and female rats, respectively. These tissues were examined for the presence or absence of tumorous and nontumorous alterations. Whenever

necessary, special staining procedures were used on selected tissues. These procedures were conducted according to those outlined in the AFIP manual on histologic techniques.¹

The resultant data were statistically analyzed by Fisher's Exact Probability Test. This test compared the cumulative incidence of each grossly-observed lesion in each exposure group against the cumulative incidence observed in the control group of that respective sex. Statistical evaluations were also performed on the cumulative incidence of all microscopically-visible observations for rats of the high exposure group versus the control group of that sex. Similar statistical evaluations were also performed on microscopically-visible observations for rats of the lower exposure group in those cases in which the number of tissues examined approximated the control group. In all cases, the level of statistical significance chosen was $p < 0.05$.

Unidentified Rats. During the conduct of this study, there were several rats for which it was impossible to ascertain the assigned exposure level at the time of presentation for pathologic examination. These rats were autopsied, examined for gross pathologic alterations, and tissues saved for histopathologic examination. The findings of gross and histopathologic examination and list of tissues examined microscopically are included as a separate part of this report. This group consisted of one male rat submitted for autopsy during the 19-24 month interval and four female rats from the terminal kill. All of the pathologic data from these rats are presented in Appendix X. None of these rats had any uniquely different, nontumorous or tumorous pathologic findings compared to those seen in the other control or exposed rats. Rather than remove these rats from the study, they were included for the sake of completeness.

Statistical Evaluations.

Body weight data, clinical chemistry, hematology, urinalysis (specific gravity) and organ weight data were analyzed using analysis of variance and Dunnett's test (Steel and Torrie, 1960). Data for cumulative mortality, incidence of gross and microscopic pathological findings, and tumor incidence were analyzed by the Fischer's exact test (Siegel, 1956). The level of significance in all cases was chosen as $p \leq 0.05$.

¹Manual of Histologic and Special Staining Technics, Armed Forces Institute of Pathology, 2nd edition, 1949.

RESULTS AND DISCUSSION

Chamber Analyses.

A summary of analytical values for vinylidene chloride in the exposure chamber atmospheres is shown in Table 2. Due to the alteration of exposure concentrations following the first month of inhalation exposure of rats to vinylidene chloride, the first month and subsequent 17 months of exposure are reported separately in this table. The data presented in Table 2 indicate close control of the vapor generation apparatus and good agreement between the analytical concentrations obtained and the target concentrations for this experiment.

There was only one exceptional occurrence in the normal exposure routine for the eighteen months of VDC exposure. On October 22, 1974 (experiment day 207), the test material from a concurrent chronic inhalation study of 2-hydroxyethyl acrylate (HEA, Kociba, et al 1979) was accidentally substituted for VDC in the vapor generating apparatus for the 25 ppm exposure chamber. If one assumed complete volatilization of HEA in the generating apparatus the average concentration of HEA in the exposure chamber would have been 30 ppm. In fact, this was not the case since residual liquid test material was found in the vapor generation flask and the temperature of the vapor generator (30°C) was too low to adequately volatilize HEA (minimum temperature for volatilization was 75°C under these conditions). It is the judgement of the authors that the actual concentration of HEA in the exposure chamber was in the range of 2-3 ppm and the accidental substitution of this material for a single exposure day had no effect on the outcome of this experiment. In addition Kociba et al. (1979) found that 18 months of inhalation exposure of Sprague-Dawley rats to 0.5 or 5 ppm HEA did not result in evidence of oncogenicity.

Each sample of production grade vinylidene chloride used in this study was checked by gas chromatography to establish identity, inhibitor content, and levels of trace impurities. The impurities and ranges of concentrations found are included in Appendix V. Also included in Appendix V are the calculated concentrations of trace impurities that would be found in a 75 ppm atmosphere of vinylidene chloride assuming total vaporization of the entire sample.

Clinical Observations.

There were no clinical observations which were interpreted to indicate a consistent treatment-related effect of exposure to either 25 or 75 ppm

vinylidene chloride for the rats on this study. No signs of eye or nasal irritation or other changes in appearance or demeanor were observed in any of these animals.

Mortality.

Cumulative percent mortality for male and female rats exposed to vinylidene chloride vapors are presented in Tables 3 and 4. As indicated in these tables, mortality data was based on a total population of approximately 84-86 animals (depending upon specific group) and did not include animals designated for interim sacrifices or for cytogenetic evaluation. Mortality figures for male rats (Table 3) did not reveal significant increases in mortality as a result of vinylidene chloride exposure. Mortality data for female rats (Table 4) exposed to 25 ppm vinylidene chloride indicate statistically significant increases in mortality when compared to the control group from the 15th through the 22nd months of the study. A trend towards increased cumulative percent mortality was noted in female animals of the 75 ppm exposure group when compared to controls from the 14th month through the end of the study. Statistically significant increased mortality figures were observed for female rats in the 75 ppm exposure group at months 15, 17 and 21 of the study. Although slight increases in cumulative mortality were noted in both vinylidene chloride exposure groups throughout the latter period of this study, there was no indication of any dose-response relationship for this parameter. Additionally, the higher incidence of mortality in the 25 ppm group of female rats and the relative absence of such an effect on the 75 ppm group would indicate that this effect was not a result of VDC exposure. However, the apparent earlier onset of spontaneous mammary tumors in the female treatment groups (Table 22, p. 105) as well as the higher incidence of intercurrent murine pneumonia observed in both males and females during this period of the study (Table 20, p. 87) may have contributed to the increased mortality observed in the treatment groups when compared to controls.

Body Weights.

A graphic representation of body weight profiles for male and female rats exposed to vinylidene chloride throughout the 2 year duration of this study are shown in Figures 1 and 2 respectively. Summaries of mean body weight for control and exposure groups of male and female rats and the statistically significant values obtained for

this parameter are given in Tables 5 and 6 respectively. Individual body weight data for all animals on this study are included in Appendix I of this report.

The mean body weights for male rats exposed to 25 ppm vinylidene chloride were statistically lower than the control group for the first 13 months of exposure to VDC. Subsequently, mean body weights of this group remained lower than controls although they were not statistically decreased in a consistent fashion (see Table 5). Pre-exposure mean body weights for the 75 ppm group were statistically higher than control values and continued to be so for the first 2 weeks of the study. Male rats of the 75 ppm exposure group showed decreased mean body weights from the 6th through the 12th month of the study. A general trend toward decreased mean body weight for animals of this exposure group when compared to controls was observed throughout the remainder of the experimental period (24 months). However, statistically significant differences were only observed at the 17th and 21st month weighings. The absence of a consistent dose-related decrease in mean body weight for male rats exposed to either 25 or 75 ppm vinylidene chloride would argue against the observed differences being attributable to vinylidene chloride exposure.

Mean body weights of female rats exposed to either 25 or 75 ppm VDC were generally found to be statistically significantly greater than control means for the first 6 months of the study (Table 6). Subsequent to this period, no consistent effect on body weight could be noted which was attributed to exposure to VDC. As shown in Figure 2, body weight gain for female rats in both VDC exposure groups were comparable to controls for the remainder of the study.

Hematology.

Hematologic parameters determined at the interim (6 and 12 months) and terminal (24 months) sacrifices on the male and female rats are summarized in Tables 7 and 8, respectively. Individual animal data for these parameters may be found in Appendix VI of this report.

The results of hematology determinations performed on male rats exposed to either 25 or 75 ppm vinylidene chloride revealed no effects which could be attributed to vinylidene chloride exposure at any of the scheduled sacrifices (Table 7). Hematology data obtained on female

rats exposed to 25 ppm VDC for 1 year indicated a decreased total white blood cell count when compared to the control mean (Table 8). Samples obtained at the same time interval for female rats exposed to 75 ppm indicated a statistically significant increase in total red blood cell count when compared to control mean. To verify the repeatability of these observations, the same animals were sampled approximately 3 days following the scheduled 1 year hematology sampling and none of the aforementioned effects were noted. Thus, these effects are attributed to normal variation in these measurements and are not judged to be related to vinylidene chloride exposure. Further support for this interpretation of the data is indicated by the absence of any significant findings in hematology parameters in the animals sacrificed after 2 years on test.

Urinalysis.

Random urine samples obtained from male and female rats exposed to 0, 25 or 75 ppm vinylidene chloride at the 6 and 12 month interim kills and at the terminal kill did not reveal any consistent effects which were relatable to vinylidene chloride exposure. The individual animal data for urinalysis parameters may be found in Appendix VII of this report.

Clinical Chemistry.

Clinical chemistry parameters for male rats exposed to vinylidene chloride are summarized in Table 9. A statistically significant increase in serum alkaline phosphatase activity of male rats exposed to 10 ppm VDC at the 1 month sampling period was interpreted as normal variability and not related to vinylidene chloride exposure. At the 1 year interim sacrifice, blood glucose determinations were included in the battery of clinical chemistry tests performed. A significant decrease in blood glucose values for male rats of the 75 ppm exposure group was noted. Blood glucose determinations were repeated on 5 animals per group at 18 months to verify this finding. The observed decrease in blood glucose levels was not repeatable at 18 months nor was it observed at the 2 year terminal sacrifice. Thus, the apparent decrease in blood glucose was considered a reflection of normal variability and of no toxicologic significance. There were no other parameters which were affected as a result of vinylidene chloride exposure.

Clinical chemistry parameters for female rats exposed to vinylidene chloride are summarized in Table 10. There were no significant differences between control and exposed animals, and no differences attributable to exposure to vinylidene chloride.

Cytogenetics.

Cytogenetic evaluation of bone marrow cells was conducted at the Biomedical and Comparative Toxicology Laboratory of Dow Chemical USA in Freeport, Texas. As indicated in Table 11, no chromosomal aberrations were found in either the control or treated groups. It was not possible in all cases to find 50 good metaphase spreads on the slides prepared from individual animals as was originally planned. However, sufficient representative spreads were found among some of the animals in each group. Sufficient representative cells were studied to conclude that no increase in the aberration rate was caused by exposure of rats to vinylidene chloride.

Organ Weights.

A summary of mean organ weights and organ-to-body weight ratios for male rats included in the interim and terminal sacrifices of this study are shown in Table 12. The only effects on organ weights which were noted and interpreted to be resultant from exposure to vinylidene chloride were those in male rats of the 1 year interim sacrifice group. Male rats exposed to either 25 or 75 ppm VDC had decreased fasted body weights with respect to control animals and a concomitant decrease in the liver weight, all of which were statistically significant when compared to the control means. All other statistical differences in organ weights were interpreted as sporadic occurrences and could not be associated with exposure to vinylidene chloride.

The data for mean organ weights and organ-to-body weight ratios for female rats included in the interim and terminal sacrifices are shown in Table 13. Female rats exposed to 25 or 75 ppm VDC for 1 year had statistically significant increases in absolute kidney weights when compared to the control mean. A similar trend, although not statistically significant, was also indicated by the kidney weight data from the 2 year terminal sacrifice for animals of these exposure groups. This slight increase in kidney weight of female rats was not supported by any gross or histopathologic observations.

Individual animal data for organ weights and organ-to-body weight ratios for the interim sacrifices and the terminal sacrifice are included as Appendix IX of this report.

Pathology.

The results of gross necropsy and histologic examinations as well as the numbers of tissues examined microscopically are presented in Tables 14 to 18 (males) and 19 to 23 (females). For easy reference, the following is a list of these tables.

Table 14 Nontumorous gross pathologic lesions in male rats.

Table 15 Nontumorous histopathologic lesions in male rats.

Table 16 Tumors or tumor-like lesions grossly recognized in male rats.

Table 17 Histopathologic diagnosis and number of tumors in male rats.

Table 18 Number of male rats for which the specified tissue was examined microscopically.

Table 19 Nontumorous gross pathologic lesions in female rats.

Table 20 Nontumorous histopathologic lesions in female rats.

Table 21 Tumor or tumor-like lesions grossly recognized in female rats.

Table 22 Histopathologic diagnosis and number of tumors in female rats.

Table 23 Number of female rats for which the specified tissue was examined microscopically.

As expected, a large number of gross and microscopic lesions were recorded for the control and test rats. These lesions included the normal spectrum of spontaneously occurring age-related changes usually encountered in lifetime studies with this strain of rat. Statistical evaluation of the gross pathologic and histopathologic data revealed some observations which had incidence rates which were statistically increased or decreased when compared to the respective control group. Observations that were statistically significantly different from the controls were derived from Tables 14 to 17 for the male rats and Tables 19 to 22 for the female rats and listed as follows:

ORGAN SYSTEM & PATHOLOGIC OBSERVATION	Males		Females	
	25 ppm	75 ppm	25 ppm	75 ppm
<u>RESPIRATORY SYSTEM</u>				
<u>Gross</u>				
Lesions of pneumonia	Inc.	Inc.	Inc.	---
Red foci in lungs	---	Inc.	---	---
Bronchiectasis	Inc.	Inc.	Inc.	Inc.
Nasal/ocular exudate	Inc.	Inc.	---	---
<u>Histology</u>				
Acute/chronic tracheitis	Inc.	Inc.	Inc.	Inc.
Focal lymphoid infiltrate in trachea	Dec.	---	---	---
Chronic murine pneumonia	Inc.	Inc.	Inc.	Inc.
Focal alveolar histiocytosis	---	Dec.	Dec.	Dec.
Peribronchial lymphoid infiltrate	Dec.	Dec.	---	---
Focal mineralization of intraalveolar septae	Dec.	---	---	---
Chronic pulmonary lesions characterized by edema, interstitial thickening, fibrosis, inflammation with or without atelectasis (secondary to advanced cardiac or renal lesions)	Dec.	---	---	---
Mediastinal lymphoid hyperplasia, secondary to chronic murine pneumonia	N.E.	Inc.	N.E.	Inc.
<u>LIVER</u>				
<u>Gross</u>				
Accentuation of lobular pattern	---	Dec.	---	---
Red subcapsular foci	Dec.	---	---	Dec.
<u>Histology</u>				
Lobular atrophy	---	Dec.	Dec.	Dec.
Focal biliary hyperplasia	Dec.	Dec.	---	---
Focal periportal fibrosis	---	Dec.	---	---
Focal mononuclear cell infiltrate	Dec.	Dec.	---	Dec.
Foci of ground-glass appearing hepatocytes	---	---	Dec.	---
Fatty change - midzonal	---	---	---	Inc.
Sinusoidal dilatation	---	---	Dec.	---
<u>URINARY SYSTEM</u>				
<u>Gross</u>				
Dilated renal pelvis	---	Dec.	---	---
Chronic renal disease	---	---	Dec.	---

Results are listed on the basis of whether the incidence rate for each respective observation was statistically increased (Inc.), decreased (Dec.) or comparable to the control group of that sex (---).

N.E. - Not examined microscopically in numbers comparable to controls.

<u>ORGAN SYSTEM & PATHOLOGIC OBSERVATION</u>	<u>Males</u>		<u>Females</u>	
	<u>25 ppm</u>	<u>75 ppm</u>	<u>25 ppm</u>	<u>75 ppm</u>
<u>PITUITARY</u>				
<u>Gross</u>				
Increased size or irregular shape	Dec.	---	Dec.	---
<u>Histology</u>				
Adenoma	Dec.	Dec.	Dec.	---
Total number with pituitary tumors	Dec.	Dec.	Dec.	---
<u>PANCREAS</u>				
<u>Histology</u>				
Islet cell adenoma	N.E.	Dec.	N.E.	---
<u>MAMMARY GLAND</u>				
<u>Gross</u>				
Hyperplasia	---	---	---	Dec.
Number of rats with 3 subcutaneous tumors	---	---	Inc.	Inc.
<u>Histology</u>				
Adenocarcinoma	---	---	Inc.	---
Total number of rats with a subcutaneous and/or mammary tumor	---	---	---	Inc.
<u>OTHER</u>				
Ovarian cyst	---	---	---	Inc.
Splenic atrophy	Dec.	Dec.	---	---
Chronic focal keratitis	---	Inc.	---	---
Skeletal muscle atrophy	N.E.	Dec.	N.E.	---
Lymph node edema, cystic, pigment, etc.	---	---	---	Dec.
Cannibalism	Dec.	---	---	---

Results are listed on the basis of whether the incidence rate for each respective observation was statistically increased (Inc.), decreased (Dec.) or comparable to the control group of that sex (---).
N.E. - Not examined microscopically in numbers comparable to controls.

ORGAN SYSTEM & PATHOLOGIC OBSERVATION	Males		Females	
	25 ppm	75 ppm	25 ppm	75 ppm
<u>CARDIOVASCULAR SYSTEM</u>				
<u>Gross</u>				
Dilated inelastic appearance of aorta	Dec.	Dec.	---	---
<u>Histology</u>				
Minimal focal myocardial degeneration	Inc.	---	Dec.	Dec.
Severe focal myocardial degeneration and fibrosis	Dec.	Dec.	---	---
Lesions of mesenteric periarteritis	---	Dec.	---	---
Mineralization of blood vessels	---	Dec.	---	---
<u>GASTROINTESTINAL</u>				
<u>Gross</u>				
Inflammation of salivary gland	Dec.	---	---	---
Soiling of perineal region	---	Dec.	---	---
Gastric mineralization	Dec.	---	---	---
<u>ADRENAL</u>				
<u>Histology</u>				
Hyperplastic focus of cortex	---	Dec.	Dec.	Dec.
Hyperplastic focus of medulla	Dec.	---	---	---
Focal lipomatosis	---	---	Dec.	Dec.
<u>THYROID</u>				
<u>Gross</u>				
Increased size	Dec.	Dec.	Dec.	---
<u>Histology</u>				
Adenocarcinoma	---	Dec.	Dec.	---
Total number with thyroid tumor	---	Dec.	---	---
<u>PARATHYROID</u>				
<u>Gross</u>				
Hyperplasia	Dec.	---	---	---
<u>Histology</u>				
Hyperplasia	Dec.	---	---	---
<u>OVARY</u>				
<u>Gross</u>				
Ovary - tumor	---	---	Dec.	---

Results are listed on the basis of whether the incidence rate for each respective observation was statistically increased (Inc.), decreased (Dec.) or comparable to the control group of that sex (---).

Gross and histologic examination of the respiratory tissues of male and female rats exposed to 25 or 75 ppm of VDC revealed a statistically-increased incidence of lesions typical of chronic murine pneumonia, an infectious process due to Mycoplasma pulmonis. This disease was first recognized during the 13-18 month time interval and increased in incidence as the study progressed. The incidence of lesions of chronic murine pneumonia was much lower in the control groups. The control rats were not housed in exposure chambers during the study, although the control cages were located in the same room as the rats with the infectious disease. This physical separation of control and exposed rats, even though in the same room, probably decreased the rate of spread of this infectious disease. In view of these factors, plus the fact that this infectious disease has previously been observed at a higher incidence in control groups from other studies, it was concluded that the lesions of chronic murine pneumonia and its associated bronchiectasis, tracheitis, nasal and ocular exudate, focal keratitis and mediastinal lymphoid hyperplasia were not considered to be the result of exposure to 25 or 75 ppm of VDC.

As a result of the increased incidence of the more advanced lesions of chronic murine pneumonia noted in lungs of rats exposed to 25 or 75 ppm of VDC, there was a corresponding statistical decrease in the incidence rates for some of the minor pathologic observation in the lungs of rats at both exposure levels, presumably due to masking of these lesions by the pneumonia.

Advanced chronic renal disease was the primary cause of death or reason for removing male rats from this study. Most of these rats also exhibited other organ system lesions associated with chronic renal failure and a uremic state.

The female rat of this strain has a high spontaneous incidence of subcutaneous tumors in the mammary gland region and was frequently the reason for being culled during the study. Because of the size, number, and location of these masses in the mammary gland region they frequently show pressure necrosis, ulcerations, and subsequent hemorrhage. Acute death may result from the blood loss in some of these animals while others may survive the hemorrhagic episode with histopathologic observations in a multitude of tissues that are a result of the hypoxic state due to blood loss.

Gross and histologic examination of the livers of rats exposed to 25 or 75 ppm VDC indicated statistical decreases in the incidence rates of various degenerative or inflammatory processes; these were considered to be of no toxicologic significance. However, the livers of female rats exposed to 75 ppm of VDC had a statistically increased incidence of midzonal hepatocellular fatty change while the group of females exposed to 25 ppm VDC showed a trend towards an increased incidence which was not statistically significant. This midzonal hepatocellular fatty change, which was considered to be the result of VDC exposure, occurred at an increased incidence only in those rats submitted for necropsy during the 18-month exposure interval and was no longer present during the 6-month post-exposure period. This midzonal hepatocellular fatty change was comparable to that previously reported in both male and female rats from this study which were killed and examined following 6 and 12 months of exposure. Therefore this change is considered a minimal exposure-related effect that was readily reversible and non-progressive in nature. The liver change was not observed in males at 18 months although it had been observed in males killed following 6 and 12 months of exposure. In all probability the absence of fatty liver was due to the fact that many of the male rats were culled from this study due to advanced chronic renal disease and were in an emaciated and debilitated state. Although the midzonal hepatocellular fatty change in female rats was attributed to VDC exposure, there was no increase in the incidence of hepatocellular fatty change when expressed on a basis of combined numbers of female rats with any type of hepatocellular fatty change without regard to specific location in the liver lobule (Table 20).

Examination of the kidneys, cardiovascular system, gastrointestinal system, adrenal glands, parathyroid glands, and other tissues revealed statistically decreased incidence rates of various nontumorous lesions which were considered of no toxicologic significance. Female rats exposed to 75 ppm of VDC had a statistical increase in the incidence rate of ovarian cysts; this was not observed in the group exposed to 25 ppm of VDC, and may or may not have been associated with the exposure to VDC. However, in view of the absence of any other associated ovarian or uterine changes, it is of questionable toxicologic significance.

In regard to tumors, there were statistical decreases in the incidence rates of pancreatic islet cell adenomas, pituitary adenomas and thyroid adenocarcinomas in male rats exposed to 75 ppm of VDC. Male rats exposed to 25 ppm of VDC had a statistical decrease in the incidence of pituitary adenomas. In female rats exposed to 75 ppm of VDC, there were statistical increases in the total number of rats with a microscopically diagnosed subcutaneous and/or mammary gland tumor (Table 22). Upon gross examination there was an increased number of female rats in this group which contained 3 subcutaneous tumors per rat (Table 21) while the same group showed a decreased incidence of grossly detectable mammary hyperplasia (Table 19). In females exposed to 25 ppm of VDC, there were statistical decreases in the incidence rates of pituitary adenomas and thyroid adenocarcinomas plus statistical increases in the incidence rates of mammary adenocarcinomas (Table 22). Upon gross examination, there was an increase in the total number of rats with 3 subcutaneous tumors/rat. The number of rats in this group with less than or greater than 3 subcutaneous tumors per rat was comparable to the controls (Table 21).

Although there was a statistical increase in the incidence of mammary adenocarcinomas noted in females exposed to 25 ppm of VDC, there was no difference when a comparison was made of all malignant tumor types of mammary and/or subcutaneous tissue origin (Table 22). In addition, the incidence of mammary gland adenocarcinoma in controls of this study was disproportionately low compared to our historical control values. The total number of females of the group exposed to 75 ppm of VDC with a subcutaneous and/or mammary gland tumor was statistically increased. Although this incidence rate was increased, it is comparable to controls of other recently conducted studies.

The added stress of intercurrent murine pneumonia, differences in handling control and exposed animals, as well as the midzonal fatty liver changes, may have contributed to the variable incidence of these mammary tumors. The incidence and onset of these mammary tumors is not interpreted to be a direct carcinogenic effect of VDC exposure. In addition, a 2-year water ingestion study of VDC conducted in this rat strain at this laboratory (Humiston et al.) did not indicate a carcinogenic effect in mammary tissue or any other organ system.

The total incidence of histopathologically diagnosed primary neoplasms, benign plus malignant, derived from Table 17 (males) and Table 22 (females) is as follows:

<u>Concen- tration of VDC in air (ppm)</u>	<u>Total Number of Primary Neoplasms</u>		<u>Total No. of Rats in Group</u>		<u>Average Number of Primary Neoplasms/ Rat in Group</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
0	145	248	86	84	1.68	2.95
25	101	220	85	86	1.18	2.55
75	115	235	86	84	1.33	2.79

These tumor incidence figures for male and female rats from the various exposure levels and controls are comparable to historical controls. Therefore, none of the statistically significant increases or decreases in tumor incidences were considered to be a direct effect of exposure to 25 or 75 ppm of VDC.

SUMMARY AND CONCLUSIONS

Rats were exposed to VDC concentrations of 10 and 40 ppm for the first five weeks of this study. Based upon the absence of observable treatment-related effects in the data from rats sacrificed after 1 month of exposure, the decision was made to increase exposure concentrations to 25 and 75 ppm VDC. Exposures were continued at these VDC concentrations through the 18th month of the study, after which the surviving animals were held until 24 months and then sacrificed.

There was no observable increase in mortality of rats of either sex attributable to VDC exposure. Likewise there were no clinical signs of toxicity or irritation of the eyes or nares observed in rats exposed to 25 or 75 ppm VDC during the 18 month exposure period. Clinical chemistry, hematology, urinalysis, body weight data and organ weights obtained at selected time intervals throughout the conduct of the study revealed no changes which could be judged as a direct effect of the test material on these parameters or the function or organ systems evaluated by them.

Cytogenetic evaluation of bone marrow preparations from rats of both sexes exposed to 0, 25 or 75 ppm VDC for 6 months failed to reveal chromosomal aberrations in either the control or treated animals.

Although the incidence of several tumors and/or tumor types were found to be statistically increased or decreased in VDC-exposed rats compared to controls, none of these statistically significant differences were judged to be attributable to VDC exposure. The majority of altered tumor incidence rates were observed to be associated with intercurrent disease (murine pneumonia), commonly found geriatric lesions in this strain of rat, or both. The total incidence of histologically diagnosed primary neoplasms (benign and malignant) was similar in control and VDC-exposed groups of both sexes. In addition the tumor incidence data for both control and treated rats in this study was comparable to historical control data for the Sprague-Dawley rat (Spartan substrain) used by this laboratory for several studies of similar design and duration. The observed absence of tumorigenic potential of VDC in rats in the present study is consistent with the findings of other investigators (Maltoni, 1977a, b; Lee et al, 1978; Humiston, et al, 1978).

The only target organ effects resultant from VDC exposure were observed in the liver of rats exposed to either 25 or 75 ppm VDC. This effect, characterized by hepatocellular fatty changes in the mid-zonal region of the hepatic lobule was observed in both male and female rats of both the 25 and 75 ppm exposure groups as early as the six month interim sacrifice in this study. Similar observations were also made in another study in which rats were exposed to 25 or 75 ppm VDC for 90 days (Balmer et al, 1975). The midzonal fatty change was also observed at the 12 and 18 month sacrifices but no indication of progression of this lesion in either severity or incidence was apparent. By the 18th month of the study the incidence of this change was no longer increased in male rats exposed to VDC when compared to controls. However, female rats of the 75 ppm exposure group had a significantly higher incidence of hepatic fatty change than did their controls and a trend towards an increased incidence (not statistically significant) was apparent in female rats of the 25 ppm group. During the last 6 months of the study after exposures had been discontinued the effect was apparently no longer discernible. Therefore this alteration was minimal in severity, readily reversible and non-progressive in nature.

In summary, inhalation exposure of male and female rats to 25 or 75 ppm VDC for 18 month resulted in no observable indications of tumorigenic potential under the conditions of this experiment. Minimal hepatocellular fatty change in the mid-zone of the hepatic lobule was the only apparent treatment-related effect of VDC exposure. This finding was observed in rats of both sexes and at both exposure concentrations, appeared to occur in an exposure-related fashion and was clearly reversible after cessation of exposure.

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SL 082314

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN
RATS HET K-2197-(5)

QUALITY ASSURANCE STATEMENT

This report represents data generated prior to the enactment of the FDA Good Laboratory Practice Regulations. The study was conducted according to standards used in this laboratory at that time. The report accurately reflects all of the data generated. All data and reports are located at the submitting laboratory.

STUDY STARTED: 03/20/74 REPORT ISSUED: 09/08/82

FINAL REPORT AUDITED: 06/22 & 23/81 REPORTED: 06/24/81

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SL 082315

FIGURE 1
Mean Body Weights of Male Rats Exposed to VDC

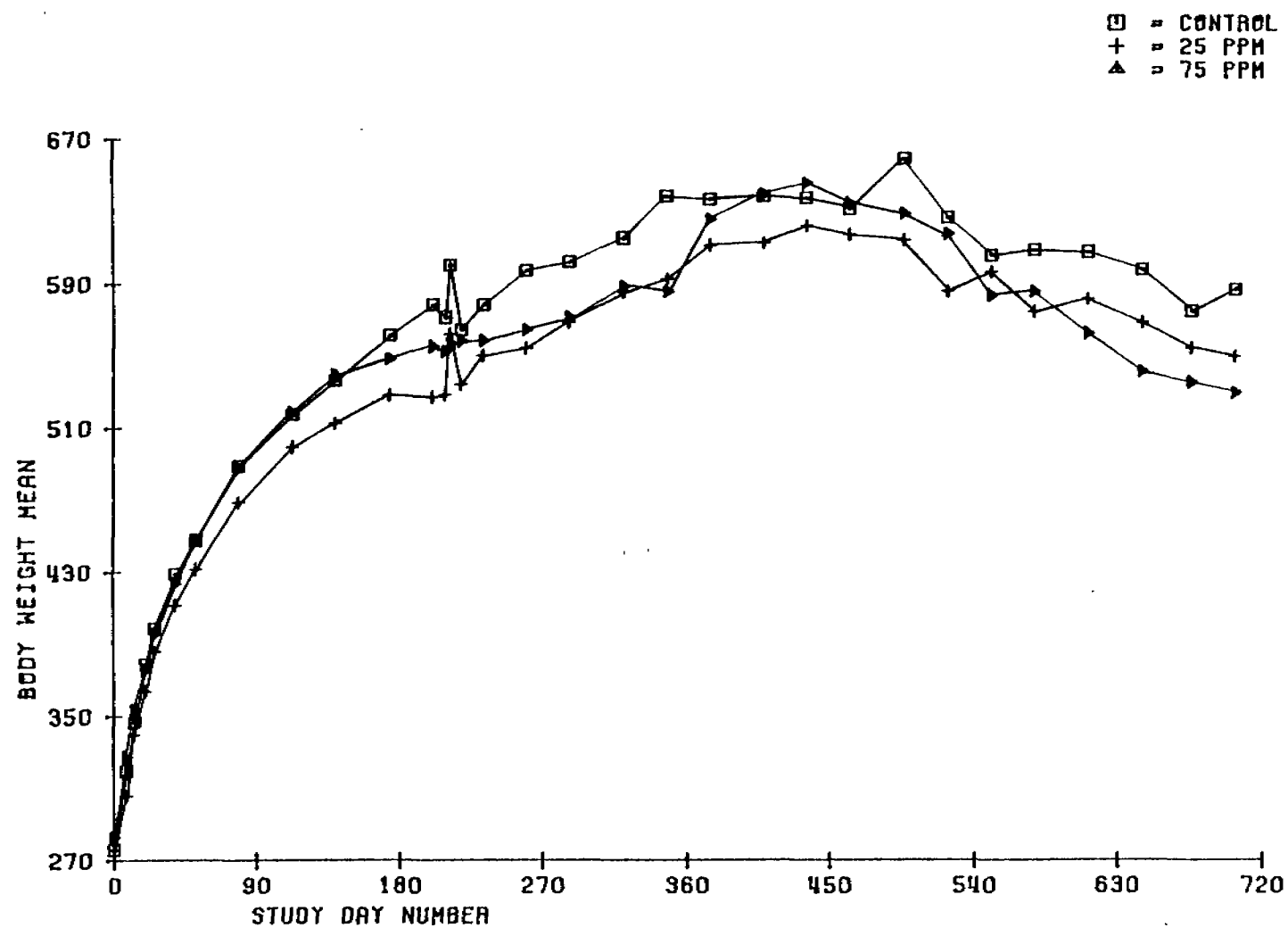
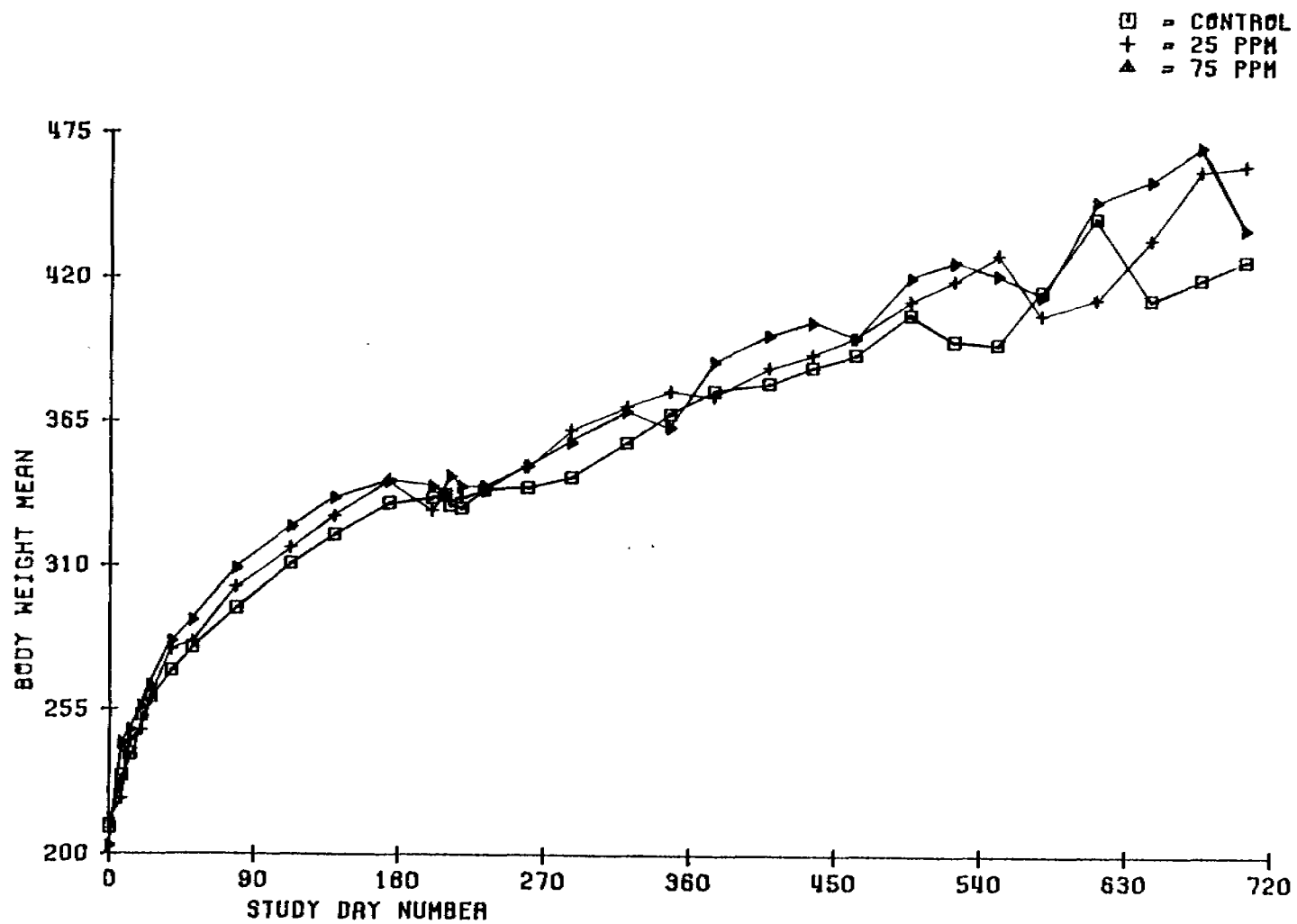


FIGURE 2
Mean Body Weights of Female Rats Exposed to VDC



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TABLE 1

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Tissue Samples Obtained and Preserved from
All Animals at Necropsy

esophagus	oviducts ^a	mediastinal lymphoid tissue ^a (thymus, mediastinal lymph nodes)
salivary glands	uterus	
stomach	mammary tissue (females)	
large intestine	brain	cerebrum lymph nodes (mesenteric)
		cerebellum
pancreas		with brain stem
		heart
liver	pituitary gland	aorta
kidneys	spinal cord	skeletal muscle
urinary bladder	peripheral nerve	adrenal glands
prostate	trachea	thyroid gland
accessory sex glands	lungs (bronchi)	parathyroid gland ^a
epididymides	nasal turbinates	adipose tissue
testes	sternum and sternal bone marrow ^b	skin
ovaries	spleen	any gross lesion or mass eyes ^c

^aThese tissues were evaluated histologically only to the extent that they were included in the routine sections of adjacent larger organs.

^bSternum and enclosed bone marrow were to be evaluated histologically only if indicated by abnormal findings in the hematological studies.

^cEyes were saved in formalin if the rat died or was culled from the study. If the rat was from the interim or terminal kills, a portion of these were fixed in Zenker's fixative and the remainder in formalin. Only selected animals had their eyes microscopically examined.

TABLE 2

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Chamber Concentrations of Vinylidene Chloride Vapor

	<u>First Month</u>		<u>Months 2-18</u>	
Target Concentration (ppm)	10	40	25	75
Mean Analytical Concentration ±S.D. (ppm)	9.5 ±2.5	35.8 ±6.2	25.4 ±4.6	72.6 ±7.5
% of Exposure Days Within 10% of Target Concentration	18	57	52	69
% of Exposure Days Within 25% of Target Concentration	68	86	81	96
Range of Concentration	5.0-13.7	20.0-45.1	12.0-39.5	52.1-96.0*

*Single days at 35, 42.4, 46.5, 47, 47.5, 47.7, and 49 ppm were recorded.

TABLE 3

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

CUMULATIVE PERCENT MORTALITY FOR MALE RATS

Months on Study	Exposure Level		
	Control	25 ppm	75 ppm
Number of Rats Alive on Day 0 ^a	Number Dead (% Dead)	Number Dead (% Dead)	Number Dead (% Dead)
	86	85	86
1	1 (1)	3 (4)	1 (1)
2	1 (1)	3 (4)	1 (1)
3	1 (1)	3 (4)	2 (2)
4	1 (1)	4 (5)	3 (4)
5	1 (1)	4 (5)	3 (4)
6	3 (4)	4 (5)	4 (5)
7	4 (5)	4 (5)	4 (5)
8	5 (6)	5 (6)	5 (6)
9	5 (6)	5 (6)	5 (6)
10	5 (6)	6 (7)	7 (8)
11	6 (7)	6 (7)	8 (9)
12	8 (9)	7 (8)	8 (9)
13	9 (11)	8 (9)	9 (11)
14	10 (12)	8 (9)	10 (12)
15	14 (16)	8 (9)	12 (14)
16	19 (22)	17 (20)	12 (14)
17	23 (27)	18 (21)	16 (19)
18	27 (31)	25 (29)	27 (31)
19	32 (37)	36 (42)	37 (43)
20	39 (45)	47 (55)	47 (55)
21	49 (57)	50 (59)	56 (65)
22	54 (63)	58 (68)	66* (77)
23	63 (73)	65 (77)	71 (83)
24	72 (84)	72 (85)	74 (86)
25	73 (85)	72 (85)	78 (91)
Terminal Kill	13	13	8
30-Day Interim Kill	4	4	4
6-Month Interim Kill	5	5	5
12-Month Interim Kill	5	5	5
26 Weeks ^b Cytogenetic Kill	4	3	4
Total Rats in Study	104	103 ^c	104

^aExcludes those rats used in the interim kills and the cytogenetic kill.

^bFour rats per exposure level were added one month after start of study.

^cIncludes one rat designated for cytogenetics study but not used due to death six weeks prior to cytogenetic kill.

*Statistically different from control data when analyzed using Fisher's Exact Probability test, $p < 0.05$.

TABLE 4

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

CUMULATIVE PERCENT MORTALITY FOR FEMALE RATS

Months on Study	Exposure Level					
	Control		25 ppm		75 ppm	
Number of Rats Alive on Day 0 ^a	Number Dead (% Dead)		Number Dead (% Dead)		Number Dead (% Dead)	
	84		86		84	
1	0	(0)	0	(0)	0	(0)
2	0	(0)	0	(0)	0	(0)
3	0	(0)	0	(0)	0	(0)
4	1	(1)	0	(0)	0	(0)
5	1	(1)	0	(0)	0	(0)
6	1	(1)	1	(1)	1	(1)
7	1	(1)	1	(1)	1	(1)
8	1	(1)	1	(1)	1	(1)
9	1	(1)	3	(4)	1	(1)
10	1	(1)	3	(4)	1	(1)
11	2	(2)	6	(7)	1	(1)
12	2	(2)	6	(7)	5	(6)
13	4	(5)	9	(11)	6	(7)
14	4	(5)	10	(12)	7	(8)
15	5	(6)	18*	(21)	13*	(16)
16	8	(10)	19*	(22)	16	(19)
17	9	(11)	19*	(22)	18*	(21)
18	16	(19)	29*	(34)	20	(24)
19	23	(27)	37*	(43)	29	(35)
20	30	(36)	49*	(57)	41	(49)
21	39	(46)	55*	(64)	51*	(61)
22	46	(55)	59*	(69)	54	(64)
23	56	(67)	65	(76)	61	(73)
24	64	(76)	72	(84)	68	(81)
25	65	(77)	75	(87)	68	(81)
Terminal Kill	19		11		16	
30-Day Interim Kill	4		4		4	
6-Month Interim Kill	5		5		5	
12-Month Interim Kill	5		5		5	
26 Weeks Cytogenetic Kill ^b	4		4		4	
Total Rats in Study	102		104		102	

^aExcludes those rats used in the interim kills and the
cytogenetic kill.

^bFour rats per exposure level were added one month after
start of study.

*Statistically different from control data when analyzed using
Fisher's Exact Probability test, $p < 0.05$.

SL 082321

TABLE 5

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Mean Body Weights for Male Rats

Study Time		Controls	25 ppm	75 ppm
Month	Day			
0	0	275.82	276.05	282.56*
	8	319.74	305.84*	328.20*
	13	346.77	340.06*	353.56*
	20	378.09	363.86*	375.61
1	26	399.47	385.93*	396.02
	39	428.59	412.48*	423.88
2	52	448.09	431.80*	447.24
3	79	489.23	468.71*	488.15
4	113	518.47	500.00*	518.94
5	140	536.55	512.86*	539.54
6	174	561.78	528.74*	549.27
	201	579.24	528.15*	556.47*
	209	572.32	528.50*	552.79*
	212	601.29	563.12*	557.76*
7	219	565.01	535.02*	558.50
8	233	579.07	550.81*	559.31*
9	260	598.12	555.11*	565.36*
10	287	603.05	569.36*	572.19*
11	321	615.80	586.04*	588.57*
12	348	639.17	593.14*	586.36*
13	375	637.45	611.82*	625.81
14	409	638.81	613.47	639.74
15	436	638.46	623.26	645.81
16	463	631.71	618.00	635.24
17	497	659.41	614.94*	628.62*
18	524	627.18	585.60*	618.39
19	551	606.18	596.84	583.75
20	578	609.37	575.20	585.84
21	612	607.78	582.11	563.10*
22	646	597.50	569.04	541.85
23	677	574.96	554.65	536.13
24	704	587.27	549.69	529.55

*Significantly different from control mean, $p < .05$.

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TABLE 6

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Mean Body Weights for Female Rats

Study Time		Controls	25 ppm	75 ppm
Month	Day			
0	0	210.24	212.58	203.22*
	8	230.20	221.38*	241.57*
	13	238.48	243.40*	247.40*
	20	252.87	246.59*	255.68
1	26	259.52	258.60	264.34
	39	269.89	277.79*	280.79*
	52	278.78	280.84	289.26*
3	79	294.14	301.51*	308.79*
4	113	311.28	317.23	325.10*
5	140	322.03	329.17	335.96*
6	174	332.67	342.63*	342.12*
	201	336.18	331.11	339.93
	209	337.11	334.58	336.71
	212	332.63	335.27	343.73*
7	219	331.73	335.80	340.29
8	233	338.73	338.93	340.23
9	260	339.60	348.01	348.26
10	287	343.67	362.06*	356.57
11	321	356.89	370.98*	368.90
12	348	367.94	377.14	363.14
13	375	376.74	375.25	387.52
14	409	379.60	386.23	397.57*
15	436	386.38	391.36	402.62
16	463	390.53	397.31	397.10
17	497	406.30	411.39	419.64
18	524	396.26	419.26	426.13
19	551	395.10	429.48	421.21
20	578	414.86	405.68	413.13
21	612	443.06	411.72	448.65
22	646	412.23	435.19	457.27
23	677	420.33	460.71	469.91
24	704	427.00	462.67	438.62

*Significantly different from control mean, $p < .05$.

TABLE 7

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Summary of Hematology Values for Male Rats

Exposure Level (ppm)	Number of Rats	Time	PCV %	RBC $\times 10^6/\text{mm}^3$	Hgb g/100ml	WBC $\times 10^3/\text{mm}^3$	Differential Count					
							Neut.	B/J	Lym	Mon.	Eos.	Bas.
							Seg.					
0	5	6 mo.	53.7±3.1	8.00±0.49	17.1±0.8	11.1±1.2	15	0	81	3	1	0
25	5	6 mo.	53.2±0.4	7.46±0.56	17.4±0.4	10.3±2.1	18	0	78	2	2	0
75	5	6 mo.	54.4±0.5	7.70±0.66	17.3±0.3	16.8±13.1	19	0	75	5	1	0
0	5	1 yr.	50.6±1.7	8.48±0.44	16.4±0.6	9.4±1.8	17	0	82	1	0	0
25	5	1 yr.	50.6±2.9	8.46±0.28	17.1±0.8	7.7±2.1	22	0	75	1	2	0
75	5	1 yr.	53.1±0.7	8.92±0.32	17.4±0.5	10.2±2.6	16	0	81	1	2	0
0	10	2 yrs.	45.3±8.1	7.51±1.1	14.6±2.1	18.7±7.2	35	0	61	3	1	0
25	10	2 yrs.	43.4±6.5	7.09±1.1	14.4±2.1	17.3±6.9	38	0	58	3	1	0
75	10	2 yrs.	47.3±5.3	7.61±0.67	15.6±1.4	15.1±4.8	38	0	57	4	1	0

No significant differences between control and exposed groups by Analysis of Variance and Dunnett's test ($p < 0.05$).

TABLE 8

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Summary of Hematology Values for Female Rats

Exposure Level (ppm)	Number of Rats	Time	PCV %	RBC $\times 10^6/\text{mm}^3$	Hgb g/100ml	WBC $\times 10^3/\text{mm}^3$	Differential Count					
							Neut.	B/J	Lym	Mon.	Eos.	Bas.
							Seg.					
0	5	6 mo.	51.7 $\pm$ 3.4	7.34 $\pm$ 0.48	16.5 $\pm$ 0.5	10.0 $\pm$ 2.2	9	0	86	4	1	0
25	5	6 mo.	49.7 $\pm$ 3.7	6.65 $\pm$ 0.52	16.2 $\pm$ 1.3	8.0 $\pm$ 3.1	18	0	77	4	1	0
75	5	6 mo.	52.7 $\pm$ 3.3	7.72 $\pm$ 0.90	17.4 $\pm$ 0.8	9.6 $\pm$ 1.4	13	0	83	3	1	0
0	5	1 yr.	46.5 $\pm$ 1.5	7.34 $\pm$ 0.22	15.3 $\pm$ 0.4	7.2 $\pm$ 1.5	14	0	83	2	1	0
25	5	1 yr.	48.3 $\pm$ 2.9	7.74 $\pm$ 0.46	15.8 $\pm$ 1.1	4.0 $\pm$ 1.0*	11	0	87	0	2	0
75	5	1 yr.	46.4 $\pm$ 1.1	7.84 $\pm$ 0.15*	15.5 $\pm$ 0.3	6.6 $\pm$ 1.3	19	0	78	1	2	0
0	5	1 yr.**	46.9 $\pm$ 1.2	7.32 $\pm$ 0.26	15.2 $\pm$ 0.3	7.5 $\pm$ 1.4						
25	5	1 yr.	45.1 $\pm$ 2.8	7.39 $\pm$ 0.60	14.9 $\pm$ 1.1	6.4 $\pm$ 1.2						
75	5	1 yr.	45.8 $\pm$ 3.1	7.46 $\pm$ 0.56	15.0 $\pm$ 1.1	9.6 $\pm$ 1.0						
0	10	2 yrs.	39.0 $\pm$ 6.9	6.04 $\pm$ 1.3	12.7 $\pm$ 2.4	13.2 $\pm$ 4.8	40	1/0	56	2	1	0
25	10	2 yrs.	39.9 $\pm$ 8.5	6.34 $\pm$ 1.41	13.4 $\pm$ 2.9	15.1 $\pm$ 6.8	36	1/0	58	2	3	0
75	10	2 yrs.	41.3 $\pm$ 3.4	6.66 $\pm$ 0.49	13.8 $\pm$ 1.0	14.3 $\pm$ 5.4	42	0	53	3	2	0

*Significantly different from control group by Analysis of Variance and Dunnett's test, $p < 0.05$.

**Additional samples taken 3 days later.

TABLE 9

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Summary of Clinical Chemistry Values for Male Rats

Exposure Level (ppm)	Time	N	SGPT mU/ml	BUN mg/100ml	Alk Phos. mU/ml	Glucose mg/100ml
0	2 weeks	5	37.0±5.9			
10	2 weeks	5	37.6±7.5			
40	2 weeks	5	29.0±2.8			
0	1 month	4	30.5±3.1	21.1±4.8	141.0±13.6	
10	1 month	4	29.3±3.3	22.9±2.5	173.0±18.8*	
40	1 month	4	26.8±1.7	20.6±2.1	117.3±10.4	
0	7 weeks	4	26.8±2.9			
25	7 weeks	4	24.8±2.1			
75	7 weeks	4	23.5±4.0			
0	6 months	5	31.0±7.0	17.6±0.9	109±20.0	
25	6 months	5	27.0±4.0	22.2±7.1	124±26.0	
75	6 months	5	30.0±12.0	16.6±2.0	114±11.0	
0	1 year	5	44.4±4.4	15.5±3.0	85.6±12.7	134.6±9.6
25	1 year	5	47.4±5.6	18.5±6.2	104.6±30.2	124.8±9.4
75	1 year	5	40.4±5.5	17.0±5.6	111.2±26.8	102.8±7.0*
0	18 months	5				92.0±16.0
25	18 months	5				90.0±6.0
75	18 months	5				96.0±6.0
0	24 months	13	34.0±6.0	29.0±8.0	94.0±24.0	103.0±18.0
25	24 months	13	58.0±63.0	60.0±67.0	106.0±33.0	105.0±26.0
75	24 months	8	40.0±9.0	32.0±17.0	99.0±15.0	93.0±19.0

*Significantly different from control group by Analysis of Variance and Dunnett's test, $p < 0.05$.

TABLE 10

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Summary of Clinical Chemistry Values for Female Rats

Exposure Level (ppm)	Time	N	SGPT mU/ml	BUN mg/100ml	Alk Phos. mU/ml	Glucose mg/100ml
0	2 weeks	5	32.8±5.4			
10	2 weeks	5	37.4±2.3			
40	2 weeks	5	31.2±4.2			
0	1 month	4	23.8±3.3	22.8±1.7	104.3±33.0	
10	1 month	4	24.0±1.4	22.3±2.4	121.5±25.6	
40	1 month	4	23.3±3.9	23.9±4.3	114.0±20.7	
0	7 weeks	4	28.0±7.1			
25	7 weeks	4	25.3±3.5			
75	7 weeks	4	24.8±2.4			
0	6 months	5	28.0±2.0	26.3±3.0	108.0±33.0	
25	6 months	5	29.0±6.0	26.2±0.8	119.0±69.0	
75	6 months	5	22.0±6.0	22.2±4.5	80.0±12.0	
0	1 year	5	37.4±5.8	18.0±5.5	70.6±16.6	135.8±8.6
25	1 year	5	37.4±5.7	14.9±5.5	65.6±17.6	137.0±12.2
75	1 year	5	38.4±9.9	14.5±1.7	77.2±17.1	137.4±14.6
0	18 months	5				100±9.0
25	18 months	5				94.0±10.0
75	18 months	5				97.0±7.0
0	24 months	19	37±12	30±30	124±95	101±23
25	24 months	11	37±7	22±10	94±79	89±29
75	24 months	16	32±8	36±54	92±55	95±20

No significant differences between control and exposed animals by
Analysis of Variance and Dunnett's test, $p < 0.05$.

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TABLE 11

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Chromatid and Chromosome Aberrations Observed in Rats Exposed to Vinylidene Chloride

Treatment	Sex	Number Cells Scored	Multiple Aberrations/ Cells Scored (1)	Miscellaneous Aberrations/ Cells Scored (2)	Chromatid Aberrations/ Cells Scored (3)	Chromosomes Aberrations/ Cells Scored (4)	Number Abnormal Cells Scored (5)
Control	Male	34	0	0	0	0	0
		23	0	0	0	0	0
		40	0	0	0	0	0
		38	0	0	0	0	0
Control	Female	0	0	0	0	0	0
		50	0	0	0	0	0
		0	0	0	0	0	0
		40	0	0	0	0	0
25 ppm ⁽⁶⁾	Male	50	0	0	0	0	0
		29	0	0	0	0	0
		50	0	0	0	0	0
25 ppm	Female	39	0	0	0	0	0
		35	0	0	0	0	0
		50	0	0	0	0	0
		28	0	0	0	0	0
75 ppm	Male	50	0	0	0	0	0
		50	0	0	0	0	0
		50	0	0	0	0	0
		50	0	0	0	0	0
75 ppm	Female	50	0	0	0	0	0
		32	0	0	0	0	0
		50	0	0	0	0	0
		50	0	0	0	0	0

- (1) Multiple Aberrations - a heavily damaged cell containing aberrations too numerous to count.
- (2) Miscellaneous - a cell containing pulverizations, endoreduplications, etc.
- (3) Chromatid Aberrations - includes breaks with fragments, breaks without fragments, intrachanges, and interchanges.
- (4) Chromosome Aberrations - includes breaks with fragments, breaks without fragments, dicentrics, rings, translocations, and inversions.
- (5) Abnormal Cells - scored as one if a cell contained any of the abnormalities listed in notes (1), (2), (3), or (4).
- (6) A single male rat from the 25 ppm group designated for cytogenetic evaluation died spontaneously prior to the time of evaluation.

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TABLE 12

VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Summary of Organ Weights and Organ to Body Weight Ratios for Male Rats

Exposure Level (ppm)	Time	N	Body Weight (g)	Brain		Heart		Liver		Kidney		Testes	
				g	g/100g	g	g/100g	g	g/100g	g	g/100g	g	g/100g
0	30 days	4	373.5±19.0	1.82±0.12	0.49±0.01	1.20±0.16	0.32±0.03	11.15±0.57	2.99±0.14	2.71±0.16	0.72±0.03	3.68±0.27	0.98±0.06
10	30 days	4	387.0±34.0	1.84±0.03	0.48±0.04	1.13±0.05	0.29±0.01	11.26±1.62	2.90±0.19	2.76±0.29	0.72±0.05	3.76±0.24	0.98±0.04
40	30 days	4	408.0±12.0	1.85±0.04	0.45±0.02	1.26±0.15	0.31±0.03	12.34±0.63	3.03±0.10	2.93±0.12	0.72±0.05	3.55±0.19	0.87±0.04*
0	6 months	5	553.4±41.7	1.83±0.10	0.33±0.04	1.52±0.14	0.28±0.02	15.22±3.56	2.73±0.42	3.77±0.51	0.68±0.06	3.88±0.30	0.71±0.10
25	6 months	5	521.6±29.1	1.94±0.07	0.37±0.03	1.40±0.11	0.27±0.02	13.81±1.86	2.64±0.22	3.63±0.36	0.70±0.03	3.85±0.10	0.74±0.04
75	6 months	5	519.6±0.48	1.96±0.05*	0.38±0.03	1.49±0.09	0.29±0.01	13.23±1.63	2.54±0.18	3.57±0.52	0.69±0.06	3.90±0.36	0.75±0.09
0	1 year	5	660.4±44.3	1.98±0.08	0.30±0.01	1.68±0.16	0.26±0.02	20.57±1.51	3.13±0.34	4.39±0.51	0.67±0.12	4.08±0.30	0.62±0.03
25	1 year	5	575.9±48.3*	1.97±0.08	0.35±0.04	1.58±0.04	0.28±0.02	15.28±2.10*	2.65±0.23*	3.94±0.39	0.69±0.06	4.04±0.23	0.71±0.10
75	1 year	5	562.8±41.4*	1.93±0.03	0.34±0.03	1.54±0.11	0.27±0.02	15.13±2.06*	2.69±0.29	4.04±0.51	0.72±0.09	3.88±0.19	0.69±0.08
0	2 years	13	527±78	1.94±0.11	0.38±0.07	1.88±0.18	0.36±0.05	18.28±1.95	3.50±0.37	5.85±1.08	1.14±0.30	4.22±0.81	0.82±0.16
25	2 years	13	495±85	1.99±0.11	0.41±0.07	1.88±0.30	0.39±0.08	16.92±2.94	3.44±0.41	5.33±0.93	1.10±0.24	3.56±0.68	0.73±0.14
75	2 years	8	492±61	1.97±0.06	0.41±0.05	1.84±0.20	0.38±0.03	16.96±2.54	3.44±0.24	5.41±0.78	1.11±0.16	4.14±0.45	0.85±0.09

*Significantly different from control group by Analysis of Variance and Dunnett's test, $p < 0.05$.

TABLE 13

VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENIC STUDY IN RATS

Summary of Organ Weights and Organ to Body Weight Ratios for Female Rats

Exposure Level (ppm)	Time	N	Body Weight (g)	Brain		Heart		Liver		Kidney	
				g	g/100g	g	g/100g	g	g/100g	g	g/100g
0	30 days	4	251.0±20.0	1.73±0.06	0.69±0.06	0.81±0.02	0.32±0.02	6.45±0.33	2.58±0.09	1.70±0.22	0.68±0.06
10	30 days	4	249.0±3.0	1.75±0.04	0.70±0.02	0.83±0.07	0.33±0.03	6.48±0.30	2.60±0.12	1.86±0.08	0.75±0.02
40	30 days	4	236.0±21.0	1.74±0.05	0.74±0.05	0.75±0.07	0.32±0.01	5.87±0.45	2.49±0.11	1.68±0.16	0.71±0.01
0	6 months	5	327.0±14.5	1.81±0.02	0.55±0.03	0.98±0.07	0.30±0.02	7.25±1.15	2.22±0.35	2.03±0.28	0.62±0.09
25	6 months	5	303.2±49.9	1.81±0.05	0.61±0.10	0.92±0.16	0.30±0.01	6.94±1.27	2.29±0.20	1.88±0.31	0.62±0.05
75	6 months	5	326.6±17.2	1.83±0.05	0.56±0.04	0.95±0.04	0.29±0.01	7.47±0.77	2.28±0.14	2.06±0.14	0.63±0.05
0	1 year	5	329.0±18.7	1.82±0.06	0.55±0.04	1.03±0.09	0.31±0.02	7.45±0.69	2.26±0.11	2.09±0.10	0.63±0.03
25	1 year	5	365.6±26.0	1.82±0.09	0.50±0.04	1.09±0.11	0.30±0.04	8.39±1.51	2.32±0.55	2.44±0.26*	0.67±0.11
75	1 year	5	339.6±38.3	1.77±0.06	0.53±0.06	1.08±0.01	0.32±0.03	9.04±0.80	2.67±0.21	2.60±0.18*	0.77±0.09
0	2 years	21	402±95	1.79±0.06	0.47±0.11	1.24±0.15	0.32±0.09	13.47±4.17	3.37±0.76	2.94±0.49	0.77±0.23
25	2 years	13	418±109	1.77±0.06	0.45±0.09	1.29±0.20	0.33±0.09	13.59±3.77	3.26±0.51	2.96±0.63	0.75±0.24
75	2 years	16	404±72	1.76±0.07	0.45±0.08	1.27±0.15	0.32±0.08	13.99±4.39	3.47±0.90	3.10±0.55	0.80±0.26

*Significantly different from control group by Analysis of Variance and Dunnett's test, $p < 0.05$.

TABLE 14

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Gross Pathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>LIVER</u>							
Enlarged or congested with or without secondary darkening	Control	0	2	5	8	0	15
	25 ppm	2	0	2	10	1	15
H-01	75 ppm	0	0	5	4	0	9
Atrophied (decrease in size)	Control	1	0	0	3	0	4
H-02	25 ppm	0	0	1	3	1	5
	75 ppm	0	0	0	3	0	3
Small white or pale-colored foci	Control	0	0	0	7	1	8
H-03	25 ppm	0	0	0	2	1	3
	75 ppm	0	0	1	7	5	13
Red subcapsular foci	Control	0	0	2	5	2	9 ^a
H-04	25 ppm	0	0	0	1	1	2 ^a
	75 ppm	0	0	0	3	0	3
Roughened due to chronic passive congestion	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
H-06	75 ppm	0	0	0	3	0	3
Dark and discolored	Control	0	0	0	0	0	0
H-07	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Fluid-filled cysts	Control	0	0	0	2	1	3
H-08	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	1	0	1
Accentuation of lobular pattern	Control	0	0	2	11	1	14
H-11	25 ppm	0	0	1	5	1	7
	75 ppm	0	0	0	3	1	4 ^a
Pale discoloration	Control	0	2	0	1	0	3
H-12	25 ppm	0	0	1	1	2	4
	75 ppm	0	0	2	4	0	6
Strangulation, folding or other distortion, of a lobe	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
H-14	75 ppm	0	0	0	0	0	0
Mottled	Control	0	0	0	0	0	0
H-15	25 ppm	0	0	0	3	0	3
	75 ppm	0	0	0	1	0	1
<u>RESPIRATORY SYSTEM</u>							
<u>Thoracic Cavity</u>							
Hemothorax	Control	0	0	0	1	0	1
K-07	25 ppm	0	0	0	0	0	0
	75 ppm	1	0	0	1	0	2
Hydrothorax	Control	0	0	1	7	0	8
K-04	25 ppm	0	0	0	10	2	12
	75 ppm	0	0	0	11	0	11
Thoracic cavity pleuritis	Control	0	0	0	0	0	0
K-17	25 ppm	1	0	0	0	0	1
	75 ppm	0	0	0	0	0	0

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$

TABLE 14 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Gross Pathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>Thoracic Cavity (cont'd)</u>							
Pleural adhesions K-01	Control	0	0	0	2	0	2
	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
Fibrinous exudate with fluid K-03	Control	0	0	0	1	0	1
	25 ppm	1	0	0	0	0	1
	75 ppm	0	0	0	0	0	0
<u>Lungs</u>							
Atelectasis (edematous) K-05	Control	0	0	0	7	0	7
	25 ppm	0	0	1	11	0	12
	75 ppm	0	0	1	9	0	10
Pneumonia K-9	Control	1	0	1	0	0	2
	25 ppm	2	0	5	17	3	27 ^a
	75 ppm	0	0	4	13	1	18 ^a
Golden brown pigment K-10	Control	0	0	0	1	1	2
	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
Consolidation K-06	Control	0	0	0	0	0	0
	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	1	0	1
Small red foci K-02	Control	0	0	0	1	0	1
	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	5	2	7 ^a
Bronchiectasis K-12	Control	0	0	1	0	0	1 ^a
	25 ppm	0	0	1	9	0	10 ^a
	75 ppm	0	0	2	9	0	11 ^a
Mineralization K-13	Control	0	0	1	0	0	1
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	2	1	0	3
Diffuse darkened areas throughout lung K-14	Control	0	0	5	8	0	13
	25 ppm	0	0	1	3	2	6
	75 ppm	1	0	6	4	0	11
Small pale subpleural foci K-15	Control	0	0	0	3	2	5
	25 ppm	0	0	1	3	1	5
	75 ppm	0	0	0	6	0	6
Congestion with or without edema K-16	Control	0	0	0	3	0	3
	25 ppm	0	0	0	2	0	2
	75 ppm	0	0	0	2	0	2

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 14 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Gross Pathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control 25 ppm 75 ppm	3 4 4	5 3 4	19 18 19	46 47 51	13 13 8	86 85 86
<u>URINARY SYSTEM</u>							
<u>Urinary Bladder</u>							
Petechial hemorrhage or mucosal hyperemia	Control 25 ppm 75 ppm	0 0 0	0 0 0	1 0 0	1 0 1	0 1 0	2 1 1
IE-28 & IE-16							
Thickened wall or changes suggestive of cystitis	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	0 1 0	0 1 0	0 2 0
IE-22 & IE-17							
Distention with urethral obstruction	Control 25 ppm 75 ppm	0 0 0	1 0 0	5 0 2	1 1 2	0 1 0	7 2 4
IE-19							
Urinary calculi	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	1 0 0	0 1 0	1 1 0
IE-20							
Hematuria - blood in urinary bladder	Control 25 ppm 75 ppm	0 0 0	1 1 0	0 0 0	0 0 0	0 0 0	1 1 0
IE-33							
<u>Kidney</u>							
Chronic renal disease with or without cyst formation, minimal	Control 25 ppm 75 ppm	0 0 0	0 0 0	4 7 8	21 23 23	10 4 4	35 34 35
I-02-L							
Chronic renal disease, moderate	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	1 1 1	0 1 1	1 2 2
I-02-M							
Chronic renal disease, severe	Control 25 ppm 75 ppm	0 0 0	0 1 0	4 2 2	12 11 14	0 1 0	16 15 16
I-02-S							
Increased in size not directly associated with chronic renal disease	Control 25 ppm 75 ppm	0 0 0	1 0 0	1 0 0	0 1 0	0 0 0	2 1 0
I-01							
Enlarged and Congested	Control 25 ppm 75 ppm	0 0 0	0 0 0	1 0 1	1 3 2	0 0 0	2 3 3
I-03							
Dilated renal pelvis	Control 25 ppm 75 ppm	0 0 0	0 0 0	1 0 0	3 1 0	2 0 0	6 1 0 ^a
I-04							
Mineralization or granular debris within renal pelvis	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	3 0 0	0 0 0	3 0 0
I-05 & I-07							
Hydronephrosis	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	1 0 0	0 0 0	1 0 0
I-06							

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, p<0.05.

TABLE 14 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Gross Pathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control 25 ppm 75 ppm	3 4 4	5 3 4	19 18 19	46 47 51	13 13 8	86 85 86
<u>Kidney (cont'd)</u>							
Renal failure - probable cause of death or poor condition	Control 25 ppm 75 ppm	0 0 0	0 1 0	3 2 2	11 5 13	0 2 0	14 10 15
I-13							
Infarct, local	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	0 1 0	0 0 0	0 1 0
P-11							
White foci	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	0 0 1	0 0 0	0 0 1
I-14							
Decrease in size	Control 25 ppm 75 ppm	1 0 0	0 0 0	0 0 0	0 0 0	0 0 0	1 0 0
I-15							
Dark and discolored	Control 25 ppm 75 ppm	0 0 0	1 0 0	0 1 0	0 0 0	0 0 0	1 1 0
I-09							
Pyelonephritis - inflammation of the kidney and renal pelvis	Control 25 ppm 75 ppm	0 0 0	0 0 0	1 0 0	1 0 0	0 0 0	2 0 0
I-20							
<u>CARDIOVASCULAR SYSTEM</u>							
<u>Heart</u>							
Left atrial thrombosis	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 1	5 9 7	0 0 0	5 9 8
L-02							
Degeneration or dilated ventricles (including flaccid ventricles)	Control 25 ppm 75 ppm	0 0 0	0 0 0	1 0 2	8 5 6	2 2 0	11 7 8
L-03 & L-04							
Pale foci in muscle or generalized paleness of muscle	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	2 0 3	0 0 0	2 0 3
L-01							
Mineralization	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	0 0 1	0 0 0	0 0 1
L-09							
Atrioventricular valve hematoma	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	0 0 1	0 0 0	0 0 1
L-12							
<u>Aorta</u>							
Vessels - dilated and inelastic	Control 25 ppm 75 ppm	0 0 0	0 0 0	4 0 1	15 8 9	1 1 0	20 9 ^a 10 ^a
L-06							

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, p<0.05.

TABLE 14 (Continued)

VINYLLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Cross Pathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>CARDIOVASCULAR SYSTEM (cont'd)</u>							
<u>Vessels</u>							
Periarteritis, (vasculitis) sclerosis, and other related changes including thrombosis of a vessel	Control	0	0	0	6	3	9
	25 ppm	0	0	1	5	1	7
	75 ppm	0	0	0	4	0	4
L-08							
Nodular areas in mesenteric vessels or mesentery - vascular in nature	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
P-05							
<u>ABDOMINAL CAVITY</u>							
Intra-abdominal fluid or blood	Control	0	0	0	3	0	3
	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	2	0	2
F-13							
<u>ADIPOSE TISSUE</u>							
Depleted or any decrease in quantity	Control	1	0	3	12	1	17
	25 ppm	1	0	2	19	4	26
	75 ppm	0	0	2	16	2	20
D-01							
Obese or excessive quantity including "fat rat syndrome"	Control	0	3	5	4	0	12
	25 ppm	0	0	5	1	3	9
	75 ppm	0	0	5	5	0	10
D-02							
Strangulation of a portion of abdominal fat	Control	0	0	0	1	1	2
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
D-03							
<u>GASTROINTESTINAL TRACT AND INTRA-ABDOMINAL CAVITY</u>							
<u>Salivary Gland</u>							
Inflammation	Control	0	0	1	0	6	7
	25 ppm	0	0	0	0	0	0 ^a
	75 ppm	0	0	0	1	3	4
F-24							
<u>Stomach</u>							
Gastric ulcers, erosions or focal hemorrhage	Control	0	0	4	8	2	14
	25 ppm	0	1	1	13	3	18
	75 ppm	0	0	1	14	0	15
F-05 & F-02							
Gastric mineralization	Control	0	0	3	12	0	15
	25 ppm	0	0	1	4	0	5 ^a
	75 ppm	0	0	4	11	0	15
F-03							
Gastric distention with air	Control	0	0	2	0	0	2
	25 ppm	0	0	2	4	0	6
	75 ppm	0	0	2	3	0	5
F-04							
Thickened gastric mucosa (hyperkeratosis)	Control	0	0	1	2	1	4
	25 ppm	0	0	0	5	0	5
	75 ppm	0	0	0	2	0	2
F-26							
Gastric edema	Control	0	0	1	0	0	1
	25 ppm	0	0	1	2	0	3
	75 ppm	0	0	0	1	0	1
F-37							

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$

TABLE 14 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Gross Pathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied	Control	3	5	19	46	13	86
during the time period	25 ppm	4	3	18	47	13	85
indicated	75 ppm	4	4	19	51	8	86
<u>GASTROINTESTINAL TRACT AND INTRA-ABDOMINAL CAVITY (cont'd)</u>							
<u>Intestinal Tract</u>							
Decreased amount of ingesta or feces in	Control	2	0	3	10	0	15
the gastrointestinal tract	25 ppm	0	0	1	9	2	12
F-07	75 ppm	0	1	0	8	0	9
Bloody fluid material or darkening of	Control	0	0	1	5	0	6
ingesta in gastrointestinal tract -	25 ppm	0	0	1	2	0	3
associated with chronic renal disease	75 ppm	0	0	1	3	0	4
F-29							
Bloody fluid material or darkening of	Control	1	0	1	0	0	2
ingesta in gastrointestinal tract -	25 ppm	0	0	0	0	0	0
associated with malocclusion	75 ppm	0	0	0	0	0	0
F-30							
Bloody fluid material or darkening of	Control	0	0	0	1	0	1
ingesta in gastrointestinal tract -	25 ppm	0	0	0	0	0	0
associated with an undetermined cause	75 ppm	0	0	1	0	0	1
F-33							
Intestinal tract inspissation of fecal	Control	0	0	0	0	0	0
material	25 ppm	0	0	0	0	1	1
F-39	75 ppm	0	0	0	0	0	0
<u>Large Intestine</u>							
Parasites (pinworms)	Control	0	0	0	0	0	0
F-11	25 ppm	1	0	0	1	0	2
	75 ppm	0	0	0	1	0	1
<u>Cecum</u>							
Hemorrhagic or edematous, thickened,	Control	0	0	0	3	1	4
whiteish discoloration, gelatinous	25 ppm	0	0	0	0	0	0
material or inflammation indicative	75 ppm	0	0	1	2	0	3
of uremic typhilitis							
F-18 & F-25							
<u>REPRODUCTIVE SYSTEM</u>							
Testicles - enlarged or edematous	Control	0	0	0	0	1	1
IE-01	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Testicular atrophy (flaccid) - uni-	Control	0	0	4	13	4	21
lateral and bilateral	25 ppm	0	0	3	14	2	19
IE-02	75 ppm	0	0	3	15	0	18
White foci in seminiferous tubules	Control	0	0	0	1	3	4
IE-13	25 ppm	0	0	0	2	0	2
	75 ppm	0	0	0	1	0	1
White foci on testicle	Control	0	0	0	0	0	0
P-03	25 ppm	0	0	1	0	0	1
	75 ppm	0	0	0	1	0	1

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 14 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Gross Pathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>REPRODUCTIVE SYSTEM (cont'd)</u>							
Testes and/or accessory sex glands - congestion	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
IE-26	75 ppm	0	0	0	0	0	0
Testes - rudimentary structure with small epididymis	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	1	1
IE-27	75 ppm	0	0	0	0	0	0
Cryptorchidism, bilateral or unilateral	Control	0	0	0	0	1	1
IE-31	25 ppm	0	0	0	0	1	1
	75 ppm	0	0	0	0	0	0
Accessory sex gland atrophy	Control	0	0	1	8	0	9
IE-06	25 ppm	0	0	0	7	1	8
	75 ppm	0	0	1	7	0	8
Accessory sex gland - enlarged and inflamed	Control	0	0	2	0	0	2
	25 ppm	0	0	0	1	0	1
IE-07	75 ppm	0	0	0	3	0	3
Accessory sex glands impacted with secretory material	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
IE-21	75 ppm	0	0	0	0	0	0
Epididymal fat pad edema, hyperemia or congestion	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
IE-08	75 ppm	0	0	1	0	0	1
Epididymal fat pad - focal necrosis	Control	0	0	0	0	0	0
IE-30 & IE-24	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	2	0	2
Epididymis - focal enlargement	Control	0	0	0	0	0	0
IE-04	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	1	0	1
Prostate gland enlarged	Control	0	0	1	2	0	3
IE-10 & IE-15	25 ppm	0	0	0	2	0	2
	75 ppm	0	0	0	2	0	2
Abscessed preputial glands	Control	0	0	1	2	0	3
IE-09	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
<u>NERVOUS SYSTEM</u>							
<u>Pituitary</u>							
Hemorrhagic foci	Control	0	0	1	0	1	2
N-06	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
Red foci with focal enlargement	Control	0	0	0	0	0	0
N-09	25 ppm	0	0	1	1	0	2
	75 ppm	0	0	0	1	0	1

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

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TABLE 14 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Gross Pathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>NERVOUS SYSTEM (cont'd)</u>							
<u>Brain</u>							
Malacia of brain	Control	0	0	0	0	0	0
N-07	25 ppm	0	1	1	0	0	2
	75 ppm	0	1	0	0	0	1
Focal compression of the base of the brain as a result of an enlarged pituitary	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
N-11	75 ppm	0	0	0	0	0	0
<u>ENDOCRINE SYSTEM</u>							
Thyroid - white foci	Control	0	0	0	1	0	1
O-04	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Parathyroid - hyperplasia	Control	0	0	5	15	0	20 ^a
O-02	25 ppm	0	0	1	7	2	10 ^a
	75 ppm	0	0	6	12	0	18
<u>ADRENAL GLAND</u>							
Hemorrhagic appearance on cross section	Control	0	0	0	1	1	2
J-04	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	1	1	0	2
Mottled appearance	Control	0	0	0	6	0	6
J-05	25 ppm	0	1	0	5	0	6
	75 ppm	0	0	0	2	0	2
Decrease in size	Control	0	0	0	0	1	1
J-06 & J-07	25 ppm	0	0	0	0	1	1
	75 ppm	0	0	0	1	1	2
<u>INTEGUMENTARY SYSTEM</u>							
Keratinized epidermal inclusion cyst	Control	0	0	0	1	1	2
B-01	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	2	0	2
Acute inflammation of a limb/body	Control	0	0	0	1	0	1
Number per rat = 1	25 ppm	0	0	0	0	0	0
B-06	75 ppm	0	0	0	0	0	0
<u>MUSCULOSKELETAL SYSTEM</u>							
Skeletal demineralization	Control	0	0	2	5	0	7
M-01	25 ppm	0	0	0	3	0	3
	75 ppm	0	0	0	7	0	7
Ankylosis of a joint	Control	0	0	0	1	3	4
M-05	25 ppm	0	0	0	1	1	2
	75 ppm	0	0	0	0	0	0
Muscular atrophy	Control	0	0	0	0	3	3
M-06	25 ppm	0	0	0	0	3	3
	75 ppm	0	0	0	0	0	0

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 14 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Gross Pathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>LYMPHORETICULAR SYSTEM</u>							
Lymph node(s) - swollen and/or congested, edematous - local, containing hematogenous pigment or cystic	Control	0	0	1	2	2	5
	25 ppm	0	0	1	3	2	6
	75 ppm	0	0	0	5	0	5
G-01							
Lymph node(s) - swollen and congested, edematous - general, containing hematogenous pigment or cystic	Control	0	0	0	2	1	3
	25 ppm	0	0	1	1	2	4
	75 ppm	0	0	0	0	0	0
G-02							
Splenomegaly - extramedullary hematopoiesis (no indication of tumorous process)	Control	0	1	0	0	0	1
	25 ppm	0	0	1	1	0	2
	75 ppm	0	0	1	3	0	4
G-06							
Splenic atrophy (decrease in size)	Control	0	0	0	1	0	1
G-08 & G-09	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>EYE</u>							
Corneal opacity - unilateral	Control	0	0	1	0	3	4
C-04	25 ppm	0	0	1	0	0	1
	75 ppm	0	0	0	1	1	2
Corneal opacity - bilateral	Control	0	0	1	6	3	10
C-04	25 ppm	0	0	1	5	11	17
	75 ppm	0	0	0	9	4	13
Corneal dryness	Control	0	0	0	1	0	1
C-07	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Hyperemia	Control	0	0	0	1	0	1
C-09	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
<u>GENERAL</u>							
Postmortem change, minimal	Control	0	0	0	5	0	5
A-02-L	25 ppm	1	0	1	3	0	5
	75 ppm	0	0	1	1	0	2
Postmortem change, moderate	Control	0	1	4	6	0	11
A-02-M	25 ppm	0	0	2	10	0	12
	75 ppm	1	1	4	5	0	11
Postmortem change, severe	Control	1	0	3	7	0	11
A-02-S	25 ppm	2	0	2	0	0	4
	75 ppm	1	0	1	3	0	5
Cannibalism	Control	0	2	4	3	0	9 ^a
A-03	25 ppm	1	0	0	1	0	2 ^a
	75 ppm	2	1	5	2	0	10

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 14 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Gross Pathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>GENERAL (cont'd)</u>							
Emaciation - decrease in body condition A-04	Control	2	0	4	5	1	12
	25 ppm	0	0	1	11	4	16
	75 ppm	0	1	0	7	1	9
Anemia A-06	Control	0	0	1	2	0	3
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	1	2	0	3
Nasal or ocular exudate A-07	Control	0	0	1	1	0	2
	25 ppm	1	0	1	6	0	8 ^a
	75 ppm	1	0	7	4	0	12 ^a
Nasal hemorrhage A-08	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Malocclusion A-09	Control	2	0	5	1	0	8
	25 ppm	1	0	0	3	1	5
	75 ppm	0	0	1	3	1	5
Ulceration of hard palate, tongue, or opposing gingival surface with or without inflammation A-10	Control	2	0	4	0	0	6
	25 ppm	1	0	0	2	0	3
	75 ppm	0	0	1	3	0	4
Ulcerated skin lesion A-12	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	2	0	2
Loss of hair (focal alopecia) A-13	Control	0	0	0	0	0	0
	25 ppm	1	0	0	0	0	1
	75 ppm	0	0	0	0	0	0
Perineal fecal material secondary to chronic renal disease, malocclusion, and other cause A-14	Control	0	0	4	7	0	11
	25 ppm	0	0	0	2	1	3 ^a
	75 ppm	0	0	0	5	0	5
Brown pigmented (porphyrin) material in facial area and/or forelimbs A-17	Control	0	0	0	1	0	1
	25 ppm	0	0	2	1	0	3
	75 ppm	0	0	0	4	0	4
Edema of all or some of the tissues of the body A-18	Control	0	0	0	1	0	1
	25 ppm	0	0	1	0	0	1
	75 ppm	0	0	0	1	0	1

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, p<0.05.

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TABLE 15

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
LIVER							
Accentuated hepatic lobular pattern due to centrilobular atrophy	Control	1	0	4	17	8	30
H-01	25 ppm	1	0	5	21	7	34
	75 ppm	0	2	4	19	7	32
Generalized hepatic lobular atrophy	Control	1	0	6	15	1	23
H-02	25 ppm	1	0	2	13	1	17
	75 ppm	0	1	3	9	0	13 ^a
Accentuated hepatic lobular pattern due to centrilobular atrophy with hepatocellular vacuolization	Control	0	2	2	2	1	7
H-03	25 ppm	0	0	2	3	0	5
	75 ppm	1	0	5	1	0	7
Foci of intralobular hepatocellular alteration	Control	0	0	0	1	6	7
H-04	25 ppm	0	0	0	0	6	6
	75 ppm	0	0	0	1	3	4
Area of intralobular hepatocellular alteration	Control	0	0	0	0	0	0
H-05	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	1	1
Focal hepatic necrosis	Control	0	0	1	0	0	1
H-06	25 ppm	0	0	1	2	0	3
	75 ppm	0	0	0	0	0	0
Multifocal hepatic necrosis	Control	0	0	2	2	0	4
H-07	25 ppm	0	0	0	3	1	4
	75 ppm	0	0	0	1	1	2
Generalized centrilobular degeneration and/or necrosis (anoxic) with or without associated accentuation of the lobular pattern or associated fatty change	Control	0	2	4	5	0	11
H-08	25 ppm	2	1	4	9	0	16
	75 ppm	1	0	4	10	0	15
Focal biliary hyperplasia	Control	0	0	2	8	10	20
H-09	25 ppm	0	0	2	4	4	10 ^a
	75 ppm	0	0	2	5	0	7 ^a
Focal periportal fibrosis	Control	0	0	3	10	9	22
H-10	25 ppm	0	0	1	7	5	13
	75 ppm	0	0	2	7	1	10 ^a
Focal biliary cyst formation	Control	0	0	0	5	2	7
H-11	25 ppm	0	0	0	3	2	5
	75 ppm	0	0	0	2	0	2
Focal mononuclear cell infiltrate	Control	0	4	15	36	13	68
H-12	25 ppm	0	2	8	28	12	50 ^a
	75 ppm	2	3	13	26	4	48 ^a
Focal extramedullary hematopoiesis	Control	0	1	0	1	0	2
H-13	25 ppm	0	0	1	4	0	5
	75 ppm	0	1	0	1	0	2

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, p<0.05.

TABLE 15 (Continued)

VINYLLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>LIVER (cont'd)</u>							
Focal vascular ectasia (dilatation)	Control	0	0	0	3	2	5
H-14	25 ppm	0	0	0	2	0	2
	75 ppm	0	0	0	3	1	4
Minimal hepatocellular fatty change	Control	0	0	2	3	2	7
H-22	25 ppm	0	0	0	1	1	2
	75 ppm	0	0	3	6	3	12
Moderate hepatocellular fatty change (centrilobular and/or midzonal)	Control	0	0	0	0	1	1
H-23	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	1	0	0	1
Severe hepatocellular fatty change	Control	0	0	0	1	0	1
H-24	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Increased number of reticuloendothelial cells lining sinusoids (reticulo-endothelial hyperplasia)	Control	0	0	0	1	0	1
H-27	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Foci of cystic degeneration of hepatocytes	Control	0	0	0	0	2	2
H-28	25 ppm	0	0	0	1	3	4
	75 ppm	0	0	0	0	2	2
<u>RESPIRATORY SYSTEM</u>							
<u>Trachea</u>							
Focal subepithelial lymphoid infiltrate	Control	0	0	5	6	0	11
R-01	25 ppm	0	0	0	3	1	4 ^a
	75 ppm	0	0	1	4	0	5
Chronic or acute tracheitis	Control	0	0	1	0	0	1
R-03	25 ppm	2	0	4	16	2	24 ^a
	75 ppm	1	0	3	15	2	21 ^a
<u>Lungs</u>							
Chronic pulmonary lesions characterized by edema, interstitial thickening and fibrosis, inflammatory cell infiltrate and exudation of cells into the alveoli, with or without atelectasis (associated with advanced cardiac or renal lesions)	Control	0	1	3	19	0	23
R-20 & R-38	25 ppm	0	0	0	11	1	12 ^a
	75 ppm	0	0	0	15	0	15
Focal alveolar histiocytosis	Control	2	2	8	21	10	43
R-22	25 ppm	0	2	4	17	10	33
	75 ppm	0	3	3	14	3	23 ^a
Peribronchial lymphoid cellular infiltrate	Control	0	5	17	27	13	62
R-23	25 ppm	2	3	13	18	11	47 ^a
	75 ppm	2	4	16	21	6	49 ^a

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, p<0.05.

TABLE 15 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control 25 ppm 75 ppm	3 4 4	5 3 4	19 18 19	46 47 51	13 13 8	86 85 86
<u>Lungs (cont'd)</u>							
Focal interstitial pneumonitis	Control	1	0	0	2	4	6
R-24	25 ppm 75 ppm	0 0	0 0	0 0	1 4	3 1	4 5
Focal aggregates of macrophages containing hematogenous pigment within the alveoli	Control	0	0	0	1	5	6
R-25	25 ppm 75 ppm	0 0	0 0	1 0	1 0	4 1	6 1
Acute diffuse suppurative pneumonia	Control	1	0	0	0	0	1
R-28	25 ppm 75 ppm	2 2	0 0	0 1	0 0	0 0	2 3
Focal granulomatous inflammation	Control	0	0	0	1	0	1
R-30	25 ppm 75 ppm	0 0	0 0	0 0	0 0	0 0	0 0
Pleuritis	Control	0	0	1	0	0	1
R-31	25 ppm 75 ppm	0 0	0 0	0 0	0 0	0 0	0 0
Focal pulmonary abscess formation	Control	0	0	1	0	0	1
R-32	25 ppm 75 ppm	0 0	0 0	0 0	0 0	0 0	0 0
Focal mineralization of the intra-alveolar septae	Control	0	0	5	9	0	14
R-33	25 ppm 75 ppm	0 0	0 0	1 3	3 6	0 0	4 ^a 9
Chronic murine pneumonia	Control	0	0	0	0	0	0
R-35	25 ppm 75 ppm	0 0	0 0	4 3	19 19	3 2	26 ^a 24 ^a
Cholesterol cleft formation	Control	0	0	0	0	1	1
R-41	25 ppm 75 ppm	0 0	0 0	0 0	0 0	0 0	0 0
<u>URINARY SYSTEM</u>							
<u>Kidney</u>							
Minimal degree of chronic nephropathy	Control	2	4	4	5	0	15
U-01	25 ppm 75 ppm	0 0	2 4	7 3	7 7	1 0	17 14
Moderate degree of chronic nephropathy	Control	0	1	7	9	6	23
U-02	25 ppm 75 ppm	0 0	0 0	5 6	11 16	5 5	21 27
Severe degree of chronic nephropathy	Control	0	0	1	19	7	27
U-03	25 ppm 75 ppm	0 0	0 0	4 4	15 20	7 3	26 27
End stage kidney	Control	0	0	7	12	0	19
U-04	25 ppm 75 ppm	0 0	1 0	2 6	14 8	0 0	17 14

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 15 (Continued)

VINYLLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>Kidney (cont'd)</u>							
Mineralized deposits within kidney tubules, focal	Control	0	0	4	13	0	17
	25 ppm	0	0	1	9	0	10
U-05	75 ppm	0	0	3	6	0	9
Focal renal cortical tubular hyperplasia	Control	0	0	1	0	0	1
	25 ppm	0	0	0	0	0	0
U-09	75 ppm	0	0	0	0	0	0
Acquired hydronephrosis	Control	0	0	1	0	0	1
U-18	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
Pyelonephritis	Control	0	0	1	1	0	2
U-19	25 ppm	0	0	0	1	1	2
	75 ppm	0	0	0	0	0	0
Focal hyperplasia of the transitional epithelium	Control	0	0	0	0	1	1
	25 ppm	0	0	0	0	0	0
U-21	75 ppm	0	0	0	0	0	0
<u>Urogenital Tract</u>							
Chronic urocystitis	Control	0	0	0	6	0	6
	25 ppm	0	0	0	1	1	2
U-40	75 ppm	0	0	0	2	0	2
Focal hyperplasia of urinary bladder mucosa	Control	0	0	0	2	0	2
	25 ppm	0	0	0	0	1	1
U-42	75 ppm	0	0	0	0	0	0
Diffuse hyperplasia of urinary bladder mucosa	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
U-43	75 ppm	0	0	0	0	0	0
Focal squamous metaplasia	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	1	1
U-46	75 ppm	0	0	0	0	0	0
<u>GASTROINTESTINAL SYSTEM</u>							
<u>Stomach</u>							
Focal gastric ulceration and/or hemorrhage	Control	0	0	0	4	1	5
	25 ppm	0	0	0	5	0	5
G-01	75 ppm	0	0	0	3	1	4
Mineralization of stomach and/or gastric mucosa	Control	0	0	5	15	0	20
	25 ppm	0	0	2	9	0	11
G-02 & G-04	75 ppm	0	0	4	11	0	15
Hyperplasia of gastric nonglandular epithelium	Control	0	0	0	2	0	2
	25 ppm	0	0	0	2	0	2
G-03	75 ppm	0	0	0	1	0	1

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 15 (Continued)

VINYLLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>Stomach (cont'd)</u>							
Focal erosion of gastric mucosa	Control	0	0	0	1	1	2
G-05	25 ppm	0	0	0	2	0	2
	75 ppm	0	0	0	0	0	0
Gastric edema of nonglandular portion	Control	0	0	0	2	0	2
G-06	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	2	0	2
<u>Small Intestine</u>							
Focal lymphoid hyperplasia	Control	0	0	0	0	1	1
G-42	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>Large Intestine</u>							
Intestinal nematodiasis	Control	0	0	1	0	4	5
G-50	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	1	4	4	9
Focal areas of chronic inflammation and/or ulceration with or without necrosis	Control	0	0	0	2	0	2
G-53	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>Cecum</u>							
Edema in the submucosa	Control	0	0	0	1	0	1
G-60	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Typhlitis	Control	0	0	0	1	0	1
G-61	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>Salivary Gland</u>							
Chronic interstitial sialoadenitis	Control	0	0	1	1	0	2
G-71	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>Pancreas</u>							
Focal atrophy of pancreatic acinar tissue	Control	1	0	4	12	9	26
P-03	25 ppm	0	0	2	1	2	5
	75 ppm	0	0	4	11	4	19
Focal interstitial pancreatitis	Control	0	0	2	12	9	23
P-05	25 ppm	0	0	2	1	2	5
	75 ppm	0	0	4	11	4	19
Focal interstitial inflammation and fibrosis	Control	0	0	0	0	0	0
P-07	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Pancreatic islet cell hyperplasia	Control	0	0	0	0	0	0
P-22	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	1	1

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 15 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>CARDIOVASCULAR SYSTEM</u>							
<u>Heart</u>							
Minimal degree of focal myocardial degeneration and fibrosis	Control	1	2	6	15	9	33
	25 ppm	0	0	11	27	8	46 ^a
C-01	75 ppm	0	0	10	19	4	33
Moderate degree of focal myocardial degeneration and fibrosis	Control	0	1	7	17	4	29
	25 ppm	0	1	3	16	4	24
C-02	75 ppm	0	0	4	24	3	31
Severe degree of focal myocardial degeneration and fibrosis	Control	0	0	4	13	0	17
	25 ppm	0	0	1	3	1	5 ^a
C-03	75 ppm	0	0	2	5	1	8 ^a
Thrombosis formation in atrium or ventricle	Control	1	0	0	7	0	8
	25 ppm	0	0	0	4	0	4
C-04	75 ppm	0	0	0	5	0	5
Mineralization of myocardium	Control	0	0	2	6	0	8
	25 ppm	0	0	2	5	0	7
C-09	75 ppm	0	0	1	4	0	5
Focal areas of necrosis and inflammation in ventricle	Control	0	0	1	0	0	1
	25 ppm	0	0	0	0	0	0
C-10	75 ppm	0	0	0	0	0	0
Endocardial fibroelastosis	Control	0	0	0	0	0	0
	25 ppm	0	0	0	1	0	1
C-11	75 ppm	0	0	2	0	0	2
<u>Aorta</u>							
Aortic mineralization	Control	0	0	6	20	2	28
	25 ppm	0	0	1	5	2	8
C-25	75 ppm	0	0	6	13	1	20
<u>Blood Vessels</u>							
Periarteritis and sclerosis of mesenteric blood vessels and other selected blood vessels	Control	0	0	1	10	3	14
	25 ppm	0	0	2	2	1	5
C-41	75 ppm	0	0	5	8	1	14
Hyalinization, sclerosis and/or fibroid degeneration of mesenteric and other blood vessels consistent with varying degrees of mesenteric periarteritis	Control	0	0	2	3	8	13
	25 ppm	0	1	0	2	0	3
C-43	75 ppm	0	0	1	2	1	4 ^a
Mineralization of mesenteric blood vessels and other selected blood vessels	Control	0	0	3	15	0	18
	25 ppm	0	0	0	0	0	0
C-44	75 ppm	0	0	1	3	0	4 ^a
Thrombi in peripheral blood vessel	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
C-47	75 ppm	0	0	0	0	0	0

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 15 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>REPRODUCTIVE SYSTEM</u>							
<u>Testes</u>							
Testicular atrophy	Control	0	0	6	30	11	47
X-02	25 ppm	0	0	0	1	6	7
	75 ppm	0	0	7	27	5	39
Mineralization of atrophic seminiferous tubules	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	1	1
X-04	75 ppm	0	0	0	1	1	2
Hyalinization, sclerosis and/or fibrin- oid degeneration of testicular ves- sels consistent with varying degrees of periarteritis	Control	0	0	4	22	11	37
	25 ppm	0	0	0	1	5	6
	75 ppm	0	0	4	22	5	31
X-05 & X-03							
Sperm granuloma of the testis	Control	0	0	0	0	0	0
X-07	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
Interstitial cell hyperplasia	Control	0	0	0	0	0	0
X-12	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	1	1
Focal mesothelial hyperplasia	Control	0	0	0	0	0	0
X-13	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
<u>Epididymis</u>							
Atrophy	Control	0	0	1	12	2	15
X-30	25 ppm	0	0	0	1	3	4
	75 ppm	0	0	3	19	0	22
Spermatocele with chronic inflammation	Control	0	0	1	0	0	1
X-31	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>Accessory Sex Glands</u>							
Atrophy	Control	0	0	0	1	0	1
X-35	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Inflammation with or without edema	Control	0	0	3	1	0	4
X-36	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	1	0	1
Abscess of preputial gland	Control	0	0	2	0	0	2
X-39	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
<u>Prostate Gland</u>							
Inflammatory reaction within prostate	Control	0	0	4	7	2	13
X-50	25 ppm	0	0	0	2	1	3
	75 ppm	0	0	0	3	1	4

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 15 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control 25 ppm 75 ppm	3 4 4	5 3 4	19 18 19	46 47 51	13 13 8	86 85 86
<u>Prostate Gland (cont'd)</u>							
Focal hyperplasia	Control	0	0	0	0	2	2
X-53	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	1	1
<u>NERVOUS SYSTEM</u>							
<u>Brain</u>							
Uremic encephalopathy - focal malacia	Control	0	0	0	0	0	0
N-14	25 ppm	0	0	1	2	1	4
	75 ppm	0	1	0	1	0	2
Focal malacia with reactive gliosis and vascular thrombosis	Control	0	0	0	0	0	0
N-16	25 ppm	0	0	0	0	0	0
	75 ppm	0	1	0	0	0	1
<u>Spinal Cord</u>							
Vacuolization of myelin of spinal cord	Control	0	0	1	17	12	30
N-18	25 ppm	0	0	0	1	4	5
	75 ppm	0	0	1	17	8	26
<u>Peripheral Nerves</u>							
Vacuolization of myelin within peri- pheral nerves	Control	0	0	1	24	11	36
N-32	25 ppm	0	0	0	1	6	7
	75 ppm	0	0	2	21	7	30
<u>Pituitary</u>							
Sinusoidal dilatation within pituitary	Control	0	0	1	0	1	2
N-45	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Hyperplasia	Control	0	0	0	2	1	3
N-50	25 ppm	0	0	0	0	3	3
	75 ppm	0	0	0	2	1	3
Thrombosed vessel of pineal gland	Control	0	0	0	1	0	1
N-60	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>ADRENAL GLAND</u>							
<u>General</u>							
Hematocyst formation within adrenals	Control	0	0	0	6	0	6
A-02	25 ppm	0	0	0	4	1	5
	75 ppm	0	0	2	4	0	6
Infarcted adrenal gland	Control	0	0	0	1	0	1
A-04	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Atrophy	Control	0	0	0	1	0	1
A-05	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 15 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>ADRENAL GLAND (cont'd)</u>							
<u>Cortex</u>							
Mineralization	Control	0	0	1	1	0	2
A-23	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	1	0	0	1
Hyperplastic focus	Control	0	0	4	10	3	17
A-24	25 ppm	0	0	1	7	3	11 ^a
	75 ppm	0	0	3	5	0	8 ^a
Foci of lipomatosis	Control	1	2	4	16	6	29
A-27	25 ppm	0	0	6	13	4	23
	75 ppm	0	0	2	21	3	26
Necrosis associated with ischemia	Control	0	0	0	0	0	0
A-30	25 ppm	0	1	0	0	0	1
	75 ppm	0	0	0	0	0	0
<u>Medulla</u>							
Hyperplastic focus	Control	0	0	1	5	1	7 ^a
A-46	25 ppm	0	0	0	1	0	1 ^a
	75 ppm	0	0	1	3	0	4
<u>THYROID AND PARATHYROID</u>							
<u>Thyroid</u>							
Hyperplastic focus	Control	0	0	0	1	1	2
T-05	25 ppm	0	0	1	3	1	5
	75 ppm	0	0	0	5	1	6
Keratinized cyst or cystic debris within lumen	Control	0	0	1	0	0	1
T-06	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	1	1	0	2
Keratinized duct	Control	0	0	0	0	0	0
T-12	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
<u>Parathyroid</u>							
Hyperplasia	Control	0	0	4	28	9	41 ^a
T-20	25 ppm	0	1	4	20	6	31 ^a
	75 ppm	0	0	9	24	2	35
Hyperplasia based on gross examination but microscopic section not available for evaluation	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	1	0	0	1
T-28							
<u>SUBCUTANEOUS TISSUES, MAMMARY GLAND, AND INTEGUMENT</u>							
<u>Mammary Gland</u>							
Mammary gland hyperplasia	Control	0	0	0	1	0	1
S-30	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 15 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>SUBCUTANEOUS TISSUES, MAMMARY GLAND, AND INTEGUMENT (cont'd)</u>							
<u>Integument</u>							
Epidermal inclusion cyst	Control	0	0	0	2	1	3
S-50	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	3	0	3
Focal ulcerative dermatitis and chronic inflammation	Control	0	0	0	0	0	0
S-58	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
<u>MUSCULO-SKELETAL SYSTEM</u>							
Atrophy of skeletal muscle with an occasional animal with focal mineralization	Control	1	0	4	20	12	37
M-01	25 ppm	0	0	0	1	6	7
	75 ppm	0	0	2	13	7	22 ^a
Healed fracture	Control	0	0	0	0	0	0
M-02	25 ppm	0	0	0	0	1	1
	75 ppm	0	0	0	0	0	0
Chronic periarticular fibrosis of the hock	Control	0	0	0	1	0	1
M-10	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>ADIPOSE TISSUE</u>							
Mediastinal or renal fat atrophy	Control	0	0	9	30	4	43
B-01	25 ppm	0	0	0	2	1	3
	75 ppm	0	1	4	28	1	34
Focal necrosis with or without mineralization	Control	0	0	0	2	1	3
B-03	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	1	0	0	1
Chronic inflammatory reaction	Control	0	0	0	0	0	0
B-04	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
<u>EYE</u>							
Chronic focal keratitis	Control	0	0	3	12	1	16
E-01	25 ppm	0	0	0	1	4	5
	75 ppm	0	0	2	25	1	28 ^a
Degenerative changes of lens	Control	0	0	4	5	0	9
E-04	25 ppm	0	0	0	0	0	0
	75 ppm	1	0	5	5	0	11
Panophthalmitis	Control	0	0	0	1	0	1
E-08	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>LYMPHORETICULAR SYSTEM</u>							
<u>Mediastinal Lymphoid Tissue</u>							
Congestion and/or sinusoidal dilatation	Control	0	0	1	9	0	10
L-02	25 ppm	0	0	0	0	1	1
	75 ppm	0	0	0	8	0	8

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>Mediastinal Lymphoid Tissue (cont'd)</u>							
Lymphoid hyperplasia, reactive second- ary to chronic murine pneumonia	Control	0	0	0	1	1	2
L-04	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	2	17	2	21 ^a
Lymphadenitis	Control	0	0	0	0	0	0
L-06	25 ppm	0	0	0	0	0	0
	75 ppm	2	0	0	0	0	2
Atrophy	Control	0	0	4	1	0	5
L-08	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
Lymphangiectasis	Control	0	0	0	0	1	1
L-09	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>Mesenteric Lymph Nodes</u>							
Congestion	Control	0	0	0	0	0	0
L-25	25 ppm	0	0	0	0	1	1
	75 ppm	0	0	0	0	0	0
Sinusoidal dilatation	Control	0	0	0	0	0	0
L-26	25 ppm	0	0	0	0	1	1
	75 ppm	0	0	0	1	0	1
Lymphoid hyperplasia	Control	0	0	0	0	2	2
L-27	25 ppm	0	0	1	1	0	2
	75 ppm	0	0	0	1	0	1
Lymphangiectasis	Control	0	0	0	1	0	1
L-30	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Focal lymphadenitis	Control	0	0	1	0	0	1
L-32	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Mesenteric disease - cystic hemorrhagic lymph node	Control	0	0	0	0	0	0
L-34	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
<u>Other Lymphoid Tissues</u>							
Lymphoid hyperplasia	Control	0	0	0	0	1	1
L-35	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	3	0	3
Lymphadenitis	Control	0	0	0	1	0	1
L-36	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>Spleen</u>							
Atrophy of spleen with or without hemo- siderin pigment	Control	1	0	8	23	0	32
L-38	25 ppm	1	0	0	11	1	13 ^a
	75 ppm	0	0	4	11	0	15 ^a

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, p<0.05.

TABLE 15 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>Spleen (cont'd)</u>							
Increased extramedullary hematopoiesis L-40	Control	0	1	1	7	0	9
	25 ppm	0	0	3	11	1	15
	75 ppm	0	1	1	12	0	14
Multiple foci of infarction L-41	Control	0	0	1	0	0	1
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Reticuloendothelial cell hyperplasia L-42	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 16

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Tumor or Tumor-like Lesions Grossly Recognized in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>LIVER</u>							
Tumor - primary H-09	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Tumor, metastatic H-09-M	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	1	1
Tumor, infiltrate and enlarged second- ary to generalized lymphoprolifera- tive process H-10	Control	0	0	0	1	0	1
	25 ppm	0	0	1	1	1	3
	75 ppm	0	0	0	0	0	0
<u>RESPIRATORY SYSTEM</u>							
Focal nodule(s) K-08	Control	0	0	0	0	1	1
	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	1	1	2
<u>KIDNEYS</u>							
Tumor - primary I-10	Control	0	1	0	1	0	2
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>GASTROINTESTINAL TRACT AND INTRAABDOMINAL CAVITY</u>							
<u>Salivary Gland</u>							
Salivary gland enlarged F-01	Control	0	0	0	0	3	3
	25 ppm	0	0	0	0	1	1
	75 ppm	0	0	0	0	1	1
<u>Small Intestine</u>							
Tumor or diverticulum F-08	Control	0	0	0	1	2	3
	25 ppm	0	0	1	0	0	1
	75 ppm	0	0	0	2	1	3
<u>Large Intestine</u>							
Tumor F-09	Control	0	0	0	0	0	0
	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
<u>Intraabdominal Cavity</u>							
Intraabdominal tumor in mesentery (retroperitoneum) F-15	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Intraabdominal tumor - origin un- certain F-16	Control	0	0	0	0	0	0
	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 20 (CONTINUED)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Tumor or Tumor-like Lesions Grossly Recognized in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control 25 ppm 75 ppm	3 4 4	5 3 4	19 18 19	46 47 51	13 13 8	86 85 86
<u>GASTROINTESTINAL TRACT AND INTRAABDOMINAL CAVITY</u>							
<u>Pancreas</u>							
Nodule(s) within F-19	Control 25 ppm 75 ppm	0 0 0	0 0 0	2 3 5	10 6 9	9 3 6	21 12 20
<u>Omentum</u>							
Nodule in omentum P-01	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	0 0 1	0 0 0	0 0 1
<u>REPRODUCTIVE SYSTEM</u>							
Testicular tumor IE-03	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	0 0 1	0 0 0	0 0 1
Tumor or cyst of pampiniform plexus IE-32	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	0 1 0	0 0 0	0 1 0
<u>NERVOUS SYSTEM</u>							
<u>Pituitary</u>							
Increased in size or irregular in shape with or without associated generalized color and consistency changes N-02	Control 25 ppm 75 ppm	0 0 0	0 0 1	3 0 2	8 3 2	1 1 0	12 4 ^a 5
<u>Cranial Cavity</u>							
Tumor within the cranial cavity N-05	Control 25 ppm 75 ppm	0 0 0	0 1 0	0 0 0	0 0 0	0 0 0	0 1 0
<u>ENDOCRINE SYSTEM</u>							
<u>Thyroid Gland</u>							
Increased in size O-01	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	6 2 3	4 1 0	10 3 ^a 3 ^a
<u>ADRENAL GLAND</u>							
Enlarged - unilateral and bilateral with or without associated color change J-01	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 1	5 9 8	2 2 3	7 11 12
Tumorous enlargement J-02	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	5 4 4	4 2 1	9 6 5

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, p<0.05.

TABLE 16 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Tumor or Tumor-like Lesions Grossly Recognized in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>MUSCULOSKELETAL SYSTEM</u>							
Tumor of the skull and oral cavity	Control	0	0	0	0	0	0
M-07	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
<u>LYMPHORETICULAR SYSTEM</u>							
Lymph node(s) - tumor consisting of lymphoid tissue	Control	0	0	0	2	0	2
G-03	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Local invasion of tumor with regional lymph node(s) involved	Control	0	0	0	0	1	1
G-04	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Thymus - enlarged or enlargement in region which thymus usually occupies	Control	0	0	0	2	0	2
G-05	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Splenomegaly - tumor related	Control	0	0	0	2	0	2
G-07	25 ppm	0	0	1	1	2	4
	75 ppm	0	0	0	1	0	1
Tumor in area of pancreas and spleen	Control	0	0	0	0	1	1
G-10	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>TUMORS</u>							
Subcutaneous tumor - mammary and mid-cervical region, number per rat = 1	Control	0	0	0	3	2	5
B-02 (1)	25 ppm	0	1	2	3	1	7
	75 ppm	1	0	2	5	1	9
Subcutaneous tumor - mammary and mid-cervical region, number per rat = 2	Control	0	0	0	2	0	2
B-02 (2)	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Subcutaneous tumor - eye, ear, or head region, number per rat = 1	Control	0	0	1	2	0	3
B-03	25 ppm	0	0	0	4	1	5
	75 ppm	0	1	0	1	0	2
Subcutaneous tumor - body/limb, number per rat = 1	Control	0	1	1	0	0	2
B-04 (1)	25 ppm	0	0	0	0	1	1
	75 ppm	0	0	0	2	0	2
Subcutaneous tumor - body/limb, number per rat = 2	Control	0	0	0	0	0	0
B-04 (2)	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	1	0	1

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

SL 082355

TABLE 17

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Histopathologic Diagnosis and Number of Tumors in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>LIVER</u>							
Undifferentiated sarcoma with invasion of lung and diaphragm	Control	0	0	0	1	0	1
H-19	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Metastatic adrenal cortical carcinoma	Control	0	0	0	0	0	0
H-29	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	1	1
<u>RESPIRATORY SYSTEM</u>							
<u>Lungs</u>							
Metastatic adrenal cortical carcinoma	Control	0	0	0	1	0	1
R-37	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Well-differentiated bronchial and/or alveolar carcinoma without metastasis	Control	0	0	0	0	1	1
R-39	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Metastatic thyroid gland carcinoma	Control	0	0	0	0	1	1
R-40	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Undifferentiated sarcoma with a pulmonary metastasis	Control	0	0	0	0	0	0
R-42	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Metastatic mucinous cystadenocarcinoma	Control	0	0	0	0	0	0
R-43	25 ppm	0	0	1	0	0	1
	75 ppm	0	0	0	0	0	0
<u>URINARY SYSTEM</u>							
Nephroblastoma	Control	0	1	0	0	0	1
U-11	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Transitional cell papilloma	Control	0	0	0	0	1	1
U-20	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>GASTROINTESTINAL TRACT</u>							
<u>Stomach</u>							
Metastatic adenocarcinoma of probable intestinal origin	Control	0	0	0	0	0	0
G-12	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
<u>Small Intestine</u>							
Mucinous cystadenocarcinoma without metastasis	Control	0	0	0	0	1	1
G-30	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	2	1	3

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

SL 082356

TABLE 17 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Histopathologic Diagnosis and Number of Tumors in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>GASTROINTESTINAL TRACT (cont'd)</u>							
<u>Small Intestine (cont'd)</u>							
Undifferentiated sarcoma with osseous metaplasia without metastasis	Control	0	0	0	1	0	1
G-40	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Mucinous cystadenocarcinoma with metastasis to lung	Control	0	0	0	0	0	0
G-41	25 ppm	0	0	1	0	0	1
	75 ppm	0	0	0	0	0	0
Sclerosing adenocarcinoma of probable intestinal origin with metastasis to stomach	Control	0	0	0	0	0	0
G-37	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
<u>Salivary Gland</u>							
Carcinoma, most probably salivary gland in origin without metastasis	Control	0	0	0	0	0	0
G-70	25 ppm	0	0	0	0	0	0
	75 ppm	0	1	0	0	0	1
Pleomorphic sarcoma of probable salivary gland origin	Control	0	0	1	0	0	1
G-72	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>PANCREAS</u>							
Pancreatic acinar adenoma	Control	0	0	3	13	8	24
P-01	25 ppm	0	0	2	3	1	6
	75 ppm	0	0	5	12	6	23
Pancreatic acinar adenocarcinoma without metastasis	Control	0	0	0	0	0	0
P-02	25 ppm	0	0	0	2	0	2
	75 ppm	0	0	0	0	0	0
Mixed exocrine and endocrine adenoma	Control	0	0	0	0	0	0
P-08	25 ppm	0	0	0	0	1	1
	75 ppm	0	0	0	0	0	0
Pancreatic islet cell adenoma	Control	0	0	1	3	8	12
P-20	25 ppm	0	0	0	1	2	3
	75 ppm	0	0	1	3	1	5 ^a
<u>REPRODUCTIVE SYSTEM</u>							
<u>Testis</u>							
Interstitial cell adenoma of the testis	Control	0	0	0	0	2	2
X-08	25 ppm	0	0	0	0	1	1
	75 ppm	0	0	0	3	0	3
Mesothelioma of the tunica albuginea	Control	0	0	0	0	0	0
X-09	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	2	3

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

SL 082357

TABLE 17 (Continued)

VINYLLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Histopathologic Diagnosis and Number of Tumors in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied	Control	3	5	19	46	13	86
during the time period	25 ppm	4	3	18	47	13	85
indicated	75 ppm	4	4	19	51	8	86
<u>REPRODUCTIVE SYSTEM (cont'd)</u>							
<u>Testis (cont'd)</u>							
Undifferentiated sarcoma without me-	Control	0	0	0	0	0	0
tastasis, most probable neurofibro-	25 ppm	0	0	0	1	0	1
sarcoma	75 ppm	0	0	0	0	0	0
X-11							
<u>NERVOUS SYSTEM</u>							
<u>Brain</u>							
Astrocytoma	Control	0	0	0	1	0	1
N-03	25 ppm	0	0	0	1	0	1
	75 ppm	0	1	0	0	0	1
Intracranial pleomorphic sarcoma	Control	0	0	0	0	0	0
without metastasis	25 ppm	0	1	0	0	0	1
N-12	75 ppm	0	0	0	0	0	0
<u>Pituitary</u>							
Pituitary adenoma	Control	0	0	3	16	4	23
N-44	25 ppm	0	0	3	8	1	12 ^a
	75 ppm	0	1	3	8	2	14 ^a
Atypical adenoma	Control	0	0	0	0	0	0
N-54	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
Pituitary adenocarcinoma without in-	Control	0	0	0	1	0	1
vasion of brain	25 ppm	0	0	0	0	0	0
N-48	75 ppm	0	0	0	0	0	0
Pituitary adenoma based on gross	Control	0	0	0	0	0	0
examination but microscopic section	25 ppm	0	0	0	2	0	2
not available for evaluation	75 ppm	0	0	0	0	0	0
N-55							
Total number of animals with a	Control	0	0	3	17	4	24
pituitary tumor	25 ppm	0	0	3	11	1	15 ^a
	75 ppm	0	1	3	8	2	14 ^a
<u>Spinal Cord</u>							
Neurofibrosarcoma within pelvic canal	Control	0	0	1	1	0	2
or ventral thoracic region without	25 ppm	0	0	0	0	0	0
metastasis	75 ppm	0	0	0	0	0	0
<u>Peripheral Nerve</u>							
Schwannoma in abdominal region - origin	Control	0	0	0	0	0	0
uncertain	25 ppm	0	0	0	0	0	0
N-40	75 ppm	0	0	0	1	0	1
<u>ADRENAL GLAND</u>							
<u>Cortex</u>							
Adenoma of adrenal cortex	Control	0	0	0	3	0	3
A-25	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, p<0.05.

TABLE 17 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS
Histopathologic Diagnosis and Number of Tumors in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>ADRENAL GLAND (cont'd)</u>							
<u>Cortex (cont'd)</u>							
Adrenal cortical carcinoma without metastasis	Control	0	0	0	0	0	0
A-34	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
Adrenal cortical carcinoma with metastasis to lung	Control	0	0	0	1	0	1
A-37	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Adrenal cortical carcinoma with metastasis to liver	Control	0	0	0	0	0	0
A-38	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	1	1
<u>Medulla</u>							
Adrenal pheochromocytoma, unilateral	Control	0	0	3	14	5	22
A-47	25 ppm	0	0	1	16	3	20
	75 ppm	0	0	4	12	7	23
Adrenal pheochromocytoma, bilateral	Control	0	0	0	8	3	11
A-48	25 ppm	0	0	0	11	4	15
	75 ppm	0	0	0	7	1	8
Malignant pheochromocytoma with no apparent metastasis - unilateral	Control	0	0	0	2	1	3
A-50	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	2	0	2
Total number of animals with a pheochromocytoma	Control	0	0	3	24	9	36
	25 ppm	0	0	1	28	7	36
	75 ppm	0	0	4	21	9	34
<u>THYROID</u>							
Thyroid adenoma	Control	0	0	0	4	5	9
T-01	25 ppm	0	0	2	4	4	10
	75 ppm	0	0	1	5	1	7
Thyroid adenocarcinoma without metastasis	Control	0	0	1	5	1	7
T-02	25 ppm	0	0	0	1	1	2 ^a
	75 ppm	0	0	0	0	1	1 ^a
Thyroid carcinoma with metastasis to cervical lymph nodes and lung	Control	0	0	0	0	1	1
T-11	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Total number of animals with a thyroid tumor	Control	0	0	1	9	7	17
	25 ppm	0	0	2	5	5	12 ^a
	75 ppm	0	0	1	5	2	8 ^a
<u>SUBCUTANEOUS TISSUE</u>							
Subcutaneous fibroma	Control	0	0	0	6/4	1/1	7/5 ^b
S-02	25 ppm	0	1/1	1/1	4/3	0	6/5 ^b
	75 ppm	1/1	0	0	5/4	0	6/5 ^b

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

^bNumber of tumors/number of animals with tumors.

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TABLE 17 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Histopathologic Diagnosis and Number of Tumors in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>SUBCUTANEOUS TISSUE (cont'd)</u>							
Subcutaneous fibrosarcoma without metastasis	Control	0	1/1	0	0	0	1/1 ^b
	25 ppm	0	0	0	0	0	0
S-05	75 ppm	0	0	0	1/1	0	1/1 ^b
Subcutaneous fibrosarcoma with metastasis to lung	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
S-06	75 ppm	0	0	1/1	0	0	1/1 ^b
Undifferentiated sarcoma with metastasis to lung	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
S-08	75 ppm	0	0	0	1/1	0	1/1 ^b
Fibrolipoma	Control	0	0	0	0	0	0
S-09	25 ppm	0	0	0	0	1/1	1/1 ^b
	75 ppm	0	0	0	0	0	0
Neurofibrosarcoma	Control	0	0	0	0	0	0
S-10	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	1/1	1/1 ^b
<u>MAMMARY GLAND</u>							
Fibroadenoma/adenofibroma	Control	0	0	0	0	0	0
S-25	25 ppm	0	0	1/1	0	0	1/1 ^b
	75 ppm	0	0	1/1	1/1	0	2/2 ^b
Fibroma	Control	0	0	0	0	1/1	1/1 ^b
S-26	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Total number of animals with a subcutaneous or mammary gland tumor	Control	0	1	0	4	2	7
	25 ppm	0	1	2	3	1	7
S-02, S-05, S-06, S-08, S-09, S-10, S-25, S-26	75 ppm	1	0	2	7	1	11
<u>INTEGUMENT</u>							
Sebaceous squamous cell carcinoma of the external auditory canal without metastasis (Zymbal gland carcinoma)	Control	0	0	1	1	0	2
	25 ppm	0	0	0	2	1	3
S-51	75 ppm	0	0	0	1	0	1
Squamous cell carcinoma of the orbit of the eye without metastasis	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
S-57	75 ppm	0	0	0	0	0	0
Undifferentiated sarcoma of probable neural origin without metastasis	Control	0	0	0	0	0	0
	25 ppm	0	0	0	1	0	1
S-59	75 ppm	0	0	0	0	0	0
Unclassified malignant epithelial neoplasm of the nose	Control	0	0	0	0	0	0
	25 ppm	0	0	0	1	0	1
S-60	75 ppm	0	0	0	0	0	0
Squamous papilloma with keratinization	Control	0	0	0	0	0	0
S-62	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

^b Number of tumors/number of animals with tumors.

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TABLE 17 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Histopathologic Diagnosis and Number of Tumors in Male Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
<u>MUSCULOSKELETAL SYSTEM</u>							
Osteogenic sarcoma of the rear limb without metastasis	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
M-08	75 ppm	0	0	0	1	0	1
Hard palate - squamous cell carcinoma	Control	0	0	0	0	0	0
M-09	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
<u>LYMPHORETICULAR SYSTEM</u>							
<u>Lymphosarcomas and Leukemias</u>							
Generalized leukemia with multiple tissue metastasis	Control	0	0	0	2	0	2
	25 ppm	0	0	1	1	1	3
L-65	75 ppm	0	0	0	2	0	2
Lymphosarcoma of the small intestine without metastasis	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
L-67	75 ppm	0	0	0	0	0	0
Lymphosarcoma of the large intestine without metastasis	Control	0	0	0	0	0	0
	25 ppm	0	0	0	1	0	1
L-68	75 ppm	0	0	0	0	0	0
<u>Thymus</u>							
Thymoma	Control	0	0	0	1	0	1
L-52	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>Other Lymph Nodes</u>							
Metastatic thyroid gland carcinoma to cervical lymph nodes	Control	0	0	0	0	1	1
	25 ppm	0	0	0	0	0	0
L-37	75 ppm	0	0	0	0	0	0
<u>Total number of primary tumors in the male rats as previously listed</u>							
	Control	0	2	14	86	43	145
	25 ppm	0	2	12	66	21	101
	75 ppm	1	3	16	71	24	115

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

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TABLE 18

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Number of Male Rats for Which
The Specified Tissue Was Examined Microscopically

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
Liver	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
Heart	Control	3	5	17	46	13	84
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
Kidney	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
Lungs	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	50	8	85
Pancreas	Control	1	5	16	43	13	78
	25 ppm	0	1	5	9	8	23
	75 ppm	3	4	19	50	8	84
Spleen	Control	1	5	17	45	13	81
	25 ppm	3	3	16	46	13	81
	75 ppm	3	4	19	49	8	83
Skeletal Muscle	Control	1	3	11	42	13	70
	25 ppm	1	2	13	14	9	39
	75 ppm	2	4	14	42	8	70
Mediastinal or Perirenal Fat	Control	0	4	17	39	13	73
	25 ppm	0	0	0	2	5	7
	75 ppm	2	3	19	45	7	76
Salivary Gland	Control	1	4	13	41	10	69
	25 ppm	0	0	0	0	5	5
	75 ppm	3	3	16	47	8	77
Aorta	Control	2	4	15	43	13	77
	25 ppm	0	0	4	10	5	19
	75 ppm	4	3	17	44	6	74
Esophagus	Control	2	3	17	41	12	75
	25 ppm	4	2	11	30	6	53
	75 ppm	4	3	17	44	5	73
Trachea	Control	2	5	18	44	12	81
	25 ppm	4	3	16	46	13	82
	75 ppm	3	4	19	47	7	80
Parathyroid	Control	0	0	11	41	11	63
	25 ppm	4	2	15	38	13	72
	75 ppm	1	1	15	40	6	63
Thyroid	Control	0	3	15	44	13	75
	25 ppm	3	3	14	43	13	76
	75 ppm	1	2	17	46	8	74

TABLE 18 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Number of Male Rats for Which
The Specified Tissue Was Examined Microscopically

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
Stomach	Control	1	4	15	46	12	78
	25 ppm	2	3	16	46	13	80
	75 ppm	3	4	17	48	8	80
Small Intestine	Control	1	3	11	36	13	64
	25 ppm	0	0	2	3	7	12
	75 ppm	3	4	15	51	8	81
Large Intestine	Control	1	3	8	32	13	57
	25 ppm	0	0	0	2	4	6
	72 ppm	2	3	14	40	8	67
Mesenteric Lymphoid Tissue	Control	0	3	9	39	13	64
	25 ppm	0	0	4	6	7	17
	75 ppm	2	4	15	40	7	68
Mesenteric Vessels	Control	0	4	10	39	13	66
	25 ppm	0	0	3	8	6	17
	75 ppm	2	4	16	39	7	68
Urinary Bladder	Control	1	4	18	42	13	78
	25 ppm	0	0	0	4	7	11
	75 ppm	3	4	19	48	8	82
Testes	Control	1	4	18	43	13	79
	25 ppm	0	0	1	2	6	9
	75 ppm	3	4	17	51	8	83
Epididymis	Control	1	4	18	41	12	76
	25 ppm	0	0	0	2	6	8
	75 ppm	3	3	18	50	8	82
Prostate	Control	1	2	12	21	12	48
	25 ppm	0	0	0	4	6	10
	75 ppm	1	2	6	12	8	29
Accessory Sex Gland	Control	1	4	17	43	13	78
	25 ppm	0	0	0	4	6	10
	75 ppm	3	4	19	49	8	83
Peripheral Nerve	Control	1	3	9	36	11	60
	25 ppm	0	0	0	1	6	7
	75 ppm	0	4	8	40	8	60
Spinal Cord	Control	1	2	11	45	13	72
	25 ppm	0	0	0	1	4	5
	75 ppm	2	3	13	44	8	70
Pituitary	Control	0	1	8	33	8	50
	25 ppm	3	3	13	34	9	62
	75 ppm	1	3	16	34	7	61
Adrenal	Control	1	5	17	43	13	79
	25 ppm	2	3	18	47	13	83
	75 ppm	2	4	18	50	8	82

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TABLE 18 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Number of Male Rats for Which
The Specified Tissue Was Examined Microscopically

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	3	5	19	46	13	86
	25 ppm	4	3	18	47	13	85
	75 ppm	4	4	19	51	8	86
Cerebellum	Control	1	5	15	40	13	74
	25 ppm	3	3	17	46	13	82
	75 ppm	3	3	19	48	8	81
Cerebral Cortex	Control	1	5	16	46	13	81
	25 ppm	3	3	17	47	13	83
	75 ppm	3	4	19	50	8	84
Eyes	Control	1	2	10	31	13	57
	25 ppm	0	0	0	1	13	14
	75 ppm	1	2	12	41	1	57
Skin	Control	1	0	1	8	8	18
	25 ppm	0	0	0	3	4	7
	75 ppm	0	0	6	9	6	21
Mediastinal Lymphoid Tissue	Control	0	5	14	40	13	72
	25 ppm	0	0	0	3	5	8
	75 ppm	4	3	18	43	7	75
Mediastinal Vessels	Control	0	0	0	1	4	5
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Cervical Lymph Nodes	Control	0	0	3	5	3	11
	25 ppm	0	0	0	0	1	1
	75 ppm	0	0	4	6	1	11
Other Lymphoid Tissue	Control	0	0	0	1	1	2
	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
Mesenteric Fat	Control	0	0	0	1	1	2
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Preputial Gland	Control	0	0	2	0	0	2
	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
Diaphragm	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Medulla Oblongata	Control	0	0	0	2	0	2
	25 ppm	1	0	6	6	0	13
	75 ppm	0	1	7	2	0	10
Pineal Gland	Control	0	0	0	1	0	1
	25 ppm	0	0	0	1	2	3
	75 ppm	0	0	0	3	0	3
Ear Canal	Control	0	0	0	0	0	0
	25 ppm	0	0	0	2	1	3
	75 ppm	0	0	0	0	0	0
Epididymal Fat Pad	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	1	1	0	2

TABLE 19

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Gross Pathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>LIVER</u>							
Enlarged or congested with or without secondary darkening	Control	0	0	1	4	1	6
	25 ppm	0	0	1	2	0	3
H-01	75 ppm	0	4	1	6	1	12
Atrophied (decrease in size)	Control	0	0	0	4	2	6
H-02	25 ppm	0	0	0	3	0	3
	75 ppm	0	0	0	4	1	5
Small white foci (also pale)	Control	0	0	0	2	4	6
H-03	25 ppm	0	0	1	2	0	3
	75 ppm	0	0	0	6	1	7
Red subcapsular foci	Control	0	0	1	3	11	15
H-04	25 ppm	0	0	2	6	2	10
	75 ppm	0	0	0	1	5	6 ^a
Roughened due to chronic pulmonary congestion	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
H-06	75 ppm	0	0	0	1	0	1
Dark and discolored	Control	0	0	0	1	0	1
H-07	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Fluid-filled cysts	Control	0	0	0	0	2	2
H-08	25 ppm	0	0	0	2	0	2
	75 ppm	0	0	0	0	1	1
Accentuation of lobular pattern	Control	0	0	1	6	4	11
H-11	25 ppm	0	0	1	3	1	5
	75 ppm	0	0	0	4	1	5
Paleish discoloration	Control	0	0	3	8	2	13
H-12	25 ppm	0	0	2	7	0	9
	75 ppm	0	2	3	4	0	9
Strangulation, folding or other distortion, of a lobe	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
H-14	75 ppm	0	0	0	0	0	0
Mottled	Control	1	0	0	1	2	4
H-15	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
Diaphragmatic hernia	Control	0	0	0	1	0	1
H-17	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>RESPIRATORY SYSTEM</u>							
<u>Thoracic Cavity</u>							
Pleural adhesions	Control	0	0	0	0	0	0
K-01	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 19 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Gross Pathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control 25 ppm 75 ppm	1 1 1	1 5 4	14 23 15	49 46 48	19 11 16	84 86 84
<u>Thoracic Cavity (cont'd)</u>							
Hydrothorax	Control	0	0	1	3	1	5
K-04	25 ppm	0	0	0	5	0	5
	75 ppm	0	0	0	6	1	7
Pleuritis	Control	1	0	0	0	0	1
K-17	25 ppm	0	1	0	0	0	1
	75 ppm	0	0	0	0	0	0
<u>Lung</u>							
Atelectasis (edematous)	Control	0	0	0	3	3	6
K-05	25 ppm	0	0	0	2	0	2
	75 ppm	0	0	0	5	1	6
Pneumonia	Control	1	0	1	5	1	8
K-09	25 ppm	0	1	2	13	4	20 ^a
	75 ppm	0	0	1	14	1	16
Golden brown pigment	Control	0	0	0	0	1	1
K-10	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	1	1	2
Small red foci	Control	0	0	1	1	2	4
K-02	25 ppm	0	0	2	3	0	5
	75 ppm	0	0	1	3	0	4
Consolidation	Control	0	0	0	1	0	1
K-06	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Bronchiectasis	Control	0	0	0	3	0	3
K-12	25 ppm	0	0	2	7	1	10 ^a
	75 ppm	0	0	1	11	0	12 ^a
Diffuse red areas throughout lung	Control	0	0	1	0	1	2
K-14	25 ppm	0	0	1	1	0	2
	75 ppm	0	0	0	3	0	3
Small pale subpleural foci	Control	0	0	3	9	6	18
K-15	25 ppm	0	0	1	8	2	11
	75 ppm	0	1	2	10	7	20
Congestion with or without edema	Control	0	0	0	1	0	1
K-16	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	2	0	2
Focal pulmonary fibrosis	Control	0	0	0	0	0	0
P-04	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
<u>URINARY SYSTEM</u>							
<u>Urinary Bladder</u>							
Distention with urethral obstruction	Control	0	0	1	1	0	2
2E-19	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 19 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Gross Pathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>Urinary Bladder (cont'd)</u>							
Thickened wall or changes suggestive of cystitis	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
2E-24 & 2E-17	75 ppm	0	0	0	1	0	1
Hematuria	Control	0	0	0	0	0	0
2E-26	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
<u>Kidney</u>							
Chronic renal disease with or without cyst formation, minimal	Control	0	0	2	9	6	17
	25 ppm	0	0	1	1	0	2 ^a
I-02-L	75 ppm	0	0	0	6	4	10
Chronic renal disease with or without cyst formation, moderate	Control	0	0	0	0	2	2
	25 ppm	0	0	0	0	1	1
I-02-M	75 ppm	0	0	0	0	2	2
Chronic renal disease with or without cyst formation, severe	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
I-02-S	75 ppm	0	0	0	1	1	2
Enlarged and congested	Control	0	0	0	1	0	1
I-03	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	2	0	2
Dilated renal pelvis	Control	0	0	0	0	0	0
I-04	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	1	1
Mineralization or granular debris within renal pelvis	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
I-05 & I-07	75 ppm	0	0	0	1	0	1
Hydronephrosis	Control	0	0	0	0	0	0
I-06	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Dark and discolored	Control	0	0	1	0	0	1
I-09	25 ppm	0	0	0	2	0	2
	75 ppm	0	0	0	1	0	1
Cysts not directly associated with chronic renal disease	Control	0	0	0	2	0	2
	25 ppm	0	0	0	0	0	0
I-12	75 ppm	0	0	0	0	1	1
Renal failure - probable cause of death or poor condition	Control	0	0	0	1	1	2
	25 ppm	0	0	0	0	0	0
I-13	75 ppm	0	0	0	0	1	1
White foci	Control	0	0	0	0	0	0
I-14	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, p<0.05.

TABLE 19 (Continued)

VINYLLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Gross Pathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>Kidney (cont'd)</u>							
Decrease in size I-15	Control	0	0	0	3	1	4
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	2	0	2
Pale (not directly associated with chronic renal disease) I-17	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	1	1	0	2
Pyelonephritis - inflammation of the kidney and renal pelvis I-20	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Kidney - infarct, focal P-11	Control	0	0	0	0	0	0
	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
<u>CARDIOVASCULAR SYSTEM</u>							
<u>Heart</u>							
Left atrial thrombosis L-02	Control	0	0	0	1	0	1
	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	1	1	2
Degeneration or dilated ventricles (including flaccid ventricles) L-03 & L-04	Control	0	0	0	4	0	4
	25 ppm	0	0	0	5	0	5
	75 ppm	0	0	0	2	0	2
Pericarditis L-05	Control	1	0	0	0	0	1
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>Aorta</u>							
Vessels - dilated and inelastic L-06	Control	0	0	0	1	0	1
	25 ppm	0	0	0	2	0	2
	75 ppm	0	0	0	3	0	3
<u>Vessels</u>							
Periarteritis (vasculitis), sclerosis, and other related changes including thrombosis of a vessel L-08	Control	0	0	0	3	0	3
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	1	2
Nodular areas in mesenteric vessels or mesentery - vascular in nature P-05	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	1	1
<u>ABDOMINAL CAVITY</u>							
Intraabdominal fluid or blood F-13	Control	0	0	1	2	0	3
	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
Fibrinous peritonitis F-14	Control	0	0	1	0	0	1
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 19 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Gross Pathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>ADIPOSE TISSUE</u>							
Depleted or any decrease in quantity	Control	0	0	0	18	2	20
D-01	25 ppm	0	1	3	18	1	23
	75 ppm	0	0	0	18	2	20
Obese or excessive quantity including "fat rat syndrome"	Control	0	0	0	2	1	3
D-02	25 ppm	0	0	4	0	0	4
	75 ppm	0	0	3	0	0	3
Strangulation of a portion of abdominal fat	Control	0	0	0	0	1	1
D-03	25 ppm	0	0	0	2	0	2
	75 ppm	0	0	1	0	0	1
<u>GASTROINTESTINAL TRACT AND INTRAABDOMINAL CAVITY</u>							
<u>Salivary Gland</u>							
Salivary gland inflammation	Control	0	0	0	0	3	3
F-24	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	1	1
<u>Stomach</u>							
Gastric ulcers or erosions or focal hemorrhage	Control	0	0	1	4	0	5
F-05 & F-02	25 ppm	0	0	2	8	1	11
	75 ppm	0	0	0	11	0	11
Gastric distention with air	Control	0	0	0	0	0	0
F-04	25 ppm	0	0	0	2	0	2
	75 ppm	0	0	0	1	0	1
Thickened gastric mucosa (hyperkeratosis)	Control	0	0	1	2	0	3
F-26	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Roughening of mucosal surface	Control	0	0	0	2	0	2
F-36	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Gastric edema	Control	0	0	0	0	0	0
F-37	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
<u>Intestinal Tract</u>							
Decreased amount of ingesta or feces in the gastrointestinal tract	Control	0	0	0	7	1	8
F-07	25 ppm	0	1	0	5	1	7
	75 ppm	0	0	0	8	0	8
Bloody fluid material or darkening of ingesta in gastrointestinal tract - associated with chronic renal disease	Control	0	0	0	0	0	0
F-29	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Bloody fluid material or darkening of ingesta in gastrointestinal tract - associated with malocclusion	Control	0	0	0	1	0	1
F-30	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 19 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Gross Pathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied	Control	1	1	14	49	19	84
during the time period	25 ppm	1	5	23	46	11	86
indicated	75 ppm	1	4	15	48	16	84
<u>Intestinal Tract (cont'd)</u>							
Bloody fluid material or darkening of	Control	0	0	0	0	0	0
ingesta in gastrointestinal tract -	25 ppm	0	0	0	1	0	1
associated with cannibalism	75 ppm	0	0	0	2	0	2
F-31							
Bloody fluid material or darkening of	Control	0	0	0	2	0	2
ingesta in gastrointestinal tract -	25 ppm	0	0	0	2	0	2
associated with other causes	75 ppm	0	0	0	1	0	1
F-32							
Bloody fluid material or darkening of	Control	0	0	0	0	1	1
ingesta in gastrointestinal tract -	25 ppm	0	0	0	1	0	1
associated with an undetermined cause	75 ppm	0	0	0	0	0	0
F-33							
<u>Large Intestine</u>							
Parasites (pinworms)	Control	0	0	0	3	0	3
F-11	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	1	0	0	1
<u>Cecum</u>							
Hemorrhagic or edematous, thickened,	Control	0	0	0	1	0	1
whiteish discoloration, gelatinous	25 ppm	0	0	0	1	0	1
material or inflammation indicative	75 ppm	0	0	0	0	0	0
of uremic typhilitis							
F-18 & F-25							
<u>REPRODUCTIVE SYSTEM</u>							
<u>Ovary</u>							
Cyst	Control	0	0	0	5	1	6
2E-02	25 ppm	0	1	1	4	2	8
	75 ppm	0	1	0	6	7	14 ^a
Inflammation or abscess	Control	0	0	0	1	0	1
2E-03	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	1	1	2
<u>Uterus</u>							
Atrophy	Control	0	0	0	1	0	1
2E-04	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	3	1	4
Malformation	Control	0	0	0	0	0	0
2E-06	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Inflammation	Control	0	0	0	1	0	1
2E-08	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 19 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Gross Pathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control 25 ppm 75 ppm	1 1 1	1 5 4	14 23 15	49 46 48	19 11 16	84 86 84
<u>Uterus (cont'd)</u>							
Hemorrhage or fluid accumulation 2E-09	Control 25 ppm 75 ppm	0 0 0	0 0 0	1 1 0	0 0 1	0 0 0	1 1 1
Hyperplasia with or without cysts 2E-14	Control 25 ppm 75 ppm	0 0 0	0 0 1	0 3 5	8 5 5	12 6 12	20 14 23
Dilated uterine horn with fluid 2E-21	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	0 0 0	1 0 0	1 0 0
<u>Clitoral Gland</u>							
Clitoral gland abscess 2E-13	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	1 1 0	1 0 0	2 1 0
<u>NERVOUS SYSTEM</u>							
<u>Pituitary</u>							
Hemorrhagic foci N-06	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 1 1	4 3 3	2 1 0	6 5 4
Red foci with focal enlargement N-09	Control 25 ppm 75 ppm	0 0 0	0 0 0	1 0 1	0 0 0	1 2 2	2 2 3
<u>Brain</u>							
Focal compression of the base of the brain as a result of an enlarged pituitary N-11	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	1 0 1	0 0 0	1 0 1
<u>ENDOCRINE SYSTEM</u>							
Parathyroid hyperplasia O-02	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	1 0 1	0 0 0	1 0 1
<u>ADRENAL GLAND</u>							
Hemorrhagic appearance on cross section J-04	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	1 0 1	0 0 0	1 0 1
Mottled appearance J-05	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 2 1	12 11 12	12 5 9	24 18 22
Decrease in size J-06 & J-07	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	0 0 0	0 2 1	0 2 1

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 19 (Continued)

VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Gross Pathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control 25 ppm 75 ppm	1 1 1	1 5 4	14 23 15	49 46 48	19 11 16	84 86 84
<u>INTEGUMENTARY SYSTEM</u>							
Mammary gland hyperplasia	Control	0	0	2	6	10	18
B-05	25 ppm	0	0	1	4	8	13
	75 ppm	0	0	1	2	6	9 ^a
Galactoceles formation - or secretory material in mammary tissue	Control	0	0	1	3	3	7
B-07	25 ppm	0	0	0	2	1	3
	75 ppm	0	0	0	2	0	2
Subcutaneous edema	Control	0	0	0	0	0	0
B-11	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
<u>LYMPHORETICULAR SYSTEM</u>							
Lymph node(s) - swollen and/or congested, edematous, local, containing hematogenous pigment or cystic	Control	0	0	0	3	6	9
G-01	25 ppm	0	0	1	3	1	5
	75 ppm	0	1	0	0	1	2 ^a
Lymph node(s) - swollen and congested, edematous, general, containing hematogenous pigment or cystic	Control	0	0	1	1	0	2
G-02	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
Splenomegaly - extramedullary hematopoiesis (no indication of tumorous process)	Control	0	0	7	9	2	18
G-06	25 ppm	0	0	3	14	0	17
	75 ppm	1	0	4	7	0	12
<u>EYE</u>							
Hemorrhage and ulceration	Control	0	0	0	0	0	0
C-02	25 ppm	0	0	1	0	0	1
	75 ppm	0	0	0	0	0	0
Corneal opacity, unilateral	Control	0	0	1	2	1	4
C-04-u	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	4	0	4
Corneal opacity, bilateral	Control	0	0	0	0	2	2
C-04-b1	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Cataracts, bilateral	Control	0	0	0	0	0	0
C-05-b1	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Hyperemia	Control	0	0	0	0	0	0
C-09	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
<u>GENERAL</u>							
Postmortem change, minimal	Control	1	0	1	2	0	4
A-02-L	25 ppm	0	0	1	1	0	2
	75 ppm	0	0	0	0	0	0

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 19 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Gross Pathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>GENERAL (cont'd)</u>							
Postmortem change, moderate A-02-M	Control	0	0	0	6	0	6
	25 ppm	1	1	0	8	0	10
	75 ppm	0	0	1	5	0	6
Postmortem change, severe A-02-S	Control	0	0	1	2	0	3
	25 ppm	0	1	0	1	0	2
	75 ppm	0	0	0	2	0	2
Cannibalism A-03	Control	0	1	1	0	1	3
	25 ppm	1	0	1	0	0	2
	75 ppm	0	0	2	1	0	3
Emaciation - decrease in body condition A-04	Control	0	0	0	9	1	10
	25 ppm	0	1	0	3	0	4
	75 ppm	0	0	0	4	0	4
Jaundice A-05	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Anemia A-06	Control	0	0	4	6	0	10
	25 ppm	0	1	5	4	0	10
	75 ppm	1	0	1	5	0	7
Nasal or ocular exudate A-07	Control	0	0	0	2	0	2
	25 ppm	0	0	1	3	0	4
	75 ppm	0	0	1	1	0	2
Malocclusion A-09	Control	0	0	0	1	0	1
	25 ppm	0	0	3	2	0	5
	75 ppm	0	0	0	0	1	1
Ulceration of hard palate, tongue, or opposing gingival surface with or without inflammation A-10	Control	0	0	0	1	0	1
	25 ppm	0	0	1	1	0	2
	75 ppm	0	0	0	0	0	0
Perineal fecal material secondary to chronic renal disease, malocclusion, and other cause A-14	Control	0	0	0	0	0	0
	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	1	0	1
Brown pigmented (porphyrin) material in facial area and/or forelimbs A-17	Control	0	0	0	0	0	0
	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	1	0	1
Edema of all or some of the tissues of the body A-18	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

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TABLE 20

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>LIVER</u>							
Foci of eosinophilic ground-glass appearing cells	Control	0	0	0	15	10	25
H-01	25 ppm	0	0	1	11	3	15 ^a
	75 ppm	0	0	2	4	10	16
Area of eosinophilic ground-glass appearing cells	Control	0	0	2	2	3	7
H-02	25 ppm	0	0	0	4	1	5
	75 ppm	0	0	1	1	0	2
Foci of clear cell hepatocytes	Control	0	0	0	0	2	2
H-03	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
Foci of basophilic hepatocytes	Control	0	0	0	1	0	1
H-05	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Foci of mononuclear cells within the portal area or lobule	Control	0	0	6	14	7	27
H-10	25 ppm	0	1	9	6	3	19 ^a
	75 ppm	1	0	4	4	4	13 ^a
Centrilobular degeneration	Control	1	0	1	10	0	12
H-11	25 ppm	0	1	3	10	1	15
	75 ppm	0	0	3	13	0	16
Atrophy without fatty change	Control	0	0	1	22	2	25
H-12	25 ppm	1	1	5	14	5	26
	75 ppm	0	0	1	19	8	28
Focal necrosis	Control	0	0	1	5	1	7
H-14	25 ppm	0	1	2	3	0	6
	75 ppm	0	0	1	3	1	5
Focal vascular dilatation with hepatocellular alteration	Control	0	0	0	0	1	1
H-15	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Multiloculated biliary cyst	Control	0	0	0	1	1	2
H-17	25 ppm	0	0	0	3	2	5
	75 ppm	0	0	1	0	2	3
Fatty change - portal to midzonal regions most predominant	Control	1	0	0	1	0	2
H-19	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Fatty change - occasional individual hepatocytes	Control	0	0	1	2	2	5
H-20	25 ppm	0	0	0	0	2	2
	75 ppm	0	1	1	0	0	2
Fatty change - moderate to severe, involves several lobes to varying degrees	Control	0	0	0	1	0	1
H-21	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	1	0	0	1
Fatty change - some within hepatocytes of lobule - minimal	Control	0	0	0	0	2	2
H-22	25 ppm	0	0	2	1	0	3
	75 ppm	0	0	1	0	1	2

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 20 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control 25 ppm 75 ppm	1 1 1	1 5 4	14 23 15	49 46 48	19 11 16	84 86 84
<u>LIVER (cont'd)</u>							
Fatty change - focal area(s) or foci H-23	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 1 1	1 0 2	2 1 0	3 2 3
Fatty change - diffuse multifocal areas H-24	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	1 0 0	0 0 0	1 0 0
Fatty change - midzonal in location H-25	Control 25 ppm 75 ppm	0 0 0	0 0 2	0 6 5	0 0 1	1 0 0	1 6 8 ^a
Total number of animals with fatty change H-19, H-20, H-21, H-22, H-23, H-24, & H-25	Control 25 ppm 75 ppm	1 0 0	0 0 3	1 9 9	6 1 3	7 3 1	15 13 16
Focal biliary hyperplasia H-30	Control 25 ppm 75 ppm	0 0 0	0 0 0	1 2 1	0 1 1	1 0 0	2 3 2
Extramedullary hematopoiesis H-31	Control 25 ppm 75 ppm	0 0 1	0 2 2	6 4 4	10 14 17	9 2 4	25 22 28
Periportal hypertrophy H-32	Control 25 ppm 75 ppm	0 0 0	0 2 2	6 8 6	15 8 9	7 2 1	28 20 18
Periportal fibrosis (biliary) and/or sclerosis H-33	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	1 0 1	0 0 0	1 0 1
Biliary hyperplasia with or without fibrosis H-34	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	4 3 1	2 0 0	6 3 1
Sinusoidal vascular dilatation H-35	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 1	6 3 2	5 0 5	11 ^a 3 ^a 8
Capsular sclerosis secondary to dia- phragmatic hernia H-36	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	1 0 0	0 0 0	1 0 0
Hematocyst formation beneath the cap- sule H-37	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	0 0 1	0 0 0	0 0 1
Centrilobular atrophy H-40	Control 25 ppm 75 ppm	1 0 0	0 1 0	10 3 8	16 13 12	13 2 4	40 ^a 19 ^a 24 ^a
Centrilobular necrosis H-41	Control 25 ppm 75 ppm	0 0 0	0 0 0	1 3 0	8 9 10	0 1 0	9 13 10

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, p<0.05.

TABLE 20 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control 25 ppm 75 ppm	1 1 1	1 5 4	14 23 15	49 46 48	19 11 16	84 86 84
<u>LIVER (cont'd)</u>							
Aggregates of hematogenous pigment containing material in cells	Control 25 ppm H-45 75 ppm	0 0 0	0 0 0	0 0 0	0 0 0	1 0 0	1 0 0
Portal area cells with more eosinophilic staining affinity with or without swelling	Control 25 ppm H-46 75 ppm	0 0 0	0 2 4	0 1 0	0 1 0	0 0 0	0 4 4
<u>RESPIRATORY SYSTEM</u>							
<u>Trachea</u>							
Focal subepithelial lymphoid infiltrate	Control R-01 25 ppm 75 ppm	0 0 0	0 0 1	4 0 1	2 1 0	0 0 0	6 1 2
Chronic or acute tracheitis	Control R-03 25 ppm 75 ppm	0 0 0	0 0 0	0 2 1	8 15 22	3 4 3	11 21 ^a 26 ^a
Exudative material in lumen	Control R-04 25 ppm 75 ppm	1 0 0	0 1 0	0 0 0	0 0 0	0 0 0	1 1 0
<u>Lungs</u>							
Focal chronic interstitial pneumonitis	Control R-21 & R-20 25 ppm 75 ppm	0 0 0	0 0 0	1 0 0	3 0 3	0 0 0	4 0 3
Focal peribronchiolar mononuclear cell infiltrate	Control R-22 25 ppm 75 ppm	0 1 1	0 4 4	11 20 14	42 28 29	15 7 12	68 60 60
Focal areas of alveolar histiocytosis with or without exudation of alveolar macrophages	Control R-23 & R-29 25 ppm 75 ppm	0 0 0	0 0 1	9 13 6	30 21 21	15 5 9	54 39 ^a 37 ^a
Acute suppurative pneumonia	Control R-26 25 ppm 75 ppm	1 0 0	0 1 0	0 0 0	0 0 0	0 0 0	1 1 0
Alveolar mineralization	Control R-27 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	0 1 0	0 0 0	0 1 0
Focal granulomatous inflammatory reaction in lung	Control R-28 25 ppm 75 ppm	0 0 0	0 0 0	0 1 0	0 0 0	0 0 0	0 1 0
Cholesterol cleft formation in lung	Control R-30 25 ppm 75 ppm	0 0 0	0 0 0	1 0 0	0 0 0	0 0 0	1 0 0

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, p<0.05.

TABLE 20 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>Lungs (cont'd)</u>							
Pulmonary changes consistent with cardiac or renal failure; edema, interstitial thickening and fibrosis, inflammatory cell infiltrate and exudation of cells into alveoli, with or without stelectasis	Control	0	0	0	5	2	7
	25 ppm	0	0	0	3	0	3
	75 ppm	0	0	0	3	2	5
R-31							
Focal areas of pleuritis	Control	1	0	0	0	0	1
R-32	25 ppm	0	0	1	0	0	1
	75 ppm	0	0	0	0	0	0
Chronic murine pneumonia	Control	0	0	1	6	2	9
R-34	25 ppm	0	0	1	16	4	21 ^a
	75 ppm	0	0	1	19	2	22 ^a
Interstitial fibrosis	Control	0	0	0	0	1	1
R-35	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Macrophages in lumen of alveoli containing hematogenous pigment	Control	0	0	0	0	1	1
R-36	25 ppm	0	0	1	1	0	2
	75 ppm	0	0	0	4	2	6
Acute bronchitis	Control	0	0	0	0	0	0
R-37	25 ppm	0	0	1	0	0	1
	75 ppm	0	0	0	0	0	0
<u>URINARY SYSTEM</u>							
<u>Kidney</u>							
Minimal degree of chronic nephropathy	Control	1	0	9	36	8	54
U-01	25 ppm	0	3	15	33	7	58
	75 ppm	1	4	8	32	5	50
Moderate degree of chronic nephropathy	Control	0	0	4	7	7	18
U-02	25 ppm	0	0	2	9	2	13
	75 ppm	0	0	4	14	7	25
Severe degree of chronic nephropathy	Control	0	0	0	3	4	7
U-03	25 ppm	0	0	0	1	2	3
	75 ppm	0	0	0	1	4	5
End stage kidney	Control	0	0	0	0	0	0
U-04	25 ppm	0	0	1	0	0	1
	75 ppm	0	0	0	1	0	1
Focal mononuclear cell infiltrate	Control	0	0	4	2	0	6
U-05	25 ppm	0	0	0	0	0	0
	75 ppm	0	2	2	0	0	4
Multifocal mononuclear cell infiltrate	Control	0	0	1	0	0	1
U-06	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 20 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>Kidney (cont'd)</u>							
Mineralized deposits within kidney tubules, focal	Control	0	0	7	23	6	36
	25 ppm	1	4	12	19	2	38
U-08	75 ppm	0	0	5	17	6	28
Cortical cyst	Control	0	0	0	1	0	1
U-09	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Renal tubular epithelial hyperplasia	Control	0	0	0	0	1	1
U-10	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Acute nephritis	Control	0	0	0	0	0	0
U-11	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Acquired hydronephrosis	Control	0	0	0	0	0	0
U-12	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Chronic pyelitis	Control	0	0	0	0	0	0
U-20	25 ppm	0	0	1	0	0	1
	75 ppm	0	0	0	0	0	0
Ischemic necrosis	Control	0	0	0	0	0	0
U-21	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
<u>Urogenital Tract</u>							
Chronic urocystitis	Control	0	0	0	1	0	1
U-40	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	1	3	1	5
Focal hyperplasia of urinary bladder mucosa	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
U-42	75 ppm	0	0	0	1	0	1
<u>GASTROINTESTINAL SYSTEM</u>							
<u>Stomach</u>							
Focal gastric ulceration and/or hemor- rhage	Control	0	0	0	4	0	4
	25 ppm	0	0	0	4	0	4
G-01	75 ppm	0	0	0	2	0	2
Mineralization of gastric mucosa	Control	0	0	0	0	1	1
G-02 & G-04	25 ppm	0	0	0	2	0	2
	75 ppm	0	0	0	0	0	0
Focal erosion of gastric mucosa	Control	0	0	0	3	0	3
G-05	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	3	0	3
Gastric edema of nonglandular portion	Control	0	0	0	0	0	0
G-06	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	2	0	2

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 20 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>Stomach (cont'd)</u>							
Hyperkeratosis of nonglandular epithelium in association with an ulceration	Control	0	0	0	0	0	0
	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
G-07							
<u>Small Intestine</u>							
Focal areas of chronic inflammation and ulceration	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
G-35							
<u>Large Intestine</u>							
Intestinal nematodiasis	Control	0	0	0	6	4	10
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	3	6	2	11
G-50							
Focal areas of chronic inflammation and ulceration with or without necrosis	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
G-53							
Diverticulum	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
G-54							
<u>Cecum</u>							
Edema of submucosa of cecum	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
G-60							
<u>Pancreas</u>							
Focal atrophy of pancreatic acinar tissue	Control	0	0	2	10	10	22
	25 ppm	0	0	0	0	1	1
	75 ppm	0	0	1	10	2	13
P-03							
Focal interstitial pancreatitis	Control	0	0	3	6	10	19
	25 ppm	0	0	0	0	1	1
	75 ppm	0	0	1	10	2	13
P-05							
Focus of hyperplasia of the acinar tissue	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
P-06							
Necrosis of pancreatic tissue secondary to a tumorous process	Control	0	0	1	0	0	1
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
P-25							
<u>CARDIOVASCULAR SYSTEM</u>							
<u>Heart</u>							
Minimal degree of focal myocardial degeneration and fibrosis	Control	0	0	2	15	5	22
	25 ppm	1	0	1	7	1	10 ^a
	75 ppm	0	0	1	8	2	11 ^a
C-01							

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 20 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control 25 ppm 75 ppm	1 1 1	1 5 4	14 23 15	49 46 48	19 11 16	84 86 84
<u>Heart (cont'd)</u>							
Moderate degree of focal myocardial degeneration and fibrosis	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	2 1 1	0 0 0	2 1 1
C-02							
Atrial thrombosis	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	1 1 1	2 0 1	3 1 2
C-05							
Endocardial fibrosis	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	0 2 1	0 0 0	0 2 1
C-06							
Mononuclear cell infiltrate within myocardium (myocarditis)	Control 25 ppm 75 ppm	0 0 0	0 0 0	2 0 0	1 0 0	0 0 0	3 0 0
C-08							
Endocardial fibrosis and sclerosis secondary to a mediastinal tumor	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	1 0 0	0 0 0	1 0 0
C-09							
<u>Aorta</u>							
Aortic mineralization	Control 25 ppm 75 ppm	0 0 0	0 0 0	1 0 0	0 1 2	0 0 0	1 1 2
C-25							
<u>Blood Vessels</u>							
Periarteritis and/or sclerosis of mesenteric blood vessels and/or other selected blood vessels	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	2 0 1	3 1 1	5 1 2
C-41							
Hyalinization, sclerosis and/or fibrinoid degeneration of mesenteric and other blood vessels consistent with varying degrees of mesenteric periarteritis	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 1 0	3 0 1	0 0 2	3 1 3
C-43							
Thrombi in peripheral blood vessel	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 0	1 0 0	0 0 0	1 0 0
C-47							
<u>REPRODUCTIVE SYSTEM</u>							
<u>Ovary</u>							
Ovarian cyst	Control 25 ppm 75 ppm	0 0 0	0 1 1	0 1 0	8 4 12	1 3 5	9 9 18 ^a
X-60							
Atrophy of ovary or static appearance	Control 25 ppm 75 ppm	0 0 0	0 0 0	0 0 1	3 0 1	7 0 4	10 0 6
X-61 & X-64							

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

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TABLE 20 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>Ovary (cont'd)</u>							
Inflammation of the ovary(ies) or oviduct(s)	Control	0	0	0	3	1	4
	25 ppm	0	0	0	1	1	2
X-63 & X-65	75 ppm	0	0	0	4	3	7
<u>Uterus</u>							
Multiple areas of cystic endometrial hyperplasia	Control	0	0	1	8	7	16
	25 ppm	0	0	0	1	4	5
X-93 & X-75	75 ppm	0	1	5	7	11	24
Squamous metaplasia with or without keratinization or inflammation	Control	0	0	2	0	2	4
	25 ppm	0	0	0	1	1	2
X-79	75 ppm	0	1	2	3	2	8
Endometritis (inflammation)	Control	0	0	1	2	1	4
	25 ppm	0	0	0	0	2	2
X-90	75 ppm	0	0	0	3	0	3
Focal necrosis, ulceration and/or in- flammation of vaginal epithelium	Control	0	0	0	2	0	2
	25 ppm	0	0	0	0	0	0
X-91	75 ppm	0	0	0	0	0	0
Hyalinization and sclerosis of tunica muscularis	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
X-94	75 ppm	0	0	0	0	0	0
<u>Clitoral Gland</u>							
Abscess of clitoral gland	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
X-95	75 ppm	0	0	0	1	0	1
<u>NERVOUS SYSTEM</u>							
<u>Brain</u>							
Focal malacia of brain	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
N-01	75 ppm	0	0	1	0	0	1
Foci of abscess formation or inflamma- tion	Control	0	0	0	2	0	2
	25 ppm	0	0	0	0	0	0
N-06	75 ppm	0	0	0	0	0	0
Pressure necrosis with or without hemorrhage	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
N-08	75 ppm	0	0	0	1	0	1

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

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TABLE 20 (CONTINUED)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>NERVOUS SYSTEM (cont'd)</u>							
<u>Spinal Cord</u>							
Vacuolization of spinal cord	Control	0	0	1	5	16	22
N-18	25 ppm	0	0	0	0	5	5
	75 ppm	0	0	1	2	11	14
<u>Peripheral Nerves</u>							
Vacuolization of myelin within peripheral nerves	Control	0	0	0	3	14	17
N-32	25 ppm	0	0	0	0	3	3
	75 ppm	0	0	1	0	9	10
<u>Pituitary</u>							
Sinusoidal dilatation within pituitary	Control	0	0	3	2	4	9
N-45	25 ppm	0	1	3	5	0	9
	75 ppm	0	1	1	7	1	10
Hyperplasia	Control	0	0	2	0	0	2
N-50	25 ppm	0	0	1	2	0	3
	75 ppm	0	0	0	1	1	2
Hematogenous pigment	Control	0	0	2	0	0	2
N-51	25 ppm	0	0	1	0	0	1
	75 ppm	0	0	1	0	0	1
Microcyst	Control	0	0	0	1	0	1
N-52	25 ppm	0	0	1	0	0	1
	75 ppm	0	0	1	0	0	1
Infarct with hemorrhage	Control	0	0	0	0	0	0
N-53	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
<u>ADRENAL GLAND</u>							
<u>General</u>							
Focal areas of extramedullary hematopoiesis	Control	0	0	0	2	1	3
A-01	25 ppm	0	1	2	5	0	8
	75 ppm	1	0	1	4	0	6
Hematocyst formation within adrenals	Control	0	0	4	20	9	33
A-02	25 ppm	0	0	7	22	6	35
	75 ppm	0	1	4	26	7	38
Vascular dilatation	Control	0	0	0	0	0	0
A-03	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
<u>Cortex</u>							
Hyperplastic focus	Control	0	0	4	17	3	24
A-24	25 ppm	0	0	1	10	2	13 ^a
	75 ppm	0	0	2	2	0	4 ^a
Atrophy	Control	0	0	0	0	0	0
A-26	25 ppm	0	0	0	0	1	1
	75 ppm	0	0	0	0	0	0

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 20 (Continued)

VINYLLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>Cortex (cont'd)</u>							
Focus of lipomatosis	Control	0	0	3	10	7	20
A-27	25 ppm	0	0	3	4	1	8 ^a
	75 ppm	0	0	0	5	2	7 ^a
Necrosis secondary to tumor metastasis	Control	0	0	0	0	0	0
A-28	25 ppm	0	0	1	0	0	1
	75 ppm	0	0	0	0	0	0
<u>Medulla</u>							
Hyperplastic focus	Control	0	0	0	5	5	10
A-46	25 ppm	0	0	0	6	0	6
	75 ppm	0	0	0	3	5	8
<u>THYROID AND PARATHYROID</u>							
<u>Thyroid</u>							
Hyperplastic focus	Control	0	0	1	1	2	4
T-05	25 ppm	0	0	3	1	1	5
	75 ppm	0	0	0	1	0	1
<u>Parathyroid</u>							
Hyperplasia	Control	0	0	1	0	0	1
T-20	25 ppm	0	0	0	2	0	2
	75 ppm	0	0	0	1	0	1
<u>SUBCUTANEOUS TISSUE, MAMMARY GLAND AND INTEGUMENT</u>							
<u>Subcutaneous Tissue</u>							
Subcutaneous abscess	Control	0	0	0	0	1	1
S-01	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	1	0	1	2
<u>Mammary Gland</u>							
Hyperplasia	Control	0	0	0	1	3	4
S-30	25 ppm	0	0	0	1	2	3
	75 ppm	0	0	0	1	5	6
Galactoceles formation	Control	0	0	1	1	1	3
S-31	25 ppm	0	0	0	1	1	2
	75 ppm	0	0	0	0	0	0
Chronic suppurative inflammation	Control	0	0	0	1	0	1
S-42	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>MUSCULO-SKELETAL SYSTEM</u>							
Atrophy of skeletal muscle	Control	0	0	0	10	0	10
M-01	25 ppm	0	0	0	0	1	1
	75 ppm	0	0	0	3	3	6

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>EYE</u>							
Chronic focal keratitis of eye	Control	0	0	0	1	0	1
E-01	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Vacuolization (degeneration) of the lens proper	Control	0	0	2	2	0	4
E-03 & E-04	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	1	4	0	5
Chronic sclerosis of corneal area	Control	0	0	1	1	0	2
E-05 & E-02	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Focal corneal ulcer	Control	0	0	0	1	0	1
E-07	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>ADIPOSE TISSUE</u>							
Mediastinal or perirenal fat atrophy	Control	0	0	3	15	1	19
B-01	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	1	16	5	22
<u>LYMPHORETICULAR TISSUE</u>							
<u>Mediastinal Lymphoid Tissue</u>							
Lymphoid hyperplasia	Control	0	0	1	6	1	8
L-04	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	1	18	3	22 ^a
Lymphadenitis	Control	1	0	0	0	0	1
L-06	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>Mesenteric Lymph Nodes</u>							
Congestion and/or sinusoidal dilatation	Control	0	0	0	1	0	1
L-26	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Lymphoid hyperplasia	Control	0	0	0	2	1	3
L-27	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	1	1
Hematogenous pigment	Control	0	0	1	0	0	1
L-29	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Lymphangiectasis	Control	0	0	0	2	1	3
L-30	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>Other Lymphoid Tissue</u>							
Lymphoid hyperplasia	Control	0	0	0	0	1	1
L-35	25 ppm	0	0	0	3	1	4
	75 ppm	0	0	0	0	0	0

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 20 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Nontumorous Histopathologic Lesions in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied	Control	1	1	14	49	19	84
during the time period	25 ppm	1	5	23	46	11	86
indicated	75 ppm	1	4	15	48	16	84

LYMPHORETICULAR SYSTEM (cont'd)

Spleen

Atrophy with or without hemosiderin	Control	1	0	0	6	0	7
pigment	25 ppm	1	2	2	2	0	7
L-38	75 ppm	0	0	1	1	0	2
Increased hemosiderin pigment	Control	0	0	0	2	0	2
L-39	25 ppm	0	0	1	0	0	1
	75 ppm	0	0	0	0	0	0
Increased extramedullary hematopoiesis	Control	0	0	11	28	7	46
L-40	25 ppm	0	1	15	26	1	43
	75 ppm	1	4	11	21	5	42

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

SL 082385

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Tumor or Tumor-like Lesions Grossly Recognized in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>LIVER</u>							
Nodule	Control	0	0	0	0	3	3
H-05	25 ppm	0	0	0	0	2	2
	75 ppm	0	0	1	0	0	1
Tumor - infiltrate and enlarged second- ary to generalized lymphoprolifer- ative process	Control	0	0	0	0	0	0
	25 ppm	0	0	1	1	0	2
H-10	75 ppm	0	0	0	0	0	0
<u>RESPIRATORY SYSTEM</u>							
<u>Lung</u>							
Focal nodule(s)	Control	0	0	0	1	1	2
K-08	25 ppm	0	0	0	1	1	2
	75 ppm	0	0	0	0	0	0
Focal nodule(s) - metastatic	Control	0	0	0	1	0	1
K-08m	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	1	1
<u>KIDNEY</u>							
Tumor - primary	Control	0	0	0	0	0	0
I-10	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	1	0	1
<u>CARDIOVASCULAR SYSTEM</u>							
Tumor of heart	Control	0	0	0	0	0	0
L-13	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
<u>Salivary Gland</u>							
Salivary gland enlarged	Control	0	0	0	0	1	1
F-01	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>Stomach</u>							
Gastric tumor	Control	0	0	0	0	0	0
F-06	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
<u>Small Intestine</u>							
Tumor or diverticulum	Control	0	0	0	1	0	1
F-08	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>Large Intestine</u>							
Tumor	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>Intra-abdominal Cavity</u>							
Intra-abdominal tumor - origin uncer- tain	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
F-16	75 ppm	0	0	0	2	0	2

Not significantly different from control data when analyzed using Fisher's Exact Probability Test $p < 0.05$.

SL 082386

TABLE 21 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Tumor or Tumor-like Lesions Grossly Recognized in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>GASTROINTESTINAL SYSTEM (cont'd)</u>							
<u>Pancreas</u>							
Nodule(s) within	Control	0	0	0	3	3	6
F-19	25 ppm	0	0	0	0	2	2
	75 ppm	0	0	0	1	0	1
Tumor involving pancreas and other abdominal viscera	Control	0	0	0	1	0	1
F-20	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
<u>REPRODUCTIVE SYSTEM</u>							
Ovary - tumor	Control	0	0	0	4	1	5
2E-01	25 ppm	0	0	0	0	0	0 ^a
	75 ppm	0	0	0	1	0	1
Uterus - endometrial polyp(s)	Control	0	0	1	9	4	14
2E-05	25 ppm	0	1	2	3	5	11
	75 ppm	0	0	1	3	5	9
Uterus - tumor	Control	0	0	1	1	2	4
2E-07	25 ppm	0	0	0	0	2	2
	75 ppm	0	0	0	1	1	2
Utero-cervix tumor	Control	0	1	3	0	0	4
2E-10	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	1	1
Uterine tumor with metastasis to other abdominal organs	Control	0	0	0	0	0	0
2E-22	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
Vaginal tumor	Control	0	0	0	1	0	1
2E-11	25 ppm	0	0	0	0	1	1
	75 ppm	0	0	0	0	0	0
<u>NERVOUS SYSTEM</u>							
Pituitary gland - increased in size or irregular in shape with or without associated generalized color and consistency changes	Control	0	0	4	18	14	36
N-02	25 ppm	0	0	4	11	7	22 ^a
	75 ppm	0	0	1	15	10	26
<u>ENDOCRINE SYSTEM</u>							
Thyroid gland - increased in size	Control	0	0	0	1	7	8
O-01	25 ppm	0	0	0	0	0	0 ^a
	75 ppm	0	0	0	0	3	3
<u>ADRENAL GLAND</u>							
Enlarged - unilateral and bilateral with or without associated color change	Control	0	0	0	7	4	11
J-01	25 ppm	0	0	1	6	2	9
	75 ppm	0	0	0	6	2	8

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 21 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Tumor or Tumor-like Lesions Grossly Recognized in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>ADRENAL GLAND (cont'd)</u>							
Tumorous enlargement	Control	0	0	0	1	0	1
J-02	25 ppm	0	0	0	1	2	3
	75 ppm	0	0	0	2	1	3
<u>INTEGUMENTARY SYSTEM</u>							
Subcutaneous tumor - mammary and mid-cervical region, number per rat = 1	Control	0	0	5	16	6	27
B-02 (1)	25 ppm	0	3	9	13	2	27
	75 ppm	1	3	8	11	3	26
Subcutaneous tumor - mammary and mid-cervical region, number per rat = 2	Control	0	0	4	15	6	25
B-02 (2)	25 ppm	0	0	4	15	4	23
	75 ppm	0	0	5	13	6	24
Subcutaneous tumor - mammary and mid-cervical region, number per rat = 3	Control	0	0	0	2	1	3
B-02 (3)	25 ppm	0	0	5	6	2	13 ^a
	75 ppm	0	1	0	8	2	11 ^a
Subcutaneous tumor - mammary and mid-cervical region, number per rat = 4	Control	0	0	1	5	2	8
B-02 (4)	25 ppm	0	0	1	3	1	5
	75 ppm	0	0	0	5	3	8
Subcutaneous tumor - mammary and mid-cervical region, number per rat = 5	Control	0	0	0	2	2	4
B-02 (5)	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	2	1	3
Subcutaneous tumor - mammary and mid-cervical region, number per rat = 6	Control	0	0	0	0	0	0
B-02 (6)	25 ppm	0	0	1	0	0	1
	75 ppm	0	0	0	2	0	2
Subcutaneous tumor - body/limb, number per rat = 1	Control	0	0	0	0	1	1
B-04 (1)	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	1	1
Subcutaneous tumor - body/limb, number per rat = 2	Control	0	0	0	0	1	1
B-04 (2)	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Tumor of salivary gland region (subcutaneous)	Control	0	0	0	0	0	0
B-12	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	1	0	0	1
<u>MUSCULOSKELETAL SYSTEM</u>							
Tumor of the skull	Control	0	0	0	1	0	1
M-07	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>LYMPHORETICULAR SYSTEM</u>							
Lymph node(s) - tumor consisting of lymphoid tissue	Control	0	0	1	0	0	1
G-03	25 ppm	0	0	0	2	0	2
	75 ppm	0	0	0	0	0	0
Local invasion of tumor with regional lymph node(s) involved	Control	0	0	0	1	0	1
G-04	25 ppm	0	0	0	2	0	2
	75 ppm	0	0	0	1	0	1

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 21 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Tumor or Tumor-like Lesions Grossly Recognized in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>LYMPHORETICULAR SYSTEM (cont'd)</u>							
Thymus - enlarged or enlargement in region which thymus usually occupies G-05	Control	0	0	0	1	0	1
	25 ppm	0	0	0	1	1	2
	75 ppm	0	0	0	0	0	0
Splenomegaly - tumor related G-07	Control	0	0	1	0	0	1
	25 ppm	0	0	1	1	0	2
	75 ppm	0	0	0	0	0	0
<u>EYE</u>							
Ocular enlargement - possible tumor C-06	Control	0	0	0	0	0	0
	25 ppm	0	0	1	0	0	1
	75 ppm	0	0	0	0	0	0

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 22

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Histopathologic Diagnosis and Number of Tumors in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>LIVER</u>							
Cholangioma	Control	0	0	0	0	0	0
H-49	25 ppm	0	0	0	0	1	1
	75 ppm	0	0	0	0	0	0
Metastatic adenocarcinoma of utero-cervix region	Control	0	0	0	1	0	1
H-50	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
<u>RESPIRATORY SYSTEM</u>							
<u>Lung</u>							
Metastatic leiomyosarcoma of the uterocervix region	Control	0	0	1	0	0	1
R-33	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Metastatic adenocarcinoma of uterocervix region	Control	0	0	0	1	0	1
R-40	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Metastatic adenocarcinoma of mammary gland region	Control	0	0	0	1	0	1
R-41	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Metastatic osteogenic sarcoma of the forelimb	Control	0	0	0	0	0	0
R-42	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	1	1
Metastatic carcinoma of the thyroid	Control	0	0	0	0	0	0
R-43	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
Metastatic cortical carcinoma of the adrenal gland	Control	0	0	0	0	0	0
R-44	25 ppm	0	0	0	0	1	1
	75 ppm	0	0	0	0	0	0
<u>URINARY SYSTEM</u>							
<u>Kidney</u>							
Metastatic adenocarcinoma of the uterocervix region	Control	0	0	0	1	0	1
U-15	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
Renal cortical carcinoma without metastasis - well differentiated	Control	0	0	0	0	0	0
U-16	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
<u>CARDIOVASCULAR SYSTEM</u>							
<u>Heart</u>							
Undifferentiated endocardial sarcoma without metastasis	Control	0	0	0	0	0	0
U-16	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
<u>Blood Vessels</u>							
Metastatic leiomyosarcoma of the uterocervix region - to several blood vessels	Control	0	0	1	0	0	1
C-46	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 22 (Continued)

VINYLLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Histopathologic Diagnosis and Number of Tumors in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>GASTROINTESTINAL TRACT</u>							
<u>Stomach</u>							
Leiomyosarcoma with multiple intraabdominal metastasis	Control	0	0	0	0	0	0
G-10	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
<u>Small Intestine</u>							
Mucinous cystadenocarcinoma without metastasis	Control	0	0	0	1	0	1
G-33 & G-30	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Metastatic leiomyosarcoma of the uterocervix region	Control	0	0	1	0	0	1
G-32	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Metastatic adenocarcinoma of probable uterine origin	Control	0	0	0	0	0	0
G-36	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
<u>Large Intestine</u>							
Metastatic adenocarcinoma of uterocervix origin	Control	0	0	0	1	0	1
G-57	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>Salivary Gland</u>							
Carcinoma most probably salivary gland in origin without metastasis	Control	0	0	0	0	0	0
G-57	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	1	0	0	1
<u>REPRODUCTIVE SYSTEM</u>							
<u>Ovary</u>							
Granulosa cell tumor without metastasis	Control	0	0	0	1	0	1
X-62	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Ovarian adenocarcinoma of sclerosing type with multiple tissue metastases	Control	0	0	0	1	0	1
X-71	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Ovarian hemangioma	Control	0	0	0	1	0	1
X-73	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Metastatic adenocarcinoma of uterocervix origin	Control	0	0	0	1	0	1
X-70	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
<u>Uterus</u>							
Endometrial polyp formation	Control	0	0	1	9	3	13
X-77	25 ppm	0	1	2	2	5	10
	75 ppm	0	0	1	4	5	10

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 22 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Histopathologic Diagnosis and Number of Tumors in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied	Control	1	1	14	49	19	84
during the time period	25 ppm	1	5	23	46	11	86
indicated	75 ppm	1	4	15	48	16	84
<u>REPRODUCTIVE SYSTEM (cont'd)</u>							
<u>Uterus (cont'd)</u>							
Endometrial polyp based on gross	Control	0	0	0	0	1	1
examination only	25 ppm	0	0	0	0	0	0
X-101	75 ppm	0	0	0	1	0	1
Stromal sarcoma of uterocervix	Control	0	1	0	0	0	1
origin without metastasis	25 ppm	0	0	0	0	0	0
X-83	75 ppm	0	0	0	0	0	0
Undifferentiated sarcoma of	Control	0	0	2	0	0	2
uterocervix origin without	25 ppm	0	0	0	0	0	0
metastases	75 ppm	0	0	0	0	0	0
X-84							
Leiomyosarcoma of uterocervix	Control	0	0	1	0	0	1
region with metastasis to lung,	25 ppm	0	0	0	0	0	0
small intestine and blood	75 ppm	0	0	0	0	0	0
vessels							
X-85							
Adenocarcinoma of uterocervix	Control	0	0	0	1	0	1
origin with multiple tissue	25 ppm	0	0	0	0	0	0
metastasis	75 ppm	0	0	0	1	0	1
X-86							
Endometrial carcinoma of the	Control	0	0	0	1	0	1
uterus without metastasis	25 ppm	0	0	0	0	0	0
X-87	75 ppm	0	0	0	0	1	1
Adenocarcinoma of the uterus	Control	0	0	0	1	2	3
without metastasis	25 ppm	0	0	0	2	0	2
X-88	75 ppm	0	0	0	0	0	0
Leiomyoma without metastasis	Control	0	0	0	0	0	0
X-89	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Cervix - fibroma	Control	0	0	0	0	0	0
X-98	25 ppm	0	0	0	1	1	2
	75 ppm	0	0	0	0	1	1
Scirrhus adenocarcinoma, origin	Control	0	0	0	0	0	0
undetermined, most probable	25 ppm	0	0	0	0	0	0
ovary and uterine horn with wide-	75 ppm	0	0	0	1	0	1
spread abdominal metastasis							
X-100							
Carcinoma of uterocervix with	Control	0	0	0	0	0	0
metastasis to abdominal viscera	25 ppm	0	0	0	1	0	1
and one kidney	75 ppm	0	0	0	0	0	0
X-99							
<u>NERVOUS SYSTEM</u>							
<u>Brain</u>							
Astrocytoma	Control	0	0	0	1	1	2
N-03	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$

SL 082392

TABLE 22 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Histopathologic Diagnosis and Number of Tumors in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>NERVOUS SYSTEM (cont'd)</u>							
<u>Brain (cont'd)</u>							
Oligodendroglioma	Control	0	0	0	1	0	1
N-10	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Metastatic lymphoma	Control	0	0	0	0	0	0
N-11	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
<u>Pituitary</u>							
Pituitary adenoma	Control	0	0	2	20	15	37
N-44	25 ppm	0	0	5	13	6	24 ^a
	75 ppm	0	0	2	13	11	26
Pituitary adenocarcinoma without invasion of brain	Control	0	0	0	1	0	1
N-48	25 ppm	0	0	0	1	1	2
	75 ppm	0	0	0	0	0	0
Pituitary adenocarcinoma with invasion of brain	Control	0	0	0	3	0	3
N-49	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Adenoma based on gross examination only	Control	0	0	0	0	0	0
N-55	25 ppm	0	0	0	1	1	2
	75 ppm	0	0	0	2	0	2
Total number of animals with a pituitary tumor	Control	0	0	2	24	15	41
	25 ppm	0	0	5	15	8	28 ^a
	75 ppm	0	0	2	15	11	28
<u>THYROID</u>							
Thyroid adenoma	Control	0	0	0	11	3	14
T-01	25 ppm	0	0	1	9	3	13
	75 ppm	0	0	2	7	7	16
Thyroid adenocarcinoma without metastasis	Control	0	0	0	1	5	6
T-02	25 ppm	0	0	0	0	0	0 ^a
	75 ppm	0	0	0	1	0	1
Thyroid carcinoma with pulmonary metastasis	Control	0	0	0	0	0	0
T-10	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0
Total number of animals with a thyroid tumor	Control	0	0	0	12	8	20
	25 ppm	0	0	1	10	3	14
	75 ppm	0	0	2	8	7	17
<u>PARATHYROID</u>							
Parathyroid adenoma	Control	0	0	0	0	0	0
T-25	25 ppm	0	0	0	1	0	1
	75 ppm	0	0	0	0	0	0

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 22 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Histopathologic Diagnosis and Number of Tumors in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied	Control	1	1	14	49	19	84
during the time period	25 ppm	1	5	23	46	11	86
indicated	75 ppm	1	4	15	48	16	84
<u>ADRENAL GLAND</u>							
<u>Cortex</u>							
Adenoma of adrenal cortex	Control	0	0	1	1	1	3
A-25	25 ppm	0	0	0	1	1	2
	75 ppm	0	0	0	0	0	0
Adrenal cortical carcinoma	Control	0	0	0	1	0	1
without metastasis	25 ppm	0	0	0	0	0	0
A-34	75 ppm	0	0	0	1	0	1
Adrenal cortical carcinoma with	Control	0	0	0	0	0	0
metastasis to lung	25 ppm	0	0	0	0	1	1
A-37	75 ppm	0	0	0	0	0	0
Metastatic adenocarcinoma of	Control	0	0	0	1	0	1
uterocervix region	25 ppm	0	0	0	0	0	0
A-35	75 ppm	0	0	0	0	0	0
<u>Medulla</u>							
Adrenal pheochromocytoma, uni-	Control	0	0	0	2	2	4
lateral	25 ppm	0	0	1	3	0	4
A-47	75 ppm	0	0	0	2	1	3
Adrenal pheochromocytoma, bi-	Control	0	0	0	5	1	6
lateral	25 ppm	0	0	0	0	1	1
A-48	75 ppm	0	0	0	0	2	2
Total number of animals with a	Control	0	0	0	7	3	10
pheochromocytoma	25 ppm	0	0	1	3	1	5
	75 ppm	0	0	0	2	3	5
Ganglioneuroma - unilateral	Control	0	0	0	0	0	0
A-36	25 ppm	0	0	1	0	0	1
	75 ppm	0	0	0	0	0	0
<u>Pancreas</u>							
Pancreatic islet cell adenoma	Control	0	0	0	5	1	6
P-20	25 ppm	0	0	0	0	2	2
	75 ppm	0	0	1	0	0	1
Metastatic adenocarcinoma of the	Control	0	0	0	1	0	1
uterocervix region	25 ppm	0	0	0	0	0	0
P-26	75 ppm	0	0	0	1	0	1
<u>SUBCUTANEOUS TISSUE</u>							
Subcutaneous fibroma	Control	0	0	0	0	0	0
S-02	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1/1	0	1/1 ^b
Subcutaneous fibrosarcoma without	Control	0	0	0	0	1/1	1/1 ^b
metastasis	25 ppm	0	0	0	0	0	0
S-05	75 ppm	0	0	0	0	0	0

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

^bNumber of tumors/number of animals with tumors.

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TABLE 22 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Histopathologic Diagnosis and Number of Tumors in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>MAMMARY GLAND</u>							
Fibroadenoma/adenofibroma	Control	0	0	17/10	78/39	37/15	132/64 ^b
S-25	25 ppm	0	2/2	40/20	76/38	16/8	134/68 ^b
	75 ppm	1/1	6/4	17/14	100/40	33/15	157/74 ^b
Fibroma	Control	0	0	0	0	0	0
S-26	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1/1	1/1	2/2 ^b
Adenocarcinoma with pulmonary metastasis	Control	0	0	0	1/1	0	1/1 ^b
S-40	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Adenocarcinoma without metastasis	Control	0	0	0	1/1	0	1/1 ^b
S-27	25 ppm	0	1/1	2/2	1/1	4/3	8/7 ^{a,b}
	75 ppm	0	0	2/2	0	2/2	4/4 ^b
Leiomyosarcoma without metastasis	Control	0	0	0	0	0	0
S-41	25 ppm	0	0	0	1/1	0	1/1 ^b
	75 ppm	0	0	0	0	0	0
Carcinosarcoma of the mammary gland	Control	0	0	0	0	1/1	1/1 ^b
S-43	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Adenofibroma based on gross examination only	Control	0	0	0	0	0	0
S-44	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1/1	0	1/1 ^b
Total number of animals with a subcutaneous and/or mammary gland tumor	Control	0	0	10	39	16	65
	25 ppm	0	3	20	38	9	70
	75 ppm	1	4	14	41	15	75 ^a
S-02, S-05, S-25, S-26, S-27, S-40, S-41, S-43, S-44							
Number of rats with a malignant tumor in mammary region or skin	Control	0	0	0	2	2	4
S-05, S-27, S-40, S-41, S-43	25 ppm	0	1	2	2	3	8
	75 ppm	0	0	2	0	2	4
<u>MUSCULOSKELETAL SYSTEM</u>							
Metastatic adenocarcinoma of the uterocervix region to the mandible	Control	0	0	0	1	0	1
M-05	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Osteogenic sarcoma of the forelimb with metastasis to the lung	Control	0	0	0	0	0	0
M-06	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	1	1
<u>LYMPHORETICULAR SYSTEM</u>							
Mediastinal Lymphoid Tissue							
Metastatic adenocarcinoma of the uterocervix region	Control	0	0	0	1	0	1
L-07	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1

^aSignificantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

^bNumber of tumors/number of animals with tumors.

TABLE 22 (Continued)

VINYLLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Histopathologic Diagnosis and Number of Tumors in Female Rats

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
<u>LYMPHORETICULAR SYSTEM (cont'd)</u>							
<u>Mesenteric Lymphoid Tissue</u>							
Metastatic adenocarcinoma of uterocervix region	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
L-31	75 ppm	0	0	0	1	0	1
<u>Spleen</u>							
Metastatic adenocarcinoma of uterocervix region	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
L-50	75 ppm	0	0	0	1	0	1
<u>Lymphosarcomas and Leukemias</u>							
Generalized lymphosarcoma with multiple tissue metastasis	Control	0	0	1	0	0	1
	25 ppm	0	0	0	2	0	2
L-63, L-65	75 ppm	0	0	0	0	0	0
Monocytic myelogenous leukemia with multiple tissue metastasis	Control	0	0	0	0	0	0
	25 ppm	0	0	1	0	0	1
L-64	75 ppm	0	0	0	0	0	0
Malignant lymphoma, primarily of mesenteric lymph nodes with intestinal and brain metastasis	Control	0	0	0	0	0	0
	25 ppm	0	0	0	1	0	1
L-66	75 ppm	0	0	0	0	0	0
<u>EYE</u>							
Retrobulbar fibrosarcoma without metastasis	Control	0	0	0	0	0	0
	25 ppm	0	0	1	0	0	1
E-06	75 ppm	0	0	0	0	0	0
<u>ADIPOSE TISSUE</u>							
Metastatic adenocarcinoma of the uterocervix region	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
B-02	75 ppm	0	0	0	1	0	1
<u>MISCELLANEOUS</u>							
Undifferentiated mesenchymal sarcoma of the mediastinal region with extension into the surrounding mediastinal tissue and vessels but without distant metastasis	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
L-01	75 ppm	0	0	0	0	0	0
<u>Total number of primary tumors in the female rats as previously listed</u>	Control	0	1	25	149	73	248
	25 ppm	0	4	54	119	43	220
	75 ppm	1	6	26	137	65	235

Not significantly different from control data when analyzed using Fisher's Exact Probability Test, $p < 0.05$.

TABLE 23

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Number of Female Rats For Which
The Specified Tissue Was Examined Microscopically

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
Liver	Control	1	0	14	49	19	83
	25 ppm	1	5	22	46	11	85
	75 ppm	1	4	15	48	16	84
Heart	Control	1	0	14	48	16	79
	25 ppm	1	5	23	46	10	85
	75 ppm	1	4	14	45	14	78
Kidney	Control	1	0	14	49	19	83
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
Lungs	Control	1	0	14	49	19	83
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
Pancreas	Control	1	0	14	44	19	78
	25 ppm	0	0	3	2	9	14
	75 ppm	1	4	13	46	15	79
Spleen	Control	1	0	13	49	19	82
	25 ppm	1	4	23	46	11	85
	75 ppm	1	4	15	48	15	83
Skeletal Muscle	Control	0	0	10	46	18	74
	25 ppm	1	1	12	22	9	45
	75 ppm	0	2	12	43	16	73
Mediastinal or Perirenal Fat	Control	0	0	13	47	19	79
	25 ppm	0	0	1	2	6	9
	75 ppm	0	3	13	45	16	77
Salivary Gland	Control	1	1	9	44	17	72
	25 ppm	0	0 ₁	2	0	7	9
	75 ppm	0	4 ¹¹	11	39	16	70
Aorta	Control	1	0	13	42	18	74
	25 ppm	0	0	1	2	7	10
	75 ppm	1	3	12	43	14	73
Esophagus	Control	1	1	12	42	19	75
	25 ppm	1	3	15	28	6	53
	75 ppm	1	4	9	41	7	62
Trachea	Control	1	1	12	49	19	82
	25 ppm	1	5	23	45	11	85
	75 ppm	1	4	15	47	15	82
Parathyroid	Control	1	0	11	34	8	54
	25 ppm	1	4	18	31	6	60
	75 ppm	1	3	6	31	12	53
Thyroid	Control	1	0	12	47	19	79
	25 ppm	1	4	23	44	11	83
	75 ppm	1	4	13	44	15	77

TABLE 23 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Number of Female Rats For Which
The Specified Tissue Was Examined Microscopically

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
Stomach	Control	1	0	14	49	19	83
	25 ppm	0	0	16	46	11	73
	75 ppm	1	4	15	48	14	82
Small Intestine	Control	1	0	13	44	19	77
	25 ppm	0	0	1	2	7	10
	75 ppm	1	4	12	46	15	78
Large Intestine	Control	1	0	11	45	18	75
	25 ppm	0	0	0	1	5	6
	75 ppm	1	4	13	41	12	71
Mesenteric Lymph Nodes	Control	0	0	6	38	19	63
	25 ppm	0	0	0	2	7	9
	75 ppm	0	1	9	39	16	65
Mesenteric Vessels	Control	1	0	4	34	15	54
	25 ppm	0	0	0	0	6	6
	75 ppm	0	1	8	35	15	59
Urinary Bladder	Control	1	0	11	46	19	77
	25 ppm	0	1	3	9	9	22
	75 ppm	1	4	13	44	15	77
Ovaries	Control	1	0	12	49	18	80
	25 ppm	0	2	3	10	10	25
	75 ppm	1	4	13	43	16	77
Oviducts	Control	1	0	12	44	18	75
	25 ppm	0	2	3	8	9	22
	75 ppm	1	3	11	37	11	63
Uterus	Control	1	0	13	47	19	80
	25 ppm	0	2	3	10	10	25
	75 ppm	1	4	14	45	16	80
Peripheral Nerves	Control	0	0	9	39	18	66
	25 ppm	0	0	0	0	7	7
	75 ppm	0	2	10	35	15	62
Spinal Cord	Control	0	0	8	47	19	74
	25 ppm	0	0	1	0	6	7
	75 ppm	0	4	10	45	15	74
Pituitary Gland	Control	1	0	12	40	18	71
	25 ppm	0	1	20	38	11	70
	75 ppm	1	2	12	35	15	65
Adrenal Gland	Control	1	0	13	48	19	81
	25 ppm	1	5	22	46	11	85
	75 ppm	1	4	15	45	16	81
Cerebellum	Control	1	1	13	48	19	82
	25 ppm	1	5	23	44	11	84
	75 ppm	1	4	14	45	15	79

SL 082398

TABLE 23 (Continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND
ONCOGENICITY STUDY IN RATS

Number of Female Rats For Which
The Specified Tissue Was Examined Microscopically

		0-6 Months	7-12 Months	13-18 Months	19-24 Months	Terminal Kill	Cumulative Results
Number of rats necropsied during the time period indicated	Control	1	1	14	49	19	84
	25 ppm	1	5	23	46	11	86
	75 ppm	1	4	15	48	16	84
Cerebral Cortex	Control	1	1	13	48	19	82
	25 ppm	1	5	23	45	11	85
	75 ppm	1	4	15	48	16	84
Eyes	Control	1	0	10	40	19	70
	25 ppm	0	0	2	0	10	12
	75 ppm	1	4	9	39	16	69
Tongue	Control	0	0	0	1	0	1
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Skin	Control	0	0	1	5	6	12
	25 ppm	0	0	1	0	3	4
	75 ppm	1	0	1	0	7	9
Mediastinal Lymphoid Tissue	Control	1	0	12	46	15	74
	25 ppm	0	0	1	2	5	8
	75 ppm	1	3	11	41	12	68
Clitoral Gland	Control	0	0	1	0	0	1
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Mediastinal Vessels	Control	0	0	1	0	0	1
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Pineal Gland	Control	0	0	1	2	0	3
	25 ppm	0	0	0	0	1	1
	75 ppm	0	1	0	1	0	2
Medulla Oblongata	Control	0	0	1	0	2	3
	25 ppm	1	1	2	0	0	4
	75 ppm	1	0	1	1	0	3
Regional Lymph Node	Control	0	0	0	0	1	1
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	0	0	0
Thymus	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	75 ppm	1	0	0	0	0	1
Larynx	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Other Lymphoid Tissue	Control	0	0	0	0	0	0
	25 ppm	0	0	0	4	0	4
	75 ppm	0	0	0	0	0	0
Diaphragm	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	1	0	1
Subcutaneous Tissue	Control	0	0	0	0	0	0
	25 ppm	0	0	0	0	0	0
	75 ppm	0	0	0	3	0	3

APPENDIX I

Individual Animal Data

Body Weights

SL 082400

The data presented in Appendix I are direct copies of computer-generated tables for individual body weights for male and female rats from all exposure groups for this study. Before viewing these data, the reader is reminded that individual animal numbers were not assigned to these animals until they were submitted to necropsy. Therefore it is not possible to read across the table horizontally and trace the growth curve on any single rat with time. Animals deceased at the time of each weighing were subtracted from the total starting population (day 0) and are indicated by the entry "9999" in the appropriate column.

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Individual Body Weight Data for Male Rats

DOSE UNITS ARE PPM

INPUT DATA 9999 = DEAD ANIMAL OR MISSING DATA
MEANS THIS VALUE IS EXCLUDED FROM ALL CALCULATIONS

PPM	ANIMAL	DAY 0	DAY 0	DAY 10	DAY 20	DAY 26	DAY 37	DAY 52	DAY 77	DAY 110	DAY 140	DAY 174
0.0	1	281.00	302.00	300.00	304.00	370.00	464.00	437.00	400.00	524.00	629.00	646.00
	2	261.00	307.00	315.00	379.00	374.00	420.00	400.00	540.00	501.00	543.00	540.00
	3	267.00	340.00	358.00	370.00	304.00	308.00	433.00	476.00	515.00	502.00	579.00
	4	275.00	342.00	330.00	346.00	424.00	417.00	405.00	470.00	512.00	500.00	539.00
	5	280.00	317.00	307.00	350.00	300.00	390.00	434.00	446.00	420.00	520.00	504.00
	6	272.00	342.00	345.00	350.00	382.00	405.00	405.00	444.00	470.00	400.00	557.00
	7	274.00	336.00	331.00	300.00	379.00	410.00	457.00	505.00	501.00	525.00	501.00
	8	202.00	345.00	340.00	351.00	400.00	420.00	419.00	476.00	467.00	476.00	566.00
	9	274.00	307.00	304.00	392.00	372.00	452.00	404.00	505.00	555.00	550.00	610.00
	10	270.00	305.00	376.00	442.00	410.00	441.00	466.00	536.00	559.00	501.00	600.00
	11	270.00	333.00	357.00	379.00	414.00	451.00	470.00	520.00	553.00	501.00	577.00
	12	265.00	311.00	358.00	360.00	423.00	454.00	467.00	400.00	551.00	571.00	506.00
	13	272.00	330.00	370.00	361.00	425.00	440.00	439.00	522.00	550.00	502.00	610.00
	14	270.00	347.00	374.00	420.00	442.00	412.00	401.00	567.00	602.00	645.00	626.00
	15	271.00	322.00	302.00	374.00	305.00	472.00	510.00	505.00	517.00	502.00	667.00
	16	272.00	316.00	364.00	377.00	422.00	455.00	459.00	500.00	555.00	576.00	550.00
	17	290.00	315.00	370.00	300.00	409.00	445.00	478.00	500.00	540.00	573.00	621.00
	18	266.00	312.00	367.00	374.00	425.00	422.00	470.00	520.00	540.00	522.00	615.00
	19	297.00	314.00	344.00	402.00	415.00	410.00	435.00	540.00	400.00	570.00	600.00
	20	265.00	301.00	368.00	362.00	420.00	450.00	402.00	450.00	560.00	507.00	530.00
	21	276.00	277.00	330.00	358.00	474.00	390.00	416.00	470.00	504.00	560.00	505.00
	22	275.00	317.00	329.00	404.00	302.00	400.00	454.00	520.00	524.00	566.00	510.00
	23	251.00	298.00	347.00	400.00	400.00	455.00	477.00	475.00	540.00	500.00	504.00
	24	270.00	310.00	321.00	377.00	400.00	409.00	437.00	511.00	542.00	500.00	545.00
	25	271.00	314.00	340.00	300.00	421.00	370.00	444.00	400.00	505.00	534.00	606.00
	26	267.00	306.00	350.00	409.00	405.00	470.00	302.00	550.00	569.00	500.00	447.00
	27	272.00	319.00	345.00	305.00	351.00	444.00	500.00	512.00	420.00	603.00	620.00
	28	275.00	313.00	325.00	305.00	300.00	431.00	420.00	490.00	417.00	444.00	540.00
	29	287.00	327.00	352.00	301.00	390.00	412.00	462.00	460.00	470.00	405.00	505.00
	30	208.00	337.00	360.00	369.00	307.00	436.00	450.00	360.00	510.00	392.00	360.00
	31	266.00	321.00	352.00	307.00	406.00	464.00	402.00	470.00	500.00	610.00	641.00
	32	277.00	322.00	355.00	370.00	420.00	430.00	451.00	546.00	516.00	527.00	400.00
	33	294.00	320.00	340.00	379.00	390.00	410.00	421.00	406.00	570.00	560.00	576.00
	34	287.00	330.00	347.00	377.00	401.00	390.00	463.00	510.00	527.00	475.00	520.00
	35	277.00	322.00	312.00	354.00	412.00	457.00	470.00	440.00	570.00	492.00	555.00
	36	250.00	209.00	351.00	392.00	300.00	430.00	405.00	530.00	461.00	509.00	504.00
	37	206.00	304.00	369.00	300.00	410.00	425.00	450.00	444.00	475.00	504.00	537.00
	38	264.00	342.00	351.00	349.00	396.00	410.00	417.00	490.00	514.00	491.00	504.00
	39	307.00	326.00	371.00	371.00	390.00	430.00	441.00	470.00	520.00	502.00	610.00
	40	208.00	320.00	351.00	372.00	367.00	317.00	429.00	464.00	302.00	450.00	457.00
	41	274.00	304.00	300.00	406.00	455.00	406.00	512.00	566.00	419.00	576.00	579.00
	42	270.00	302.00	387.00	430.00	377.00	410.00	375.00	327.00	519.00	306.00	600.00
	43	277.00	300.00	341.00	370.00	201.00	450.00	402.00	409.00	505.00	509.00	507.00
	44	270.00	314.00	371.00	405.00	377.00	426.00	430.00	515.00	546.00	612.00	627.00
	45	270.00	325.00	345.00	377.00	424.00	400.00	450.00	544.00	566.00	500.00	550.00
	46	205.00	279.00	352.00	370.00	400.00	445.00	440.00	400.00	520.00	502.00	644.00

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47	205.00	320.00	361.00	400.00	414.00	424.00	430.00	556.00	560.00	620.00	641.00
48	201.00	333.00	364.00	380.00	379.00	457.00	477.00	522.00	520.00	584.00	552.00
49	205.00	277.00	350.00	377.00	424.00	461.00	472.00	551.00	571.00	617.00	630.00
50	275.00	320.00	344.00	372.00	337.00	361.00	440.00	402.00	500.00	525.00	551.00
51	247.00	326.00	277.00	327.00	370.00	410.00	370.00	477.00	427.00	502.00	510.00
52	204.00	322.00	345.00	400.00	424.00	442.00	447.00	490.00	470.00	440.00	504.00
53	272.00	323.00	353.00	380.00	400.00	420.00	402.00	450.00	517.00	477.00	454.00
54	277.00	317.00	325.00	350.00	360.00	370.00	450.00	480.00	520.00	554.00	632.00
55	260.00	335.00	350.00	385.00	410.00	410.00	490.00	524.00	504.00	500.00	530.00
56	265.00	310.00	334.00	401.00	416.00	466.00	434.00	520.00	564.00	510.00	610.00
57	200.00	352.00	360.00	406.00	425.00	456.00	480.00	477.00	512.00	540.00	570.00
58	206.00	317.00	366.00	367.00	387.00	407.00	425.00	443.00	520.00	607.00	412.00
59	206.00	300.00	336.00	381.00	387.00	420.00	345.00	400.00	482.00	541.00	510.00
60	270.00	275.00	352.00	366.00	376.00	387.00	440.00	452.00	445.00	520.00	550.00
61	272.00	320.00	332.00	366.00	408.00	425.00	440.00	420.00	527.00	479.00	504.00
62	261.00	322.00	351.00	370.00	370.00	410.00	447.00	400.00	500.00	484.00	500.00
63	270.00	324.00	346.00	360.00	404.00	431.00	430.00	400.00	522.00	566.00	515.00
64	260.00	304.00	326.00	382.00	374.00	400.00	427.00	506.00	537.00	545.00	536.00
65	206.00	280.00	357.00	374.00	376.00	432.00	457.00	512.00	541.00	572.00	502.00
66	262.00	324.00	327.00	374.00	370.00	435.00	441.00	460.00	477.00	515.00	522.00
67	276.00	330.00	344.00	350.00	412.00	450.00	440.00	407.00	430.00	420.00	573.00
68	276.00	276.00	353.00	337.00	410.00	385.00	470.00	422.00	515.00	540.00	620.00
69	204.00	306.00	362.00	370.00	377.00	424.00	370.00	532.00	575.00	565.00	500.00
70	260.00	330.00	321.00	382.00	355.00	422.00	392.00	516.00	534.00	600.00	506.00
71	274.00	317.00	355.00	365.00	388.00	410.00	430.00	500.00	444.00	405.00	517.00
72	277.00	319.00	317.00	340.00	357.00	384.00	457.00	443.00	460.00	505.00	535.00
73	278.00	320.00	332.00	371.00	414.00	410.00	412.00	470.00	482.00	355.00	554.00
74	263.00	323.00	330.00	372.00	367.00	442.00	457.00	442.00	480.00	510.00	551.00
75	267.00	305.00	350.00	347.00	370.00	402.00	405.00	343.00	510.00	542.00	574.00
76	287.00	326.00	320.00	382.00	405.00	370.00	425.00	470.00	537.00	520.00	507.00
77	275.00	304.00	344.00	380.00	402.00	417.00	436.00	427.00	510.00	540.00	577.00
78	275.00	277.00	321.00	340.00	400.00	375.00	461.00	517.00	542.00	507.00	570.00
79	270.00	282.00	314.00	360.00	387.00	430.00	392.00	476.00	450.00	466.00	407.00
80	260.00	287.00	311.00	377.00	351.00	452.00	400.00	474.00	462.00	460.00	547.00
81	265.00	274.00	330.00	405.00	412.00	412.00	430.00	523.00	530.00	555.00	537.00
82	274.00	350.00	361.00	380.00	375.00	441.00	476.00	515.00	500.00	500.00	570.00
83	272.00	361.00	320.00	376.00	410.00	440.00	440.00	404.00	557.00	514.00	507.00
84	286.00	360.00	356.00	372.00	430.00	426.00	400.00	474.00	519.00	507.00	617.00
85	287.00	330.00	370.00	372.00	410.00	437.00	450.00	437.00	515.00	570.00	567.00
86	275.00	337.00	375.00	387.00	410.00	442.00	457.00	477.00	525.00	544.00	550.00
87	262.00	342.00	365.00	340.00	365.00	370.00	461.00	507.00	457.00	546.00	511.00
88	280.00	336.00	370.00	374.00	406.00	430.00	390.00	415.00	435.00	477.00	615.00
89	276.00	336.00	370.00	370.00	422.00	445.00	461.00	555.00	520.00	615.00	504.00
90	275.00	332.00	350.00	342.00	350.00	410.00	470.00	505.00	533.00	577.00	606.00
91	270.00	327.00	357.00	401.00	430.00	474.00	470.00	500.00	572.00	502.00	456.00
92	274.00	330.00	310.00	410.00	416.00	471.00	405.00	515.00	560.00	554.00	570.00
93	278.00	270.00	362.00	350.00	367.00	430.00	416.00	525.00	550.00	487.00	554.00
94	303.00	340.00	341.00	377.00	457.00	472.00	460.00	440.00	545.00	571.00	7777.00
95	307.00	315.00	376.00	431.00	451.00	377.00	510.00	454.00	475.00	501.00	7777.00
96	267.00	310.00	358.00	421.00	422.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
97	266.00	320.00	342.00	344.00	389.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
98	287.00	307.00	325.00	371.00	360.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
99	287.00	310.00	335.00	364.00	400.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
100	287.00	310.00	345.00	247.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
101	210.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00

MEANS	275.02	319.74	346.77	370.07	377.47	420.57	440.07	487.23	510.47	536.55	561.70
STANDARD	17.45	16.57	17.00	25.07	27.52	27.71	32.07	45.47	46.25	50.12	50.02
DEVIATIONS											
N=	101	100	100	100	99	95	95	95	95	95	93

25.000

1	264.00	310.00	350.00	380.00	407.00	422.00	430.00	439.00	476.00	500.00	520.00
2	266.00	320.00	342.00	358.00	390.00	412.00	417.00	477.00	507.00	547.00	568.00
3	276.00	316.00	347.00	370.00	383.00	406.00	410.00	521.00	530.00	524.00	547.00
4	283.00	295.00	360.00	383.00	400.00	420.00	445.00	499.00	554.00	502.00	540.00
5	285.00	297.00	362.00	387.00	410.00	440.00	455.00	502.00	524.00	564.00	529.00
6	284.00	297.00	350.00	380.00	390.00	411.00	470.00	453.00	462.00	400.00	507.00
7	270.00	310.00	327.00	360.00	390.00	402.00	435.00	473.00	535.00	510.00	507.00
8	272.00	300.00	342.00	360.00	382.00	412.00	420.00	440.00	470.00	480.00	510.00
9	264.00	295.00	320.00	345.00	360.00	390.00	410.00	460.00	487.00	490.00	507.00
10	280.00	310.00	341.00	365.00	391.00	406.00	450.00	450.00	460.00	460.00	530.00
11	280.00	290.00	327.00	352.00	387.00	415.00	417.00	407.00	407.00	500.00	460.00
12	269.00	312.00	330.00	359.00	376.00	400.00	432.00	460.00	500.00	502.00	515.00
13	268.00	311.00	322.00	337.00	372.00	380.00	432.00	475.00	507.00	542.00	450.00
14	269.00	310.00	331.00	346.00	381.00	407.00	397.00	429.00	450.00	464.00	502.00
15	268.00	309.00	331.00	354.00	355.00	377.00	397.00	444.00	464.00	517.00	540.00
16	267.00	309.00	349.00	370.00	396.00	442.00	460.00	507.00	538.00	460.00	504.00
17	270.00	325.00	351.00	370.00	399.00	425.00	440.00	506.00	506.00	540.00	540.00
18	271.00	260.00	350.00	384.00	409.00	422.00	440.00	490.00	526.00	560.00	504.00
19	242.00	307.00	290.00	382.00	370.00	405.00	404.00	440.00	430.00	461.00	477.00
20	231.00	296.00	345.00	362.00	407.00	390.00	437.00	381.00	354.00	504.00	571.00
21	272.00	320.00	332.00	350.00	369.00	400.00	205.00	487.00	500.00	572.00	542.00
22	272.00	300.00	344.00	401.00	422.00	400.00	382.00	410.00	407.00	540.00	562.00
23	293.00	315.00	341.00	366.00	372.00	455.00	470.00	536.00	562.00	491.00	467.00
24	277.00	365.00	365.00	342.00	396.00	372.00	416.00	459.00	527.00	510.00	527.00
25	270.00	280.00	338.00	330.00	350.00	412.00	435.00	449.00	266.00	461.00	531.00
26	267.00	304.00	320.00	329.00	392.00	384.00	407.00	421.00	437.00	480.00	504.00
27	259.00	314.00	300.00	370.00	355.00	371.00	405.00	400.00	465.00	530.00	582.00
28	252.00	270.00	315.00	360.00	391.00	391.00	400.00	435.00	500.00	570.00	502.00
29	260.00	280.00	316.00	325.00	346.00	382.00	437.00	479.00	515.00	520.00	536.00
30	290.00	360.00	342.00	340.00	369.00	416.00	410.00	459.00	509.00	534.00	534.00
31	280.00	330.00	327.00	370.00	414.00	442.00	440.00	470.00	517.00	542.00	520.00
32	271.00	365.00	340.00	360.00	390.00	416.00	441.00	481.00	540.00	532.00	564.00
33	290.00	384.00	371.00	390.00	388.00	421.00	466.00	419.00	512.00	427.00	545.00
34	281.00	310.00	339.00	387.00	390.00	404.00	371.00	410.00	510.00	524.00	440.00
35	285.00	317.00	349.00	320.00	384.00	456.00	432.00	480.00	429.00	549.00	512.00
36	294.00	340.00	350.00	375.00	416.00	420.00	439.00	475.00	520.00	524.00	534.00
37	287.00	318.00	370.00	390.00	402.00	430.00	451.00	467.00	520.00	520.00	502.00
38	270.00	299.00	366.00	381.00	401.00	440.00	462.00	524.00	547.00	500.00	510.00
39	263.00	320.00	387.00	365.00	382.00	412.00	440.00	454.00	510.00	480.00	560.00
40	281.00	387.00	337.00	324.00	351.00	380.00	422.00	437.00	460.00	490.00	517.00
41	270.00	290.00	341.00	360.00	389.00	409.00	396.00	470.00	490.00	510.00	501.00
42	272.00	298.00	305.00	361.00	380.00	400.00	420.00	465.00	462.00	472.00	502.00
43	271.00	310.00	330.00	330.00	374.00	375.00	424.00	467.00	479.00	572.00	554.00
44	270.00	317.00	327.00	355.00	350.00	410.00	394.00	436.00	477.00	550.00	559.00
45	283.00	298.00	329.00	380.00	391.00	447.00	426.00	455.00	466.00	556.00	570.00
46	268.00	280.00	347.00	340.00	414.00	427.00	461.00	521.00	555.00	482.00	501.00
47	293.00	290.00	361.00	376.00	367.00	396.00	446.00	504.00	544.00	590.00	504.00
48	278.00	276.00	360.00	360.00	410.00	407.00	411.00	440.00	531.00	520.00	576.00
49	243.00	306.00	341.00	305.00	381.00	437.00	432.00	471.00	502.00	520.00	614.00
50	276.00	307.00	330.00	407.00	437.00	410.00	430.00	487.00	552.00	550.00	536.00
51	270.00	314.00	382.00	377.00	398.00	438.00	464.00	519.00	571.00	512.00	527.00
52	257.00	332.00	354.00	354.00	374.00	429.00	466.00	535.00	515.00	579.00	524.00
53	290.00	330.00	339.00	365.00	385.00	399.00	422.00	470.00	440.00	460.00	501.00
54	276.00	311.00	365.00	412.00	430.00	477.00	439.00	260.00	560.00	540.00	520.00
55	265.00	320.00	345.00	360.00	391.00	425.00	440.00	476.00	507.00	505.00	507.00
56	295.00	328.00	367.00	415.00	444.00	422.00	490.00	491.00	521.00	586.00	556.00
57	291.00	372.00	347.00	362.00	360.00	480.00	444.00	542.00	580.00	539.00	504.00
58	275.00	312.00	352.00	352.00	397.00	392.00	448.00	445.00	520.00	475.00	407.00
59	285.00	325.00	321.00	357.00	382.00	432.00	405.00	490.00	470.00	507.00	556.00
60	296.00	319.00	350.00	400.00	382.00	436.00	510.00	570.00	490.00	550.00	567.00
61	270.00	296.00	387.00	380.00	370.00	461.00	455.00	470.00	537.00	552.00	504.00
62	272.00	276.00	290.00	360.00	428.00	416.00	489.00	545.00	536.00	524.00	512.00
63	260.00	302.00	380.00	360.00	375.00	361.00	431.00	512.00	542.00	520.00	591.00

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64	267.00	205.00	341.00	330.00	331.00	399.00	455.00	512.00	401.00	500.00	500.00
65	258.00	201.00	320.00	307.00	345.00	433.00	377.00	449.00	415.00	442.00	407.00
66	207.00	300.00	340.00	320.00	301.00	350.00	371.00	417.00	440.00	469.00	544.00
67	295.00	322.00	306.00	360.00	308.00	401.00	415.00	404.00	540.00	547.00	491.00
68	297.00	321.00	355.00	375.00	410.00	409.00	440.00	500.00	510.00	473.00	500.00
69	209.00	205.00	344.00	340.00	362.00	304.00	450.00	512.00	525.00	491.00	502.00
70	274.00	300.00	305.00	300.00	399.00	434.00	409.00	470.00	451.00	470.00	497.00
71	274.00	305.00	304.00	395.00	400.00	400.00	300.00	420.00	574.00	490.00	409.00
72	271.00	307.00	305.00	364.00	300.00	455.00	409.00	550.00	509.00	514.00	500.00
73	290.00	300.00	340.00	392.00	425.00	405.00	400.00	474.00	520.00	490.00	505.00
74	270.00	304.00	379.00	352.00	362.00	370.00	462.00	493.00	474.00	464.00	517.00
75	272.00	209.00	325.00	363.00	369.00	247.00	427.00	447.00	471.00	470.00	540.00
76	265.00	302.00	208.00	308.00	304.00	401.00	419.00	442.00	467.00	550.00	491.00
77	251.00	300.00	317.00	306.00	371.00	399.00	419.00	437.00	459.00	545.00	505.00
78	266.00	310.00	339.00	342.00	309.00	404.00	400.00	451.00	406.00	520.00	547.00
79	254.00	297.00	342.00	365.00	415.00	402.00	364.00	412.00	400.00	505.00	467.00
80	205.00	300.00	327.00	371.00	344.00	309.00	410.00	459.00	502.00	502.00	505.00
81	267.00	307.00	305.00	365.00	400.00	369.00	421.00	473.00	500.00	577.00	557.00
82	201.00	305.00	355.00	309.00	392.00	410.00	470.00	500.00	502.00	509.00	520.00
83	292.00	201.00	354.00	320.00	309.00	440.00	401.00	420.00	500.00	590.00	404.00
84	282.00	304.00	342.00	307.00	377.00	430.00	470.00	510.00	447.00	500.00	517.00
85	269.00	300.00	313.00	330.00	404.00	442.00	386.00	476.00	475.00	510.00	510.00
86	293.00	304.00	351.00	355.00	344.00	404.00	459.00	462.00	494.00	525.00	500.00
87	292.00	310.00	360.00	309.00	361.00	410.00	440.00	495.00	520.00	505.00	525.00
88	279.00	202.00	341.00	370.00	420.00	429.00	415.00	404.00	521.00	549.00	554.00
89	272.00	307.00	335.00	329.00	400.00	444.00	430.00	450.00	527.00	559.00	550.00
90	312.00	323.00	331.00	372.00	401.00	304.00	430.00	402.00	534.00	402.00	409.00
91	257.00	313.00	372.00	343.00	400.00	440.00	400.00	427.00	454.00	205.00	307.00
92	300.00	294.00	345.00	308.00	351.00	300.00	497.00	512.00	471.00	305.00	340.00
93	305.00	290.00	312.00	300.00	411.00	420.00	461.00	510.00	9999.00	9999.00	9999.00
94	272.00	311.00	347.00	334.00	379.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
95	284.00	305.00	320.00	307.00	365.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
96	270.00	251.00	342.00	377.00	403.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
97	270.00	295.00	350.00	367.00	374.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
98	230.00	204.00	363.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
99	280.00	304.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00

MEANS	276.05	305.04	340.06	360.06	305.93	412.48	401.00	460.71	500.00	512.00	520.74
STANDARD	14.94	16.65	19.21	22.40	24.79	31.51	35.95	43.51	40.17	52.39	44.14
DEVIATIONS											
N=	99	99	99	97	97	93	93	93	92	92	92

75.000	1	292.00	320.00	365.00	399.00	401.00	404.00	437.00	494.00	509.00	529.00	606.00
	2	296.00	338.00	354.00	370.00	301.00	429.00	452.00	491.00	504.00	521.00	550.00
	3	204.00	325.00	372.00	309.00	391.00	470.00	482.00	552.00	520.00	545.00	500.00
	4	295.00	343.00	351.00	372.00	374.00	422.00	450.00	401.00	500.00	609.00	547.00
	5	270.00	320.00	350.00	362.00	380.00	451.00	482.00	449.00	517.00	574.00	520.00
	6	289.00	320.00	329.00	303.00	409.00	420.00	424.00	529.00	555.00	510.00	501.00
	7	298.00	301.00	334.00	352.00	372.00	400.00	442.00	477.00	405.00	540.00	407.00
	8	266.00	300.00	375.00	357.00	372.00	447.00	470.00	519.00	510.00	495.00	550.00
	9	274.00	334.00	362.00	302.00	424.00	429.00	470.00	500.00	470.00	517.00	512.00
	10	294.00	329.00	370.00	409.00	302.00	397.00	450.00	440.00	540.00	507.00	500.00
	11	294.00	307.00	300.00	401.00	400.00	451.00	412.00	490.00	514.00	499.00	500.00
	12	302.00	339.00	325.00	342.00	365.00	389.00	426.00	462.00	497.00	550.00	610.00
	13	290.00	315.00	330.00	351.00	381.00	410.00	400.00	443.00	450.00	595.00	480.00
	14	275.00	301.00	306.00	364.00	352.00	376.00	377.00	430.00	466.00	481.00	474.00
	15	271.00	316.00	329.00	352.00	360.00	300.00	407.00	439.00	479.00	400.00	520.00
	16	265.00	307.00	386.00	401.00	300.00	347.00	455.00	441.00	512.00	515.00	570.00
	17	260.00	310.00	345.00	355.00	389.00	390.00	417.00	507.00	574.00	552.00	504.00
	18	300.00	355.00	342.00	371.00	427.00	417.00	440.00	400.00	547.00	529.00	512.00
	19	276.00	317.00	337.00	399.00	429.00	392.00	412.00	529.00	470.00	500.00	520.00

20	305.00	311.00	352.00	347.00	366.00	424.00	404.00	455.00	471.00	477.00	500.00
21	293.00	332.00	362.00	372.00	404.00	457.00	442.00	461.00	557.00	513.00	523.00
22	282.00	350.00	360.00	355.00	377.00	387.00	370.00	470.00	512.00	503.00	460.00
23	278.00	307.00	336.00	340.00	420.00	405.00	407.00	536.00	405.00	507.00	536.00
24	260.00	312.00	322.00	370.00	359.00	450.00	414.00	451.00	480.00	362.00	401.00
25	267.00	329.00	376.00	402.00	364.00	373.00	346.00	534.00	396.00	474.00	550.00
26	286.00	296.00	331.00	342.00	424.00	370.00	444.00	469.00	424.00	601.00	530.00
27	256.00	314.00	321.00	343.00	360.00	410.00	400.00	346.00	475.00	536.00	403.00
28	276.00	347.00	345.00	360.00	375.00	403.00	413.00	419.00	493.00	514.00	518.00
29	270.00	323.00	357.00	385.00	362.00	454.00	413.00	455.00	504.00	576.00	606.00
30	272.00	330.00	376.00	342.00	410.00	380.00	402.00	540.00	516.00	507.00	536.00
31	296.00	300.00	340.00	400.00	304.00	407.00	437.00	454.00	577.00	520.00	500.00
32	266.00	345.00	343.00	366.00	389.00	413.00	431.00	540.00	490.00	400.00	552.00
33	202.00	325.00	325.00	356.00	424.00	460.00	472.00	470.00	413.00	472.00	457.00
34	323.00	337.00	404.00	372.00	424.00	402.00	400.00	400.00	505.00	574.00	522.00
35	261.00	332.00	352.00	362.00	388.00	402.00	435.00	522.00	400.00	512.00	631.00
36	262.00	372.00	370.00	432.00	461.00	450.00	537.00	541.00	500.00	562.00	572.00
37	283.00	350.00	356.00	382.00	392.00	427.00	463.00	464.00	527.00	532.00	510.00
38	270.00	352.00	352.00	382.00	402.00	446.00	422.00	513.00	492.00	531.00	504.00
39	280.00	334.00	330.00	382.00	417.00	446.00	460.00	510.00	525.00	554.00	426.00
40	280.00	336.00	361.00	382.00	378.00	372.00	407.00	461.00	533.00	504.00	542.00
41	205.00	323.00	346.00	355.00	413.00	413.00	459.00	532.00	549.00	663.00	464.00
42	284.00	322.00	353.00	363.00	362.00	442.00	414.00	444.00	513.00	544.00	522.00
43	276.00	330.00	367.00	371.00	396.00	430.00	443.00	510.00	620.00	607.00	602.00
44	302.00	336.00	359.00	370.00	463.00	422.00	462.00	500.00	455.00	530.00	560.00
45	204.00	333.00	400.00	371.00	401.00	492.00	388.00	524.00	516.00	544.00	520.00
46	288.00	331.00	343.00	372.00	400.00	432.00	542.00	495.00	558.00	504.00	574.00
47	205.00	362.00	327.00	372.00	407.00	426.00	420.00	322.00	516.00	560.00	504.00
48	286.00	342.00	356.00	383.00	412.00	432.00	471.00	534.00	547.00	582.00	527.00
49	277.00	334.00	357.00	353.00	406.00	441.00	470.00	512.00	424.00	472.00	525.00
50	296.00	335.00	351.00	388.00	367.00	400.00	450.00	465.00	564.00	502.00	550.00
51	206.00	320.00	375.00	373.00	392.00	402.00	472.00	505.00	504.00	500.00	600.00
52	301.00	337.00	376.00	381.00	386.00	400.00	462.00	400.00	513.00	532.00	534.00
53	294.00	331.00	364.00	372.00	425.00	465.00	435.00	486.00	476.00	523.00	510.00
54	270.00	349.00	340.00	407.00	426.00	430.00	423.00	525.00	522.00	515.00	504.00
55	275.00	332.00	344.00	375.00	404.00	410.00	458.00	473.00	454.00	520.00	621.00
56	300.00	323.00	357.00	363.00	373.00	424.00	406.00	502.00	424.00	400.00	504.00
57	274.00	323.00	347.00	383.00	366.00	482.00	440.00	420.00	525.00	562.00	522.00
58	294.00	336.00	370.00	357.00	380.00	414.00	436.00	474.00	472.00	605.00	520.00
59	287.00	327.00	365.00	401.00	431.00	441.00	470.00	436.00	570.00	476.00	517.00
60	285.00	346.00	330.00	356.00	426.00	457.00	422.00	451.00	532.00	572.00	582.00
61	285.00	351.00	372.00	373.00	377.00	405.00	472.00	552.00	571.00	602.00	586.00
62	263.00	322.00	383.00	381.00	333.00	426.00	371.00	466.00	512.00	542.00	542.00
63	261.00	352.00	357.00	310.00	403.00	351.00	426.00	390.00	572.00	514.00	542.00
64	271.00	284.00	332.00	414.00	432.00	466.00	442.00	486.00	425.00	613.00	572.00
65	295.00	335.00	329.00	342.00	372.00	376.00	414.00	544.00	436.00	552.00	576.00
66	278.00	310.00	325.00	349.00	366.00	384.00	430.00	412.00	420.00	502.00	582.00
67	276.00	321.00	362.00	363.00	361.00	380.00	372.00	450.00	534.00	532.00	660.00
68	273.00	316.00	375.00	372.00	412.00	452.00	403.00	454.00	569.00	414.00	552.00
69	275.00	349.00	372.00	396.00	430.00	422.00	454.00	533.00	552.00	420.00	636.00
70	295.00	343.00	326.00	388.00	405.00	452.00	406.00	500.00	510.00	500.00	578.00
71	282.00	333.00	348.00	352.00	398.00	432.00	372.00	532.00	575.00	425.00	532.00
72	234.00	309.00	332.00	370.00	375.00	400.00	475.00	432.00	445.00	542.00	500.00
73	272.00	322.00	366.00	375.00	402.00	442.00	452.00	522.00	552.00	570.00	556.00
74	262.00	314.00	362.00	374.00	422.00	441.00	462.00	470.00	545.00	564.00	426.00
75	301.00	340.00	364.00	398.00	411.00	452.00	462.00	526.00	555.00	502.00	602.00
76	292.00	335.00	375.00	391.00	408.00	433.00	472.00	502.00	575.00	575.00	600.00
77	286.00	332.00	362.00	352.00	373.00	452.00	421.00	512.00	492.00	512.00	550.00
78	288.00	318.00	332.00	410.00	422.00	374.00	456.00	543.00	562.00	544.00	521.00
79	272.00	332.00	328.00	400.00	394.00	422.00	423.00	464.00	402.00	503.00	520.00
80	293.00	342.00	322.00	425.00	366.00	372.00	424.00	533.00	402.00	601.00	554.00
81	274.00	360.00	372.00	352.00	451.00	432.00	450.00	492.00	532.00	522.00	542.00
82	264.00	310.00	360.00	341.00	355.00	398.00	420.00	452.00	524.00	606.00	621.00

83	304.00	313.00	356.00	354.00	372.00	442.00	420.00	453.00	472.00	406.00	475.00
84	292.00	330.00	332.00	333.00	400.00	435.00	402.00	473.00	506.00	500.00	566.00
85	272.00	337.00	354.00	337.00	402.00	399.00	460.00	451.00	575.00	479.00	502.00
86	286.00	315.00	345.00	370.00	400.00	401.00	462.00	545.00	403.00	500.00	605.00
87	277.00	342.00	365.00	367.00	399.00	455.00	474.00	500.00	571.00	504.00	500.00
88	266.00	322.00	334.00	401.00	421.00	435.00	406.00	520.00	542.00	587.00	610.00
89	275.00	320.00	340.00	375.00	376.00	412.00	446.00	553.00	436.00	592.00	520.00
90	283.00	325.00	353.00	351.00	375.00	432.00	427.00	506.00	553.00	503.00	665.00
91	280.00	303.00	357.00	374.00	392.00	401.00	451.00	470.00	486.00	562.00	504.00
92	273.00	325.00	333.00	375.00	406.00	427.00	464.00	476.00	635.00	577.00	600.00
93	289.00	322.00	350.00	304.00	401.00	375.00	416.00	464.00	566.00	662.00	7777.00
94	283.00	309.00	367.00	351.00	373.00	434.00	446.00	512.00	547.00	527.00	7777.00
95	273.00	345.00	332.00	403.00	417.00	464.00	407.00	512.00	7777.00	7777.00	7777.00
96	277.00	323.00	334.00	365.00	376.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
97	285.00	326.00	372.00	372.00	381.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
98	286.00	312.00	355.00	357.00	405.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
99	272.00	344.00	7777.00	400.00	431.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
100	282.00	336.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00

MEANS	282.56	328.20	353.56	375.61	376.02	423.80	447.24	400.15	510.94	530.54	542.27
STANDARD	12.86	16.37	18.70	21.57	26.03	28.50	33.66	45.01	45.07	47.14	48.72
DEVIATIONS											
N=	100	100	70	79	92	75	95	75	94	94	92

* ADJUST PAGE CO PRINTING HEAD TO JUST ABOVE NEXT PERFORATION :
 *** AND PRESS: RETURN ***

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Individual Body Weight Data for Male Rats

DOSE UNITS ARE PPM

INPUT DATA 9999 = DEAD ANIMAL OR MISSING DATA
* MEANS THIS VALUE IS EXCLUDED FROM ALL CALCULATIONS

PPM	ANIMAL	DAY 201	DAY 202	DAY 212	DAY 219	DAY 235	DAY 260	DAY 267	DAY 321	DAY 340	DAY 375	DAY 409
0.0	1	510.00	573.00	533.00	570.00	536.00	544.00	557.00	629.00	655.00	651.00	701.00
	2	573.00	523.00	522.00	534.00	524.00	597.00	605.00	570.00	717.00	705.00	650.00
	3	537.00	504.00	573.00	510.00	590.00	553.00	539.00	552.00	610.00	660.00	716.00
	4	623.00	641.00	650.00	632.00	610.00	633.00	657.00	704.00	591.00	740.00	670.00
	5	623.00	624.00	626.00	626.00	636.00	674.00	690.00	663.00	562.00	559.00	555.00
	6	642.00	616.00	624.00	646.00	650.00	650.00	634.00	666.00	690.00	527.00	600.00
	7	505.00	579.00	662.00	666.00	600.00	602.00	612.00	625.00	645.00	699.00	592.00
	8	655.00	576.00	592.00	591.00	592.00	599.00	711.00	730.00	743.00	691.00	607.00
	9	504.00	640.00	502.00	504.00	676.00	702.00	619.00	623.00	701.00	633.00	650.00
	10	600.00	622.00	671.00	670.00	677.00	697.00	650.00	664.00	704.00	650.00	601.00
	11	602.00	615.00	636.00	592.00	632.00	635.00	620.00	602.00	650.00	524.00	662.00
	12	554.00	597.00	555.00	600.00	556.00	579.00	503.00	610.00	704.00	737.00	510.00
	13	620.00	541.00	609.00	537.00	605.00	624.00	620.00	630.00	693.00	625.00	532.00
	14	560.00	604.00	615.00	596.00	624.00	642.00	635.00	657.00	747.00	669.00	602.00
	15	612.00	522.00	571.00	522.00	572.00	631.00	501.00	663.00	666.00	722.00	755.00
	16	540.00	563.00	541.00	606.00	546.00	599.00	655.00	596.00	642.00	595.00	730.00
	17	612.00	601.00	617.00	543.00	627.00	407.00	643.00	710.00	603.00	547.00	704.00
	18	651.00	645.00	502.00	560.00	550.00	675.00	607.00	629.00	699.00	619.00	507.00
	19	621.00	565.00	560.00	533.00	573.00	642.00	494.00	493.00	605.00	630.00	611.00
	20	560.00	610.00	596.00	560.00	593.00	650.00	665.00	671.00	517.00	660.00	555.00
	21	461.00	463.00	640.00	620.00	647.00	665.00	535.00	673.00	734.00	545.00	630.00
	22	650.00	649.00	479.00	463.00	492.00	531.00	665.00	550.00	640.00	604.00	590.00
	23	516.00	516.00	464.00	413.00	476.00	511.00	525.00	592.00	697.00	566.00	605.00
	24	304.00	635.00	511.00	491.00	511.00	579.00	535.00	535.00	712.00	560.00	661.00
	25	551.00	580.00	614.00	527.00	610.00	570.00	575.00	599.00	.00	674.00	564.00
	26	550.00	503.00	531.00	540.00	534.00	529.00	535.00	540.00	.00	636.00	563.00
	27	506.00	542.00	551.00	607.00	563.00	550.00	665.00	654.00	.00	605.00	647.00
	28	593.00	547.00	540.00	534.00	494.00	645.00	547.00	560.00	607.00	722.00	604.00
	29	522.00	550.00	572.00	529.00	546.00	417.00	501.00	537.00	572.00	705.00	690.00
	30	633.00	624.00	539.00	402.00	571.00	502.00	520.00	495.00	576.00	627.00	724.00
	31	550.00	550.00	497.00	569.00	554.00	631.00	637.00	596.00	676.00	663.00	752.00
	32	556.00	519.00	502.00	499.00	510.00	570.00	539.00	649.00	554.00	630.00	624.00
	33	636.00	452.00	627.00	621.00	654.00	666.00	672.00	672.00	517.00	540.00	661.00
	34	640.00	465.00	645.00	641.00	639.00	607.00	609.00	717.00	631.00	640.00	647.00
	35	577.00	505.00	565.00	440.00	460.00	593.00	603.00	704.00	693.00	705.00	520.00
	36	563.00	555.00	644.00	632.00	632.00	602.00	690.00	612.00	607.00	723.00	691.00
	37	575.00	575.00	458.00	600.00	505.00	470.00	617.00	500.00	630.00	651.00	653.00
	38	669.00	642.00	609.00	561.00	646.00	549.00	407.00	620.00	701.00	677.00	740.00
	39	545.00	559.00	636.00	540.00	570.00	605.00	557.00	490.00	711.00	592.00	674.00
	40	630.00	640.00	656.00	640.00	646.00	661.00	591.00	603.00	655.00	690.00	609.00
	41	609.00	656.00	553.00	642.00	633.00	652.00	663.00	701.00	623.00	704.00	701.00
	42	474.00	551.00	600.00	657.00	670.00	500.00	659.00	670.00	530.00	701.00	712.00
	43	503.00	521.00	460.00	509.00	504.00	504.00	579.00	642.00	640.00	650.00	712.00
	44	531.00	463.00	502.00	542.00	473.00	619.00	622.00	577.00	724.00	626.00	640.00
	45	561.00	574.00	541.00	563.00	520.00	545.00	560.00	595.00	690.00	544.00	644.00
	46	633.00	543.00	527.00	456.00	563.00	621.00	640.00	670.00	634.00	342.00	440.00

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47	562.00	620.00	607.00	610.00	630.00	631.00	651.00	644.00	605.00	645.00	575.00
48	641.00	584.00	625.00	614.00	551.00	609.00	637.00	600.00	590.00	689.00	633.00
49	556.00	603.00	605.00	542.00	632.00	554.00	639.00	637.00	705.00	640.00	607.00
50	555.00	571.00	606.00	549.00	569.00	636.00	565.00	595.00	696.00	552.00	565.00
51	583.00	559.00	570.00	510.00	534.00	500.00	570.00	540.00	690.00	605.00	706.00
52	537.00	533.00	503.00	509.00	510.00	600.00	533.00	414.00	604.00	554.00	540.00
53	602.00	554.00	642.00	510.00	520.00	541.00	606.00	610.00	617.00	673.00	600.00
54	503.00	575.00	590.00	572.00	505.00	420.00	340.00	611.00	427.00	705.00	741.00
55	610.00	605.00	671.00	572.00	596.00	623.00	617.00	625.00	572.00	650.00	659.00
56	545.00	595.00	656.00	591.00	617.00	592.00	624.00	644.00	650.00	670.00	632.00
57	572.00	524.00	637.00	600.00	606.00	605.00	595.00	675.00	660.00	603.00	656.00
58	644.00	556.00	509.00	526.00	567.00	519.00	659.00	519.00	607.00	600.00	671.00
59	520.00	603.00	614.00	500.00	536.00	517.00	520.00	535.00	555.00	603.00	690.00
60	612.00	517.00	645.00	556.00	604.00	656.00	501.00	693.00	533.00	579.00	637.00
61	525.00	514.00	647.00	571.00	525.00	599.00	630.00	610.00	712.00	600.00	505.00
62	524.00	578.00	503.00	515.00	596.00	632.00	602.00	647.00	671.00	502.00	499.00
63	506.00	572.00	633.00	503.00	592.00	671.00	594.00	606.00	724.00	470.00	270.00
64	506.00	557.00	607.00	539.00	567.00	611.00	605.00	630.00	623.00	527.00	541.00
65	567.00	594.00	654.00	619.00	640.00	594.00	646.00	666.00	675.00	739.00	646.00
66	540.00	501.00	607.00	501.00	504.00	641.00	633.00	610.00	660.00	644.00	752.00
67	631.00	624.00	619.00	626.00	656.00	604.00	547.00	502.00	630.00	620.00	624.00
68	500.00	491.00	643.00	579.00	614.00	554.00	635.00	663.00	630.00	616.00	630.00
69	494.00	561.00	699.00	559.00	560.00	620.00	610.00	370.00	575.00	641.00	650.00
70	571.00	503.00	605.00	402.00	634.00	629.00	464.00	575.00	606.00	726.00	604.00
71	634.00	630.00	563.00	494.00	515.00	407.00	413.00	476.00	465.00	670.00	727.00
72	502.00	599.00	566.00	610.00	453.00	450.00	624.00	655.00	475.00	673.00	603.00
73	626.00	623.00	647.00	577.00	597.00	507.00	677.00	700.00	410.00	600.00	669.00
74	534.00	552.00	623.00	540.00	576.00	662.00	603.00	609.00	635.00	640.00	670.00
75	604.00	573.00	641.00	569.00	572.00	644.00	637.00	500.00	736.00	613.00	612.00
76	632.00	667.00	620.00	620.00	635.00	642.00	653.00	656.00	644.00	672.00	9999.00
77	620.00	629.00	641.00	626.00	651.00	677.00	697.00	717.00	750.00	586.00	9999.00
78	507.00	510.00	579.00	566.00	574.00	562.00	607.00	610.00	644.00	9999.00	9999.00
79	520.00	506.00	501.00	500.00	473.00	500.00	599.00	620.00	630.00	9999.00	9999.00
80	576.00	451.00	637.00	514.00	517.00	600.00	576.00	627.00	611.00	9999.00	9999.00
81	600.00	602.00	649.00	445.00	450.00	677.00	624.00	641.00	649.00	9999.00	9999.00
82	599.00	596.00	637.00	505.00	519.00	604.00	674.00	696.00	646.00	9999.00	9999.00
83	463.00	639.00	514.00	550.00	600.00	616.00	613.00	509.00	655.00	9999.00	9999.00
84	622.00	604.00	611.00	637.00	615.00	604.00	552.00	632.00	9999.00	9999.00	9999.00
85	554.00	540.00	701.00	612.00	646.00	546.00	505.00	567.00	9999.00	9999.00	9999.00
86	634.00	9999.00	676.00	536.00	560.00	502.00	623.00	9999.00	9999.00	9999.00	9999.00

MEANS	579.24	572.32	601.29	545.01	579.07	590.12	602.05	615.00	639.17	637.45	630.01
STANDARD	52.06	50.99	57.42	54.09	55.11	60.40	64.30	65.06	71.67	70.75	70.64
DEVIATIONS											
N=	86	85	86	86	86	86	86	85	83	77	75

25.000

1	400.00	400.00	594.00	573.00	605.00	539.00	624.00	640.00	645.00	657.00	673.00
2	543.00	594.00	574.00	593.00	615.00	597.00	566.00	503.00	636.00	623.00	651.00
3	591.00	540.00	530.00	529.00	553.00	594.00	626.00	641.00	506.00	597.00	601.00
4	570.00	501.00	531.00	526.00	520.00	503.00	511.00	553.00	592.00	535.00	551.00
5	524.00	512.00	506.00	500.00	550.00	546.00	540.00	571.00	571.00	630.00	619.00
6	575.00	562.00	542.00	544.00	547.00	527.00	565.00	522.00	520.00	621.00	630.00
7	510.00	500.00	562.00	560.00	565.00	570.00	569.00	611.00	595.00	603.00	653.00
8	471.00	576.00	505.00	544.00	504.00	552.00	597.00	601.00	603.00	625.00	641.00
9	570.00	473.00	542.00	569.00	592.00	574.00	572.00	592.00	592.00	613.00	610.00
10	537.00	570.00	430.00	569.00	592.00	577.00	549.00	562.00	582.00	643.00	620.00
11	530.00	552.00	505.00	490.00	497.00	520.00	498.00	512.00	522.00	610.00	599.00
12	559.00	543.00	573.00	502.00	531.00	500.00	502.00	590.00	607.00	590.00	624.00
13	504.00	522.00	526.00	529.00	543.00	526.00	560.00	505.00	555.00	605.00	725.00
14	515.00	501.00	573.00	574.00	574.00	584.00	602.00	620.00	598.00	693.00	657.00
15	517.00	524.00	570.00	569.00	590.00	574.00	545.00	552.00	622.00	699.00	711.00

16	520.00	522.00	492.00	500.00	607.00	544.00	611.00	620.00	597.00	626.00	629.00
17	547.00	540.00	550.00	540.00	524.00	512.00	570.00	571.00	600.00	610.00	620.00
18	507.00	509.00	602.00	520.00	575.00	607.00	530.00	509.00	540.00	431.00	645.00
19	546.00	513.00	557.00	550.00	570.00	547.00	620.00	640.00	674.00	524.00	502.00
20	517.00	540.00	562.00	545.00	510.00	502.00	570.00	592.00	620.00	642.00	305.00
21	501.00	400.00	501.00	514.00	555.00	507.00	551.00	572.00	600.00	597.00	591.00
22	517.00	522.00	510.00	500.00	574.00	541.00	556.00	501.00	601.00	572.00	607.00
23	527.00	572.00	470.00	505.00	540.00	532.00	617.00	602.00	676.00	505.00	590.00
24	512.00	500.00	531.00	510.00	537.00	420.00	552.00	576.00	505.00	500.00	500.00
25	546.00	522.00	502.00	475.00	520.00	570.00	430.00	450.00	600.00	501.00	607.00
26	426.00	522.00	510.00	505.00	517.00	557.00	600.00	621.00	442.00	524.00	570.00
27	550.00	500.00	525.00	522.00	542.00	512.00	550.00	540.00	500.00	601.00	620.00
28	524.00	425.00	540.00	506.00	520.00	530.00	545.00	540.00	552.00	620.00	612.00
29	503.00	520.00	507.00	405.00	472.00	530.00	536.00	574.00	562.00	601.00	601.00
30	507.00	502.00	525.00	517.00	522.00	526.00	536.00	530.00	570.00	627.00	607.00
31	400.00	400.00	442.00	502.00	547.00	530.00	536.00	507.00	564.00	622.00	642.00
32	526.00	505.00	572.00	547.00	555.00	515.00	540.00	557.00	500.00	640.00	603.00
33	507.00	500.00	542.00	422.00	547.00	520.00	605.00	550.00	640.00	657.00	604.00
34	401.00	400.00	554.00	520.00	445.00	520.00	550.00	604.00	605.00	501.00	402.00
35	515.00	520.00	611.00	522.00	530.00	603.00	622.00	630.00	501.00	622.00	640.00
36	501.00	475.00	566.00	522.00	501.00	505.00	600.00	630.00	590.00	640.00	655.00
37	502.00	474.00	544.00	503.00	505.00	540.00	572.00	504.00	614.00	553.00	627.00
38	501.00	554.00	560.00	570.00	540.00	554.00	550.00	592.00	636.00	626.00	542.00
39	575.00	545.00	522.00	497.00	550.00	606.00	576.00	630.00	500.00	630.00	651.00
40	545.00	474.00	502.00	530.00	540.00	560.00	617.00	592.00	656.00	640.00	602.00
41	564.00	505.00	550.00	535.00	577.00	470.00	492.00	521.00	607.00	574.00	654.00
42	500.00	573.00	508.00	601.00	540.00	491.00	507.00	630.00	632.00	550.00	620.00
43	423.00	500.00	541.00	553.00	577.00	592.00	501.00	524.00	547.00	622.00	720.00
44	575.00	402.00	600.00	504.00	620.00	575.00	606.00	603.00	611.00	710.00	556.00
45	572.00	460.00	552.00	532.00	520.00	554.00	526.00	537.00	547.00	670.00	561.00
46	535.00	521.00	616.00	592.00	612.00	501.00	502.00	606.00	624.00	540.00	671.00
47	456.00	532.00	510.00	460.00	567.00	572.00	521.00	623.00	600.00	577.00	554.00
48	476.00	450.00	567.00	552.00	540.00	477.00	572.00	614.00	532.00	597.00	590.00
49	555.00	555.00	535.00	514.00	470.00	615.00	634.00	531.00	592.00	570.00	601.00
50	513.00	524.00	621.00	550.00	470.00	562.00	514.00	595.00	675.00	606.00	502.00
51	510.00	562.00	630.00	505.00	550.00	510.00	627.00	640.00	630.00	602.00	601.00
52	540.00	500.00	515.00	472.00	601.00	610.00	522.00	531.00	562.00	575.00	502.00
53	542.00	577.00	597.00	592.00	601.00	515.00	522.00	540.00	546.00	630.00	601.00
54	406.00	500.00	600.00	550.00	564.00	530.00	516.00	542.00	556.00	620.00	562.00
55	556.00	540.00	570.00	504.00	540.00	511.00	514.00	500.00	572.00	540.00	625.00
56	575.00	490.00	559.00	526.00	575.00	560.00	540.00	566.00	502.00	591.00	592.00
57	504.00	501.00	570.00	550.00	521.00	520.00	504.00	611.00	540.00	636.00	610.00
58	501.00	476.00	520.00	520.00	472.00	507.00	600.00	500.00	594.00	500.00	576.00
59	536.00	512.00	511.00	404.00	542.00	537.00	564.00	540.00	621.00	651.00	645.00
60	514.00	542.00	647.00	461.00	470.00	512.00	572.00	521.00	606.00	640.00	620.00
61	561.00	557.00	500.00	600.00	610.00	572.00	536.00	542.00	556.00	510.00	530.00
62	531.00	518.00	556.00	507.00	523.00	567.00	575.00	506.00	507.00	602.00	725.00
63	504.00	501.00	556.00	504.00	610.00	571.00	594.00	604.00	600.00	644.00	570.00
64	607.00	613.00	640.00	500.00	526.00	500.00	541.00	556.00	620.00	570.00	640.00
65	503.00	477.00	591.00	507.00	590.00	551.00	604.00	620.00	562.00	620.00	637.00
66	546.00	474.00	620.00	530.00	560.00	607.00	627.00	630.00	646.00	625.00	644.00
67	501.00	520.00	621.00	576.00	524.00	630.00	421.00	506.00	627.00	560.00	407.00
68	566.00	560.00	600.00	625.00	605.00	401.00	630.00	626.00	510.00	455.00	554.00
69	528.00	476.00	521.00	505.00	654.00	525.00	604.00	626.00	605.00	426.00	406.00
70	504.00	537.00	595.00	556.00	605.00	572.00	614.00	562.00	501.00	474.00	352.00
71	405.00	536.00	622.00	542.00	575.00	555.00	552.00	616.00	631.00	716.00	730.00
72	544.00	550.00	540.00	576.00	552.00	550.00	571.00	541.00	550.00	614.00	612.00
73	543.00	472.00	507.00	500.00	564.00	606.00	553.00	506.00	522.00	640.00	610.00
74	553.00	501.00	607.00	552.00	501.00	525.00	527.00	502.00	601.00	632.00	667.00
75	534.00	562.00	627.00	545.00	520.00	420.00	400.00	466.00	360.00	666.00	606.00
76	536.00	540.00	551.00	545.00	592.00	460.00	452.00	427.00	452.00	611.00	610.00
77	595.00	556.00	590.00	500.00	566.00	574.00	600.00	652.00	675.00	741.00	742.00
78	554.00	610.00	555.00	570.00	527.00	520.00	606.00	650.00	520.00	710.00	720.00

77	523.00	530.00	576.00	550.00	550.00	500.00	501.00	593.00	700.00	9999.00	9999.00
80	507.00	540.00	536.00	497.00	516.00	570.00	590.00	695.00	609.00	9999.00	9999.00
81	540.00	507.00	555.00	507.00	507.00	643.00	505.00	624.00	633.00	9999.00	9999.00
82	568.00	432.00	572.00	506.00	533.00	574.00	674.00	602.00	600.00	9999.00	9999.00
83	566.00	411.00	622.00	571.00	520.00	602.00	608.00	520.00	503.00	9999.00	9999.00
84	526.00	559.00	473.00	523.00	563.00	556.00	572.00	600.00	637.00	9999.00	9999.00
85	503.00	475.00	473.00	444.00	367.00	645.00	611.00	635.00	9999.00	9999.00	9999.00
86	414.00	531.00	9999.00	414.00	350.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
87	433.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00

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MEANS	520.15	520.50	500.12	535.32	550.01	555.11	512.30	506.04	523.14	611.02	610.47
STANDARD	32.50	41.30	43.50	40.10	47.05	43.51	43.70	40.60	53.56	52.72	70.66
DEVIATIONS											
N=	07	06	05	06	06	05	05	05	04	70	77

75.000	1	591.00	575.00	603.00	631.00	600.00	612.00	640.00	652.00	505.00	595.00	707.00
	2	597.00	516.00	536.00	507.00	614.00	623.00	555.00	501.00	657.00	704.00	619.00
	3	514.00	593.00	572.00	524.00	542.00	556.00	622.00	636.00	630.00	626.00	642.00
	4	562.00	514.00	536.00	541.00	503.00	554.00	552.00	612.00	503.00	647.00	657.00
	5	533.00	534.00	576.00	527.00	524.00	603.00	537.00	560.00	576.00	610.00	501.00
	6	515.00	568.00	516.00	572.00	531.00	541.00	597.00	571.00	613.00	560.00	630.00
	7	526.00	422.00	502.00	407.00	500.00	505.00	551.00	522.00	560.00	629.00	712.00
	8	476.00	475.00	504.00	534.00	522.00	512.00	512.00	503.00	525.00	709.00	627.00
	9	476.00	532.00	505.00	505.00	472.00	502.00	521.00	540.00	535.00	590.00	605.00
	10	572.00	531.00	632.00	627.00	617.00	605.00	610.00	664.00	620.00	601.00	627.00
	11	610.00	634.00	507.00	596.00	595.00	555.00	632.00	503.00	570.00	404.00	507.00
	12	520.00	507.00	543.00	540.00	550.00	642.00	552.00	642.00	650.00	470.00	444.00
	13	514.00	516.00	527.00	525.00	528.00	520.00	556.00	570.00	547.00	527.00	470.00
	14	525.00	520.00	525.00	507.00	523.00	550.00	543.00	562.00	550.00	361.00	425.00
	15	516.00	512.00	531.00	519.00	523.00	531.00	557.00	566.00	574.00	600.00	607.00
	16	605.00	421.00	467.00	530.00	425.00	533.00	534.00	525.00	501.00	664.00	674.00
	17	537.00	458.00	505.00	420.00	532.00	410.00	441.00	445.00	451.00	665.00	600.00
	18	340.00	540.00	430.00	467.00	443.00	442.00	440.00	430.00	400.00	640.00	641.00
	19	468.00	596.00	465.00	514.00	370.00	402.00	540.00	422.00	412.00	604.00	610.00
	20	521.00	505.00	533.00	514.00	544.00	571.00	301.00	624.00	573.00	560.00	560.00
	21	587.00	502.00	570.00	543.00	407.00	510.00	526.00	567.00	624.00	600.00	531.00
	22	542.00	577.00	552.00	446.00	502.00	274.00	543.00	614.00	634.00	507.00	596.00
	23	530.00	554.00	500.00	533.00	501.00	532.00	515.00	570.00	576.00	533.00	705.00
	24	502.00	603.00	612.00	601.00	532.00	522.00	522.00	524.00	541.00	585.00	662.00
	25	522.00	450.00	530.00	505.00	535.00	565.00	590.00	537.00	613.00	652.00	505.00
	26	600.00	521.00	535.00	535.00	475.00	511.00	521.00	504.00	644.00	663.00	600.00
	27	552.00	572.00	452.00	636.00	532.00	537.00	456.00	664.00	514.00	501.00	731.00
	28	467.00	572.00	542.00	460.00	620.00	522.00	560.00	574.00	561.00	700.00	601.00
	29	632.00	516.00	633.00	522.00	523.00	572.00	564.00	624.00	542.00	502.00	660.00
	30	532.00	505.00	553.00	542.00	457.00	467.00	562.00	613.00	614.00	640.00	642.00
	31	425.00	452.00	550.00	505.00	560.00	506.00	502.00	550.00	631.00	622.00	657.00
	32	562.00	532.00	507.00	567.00	510.00	570.00	610.00	633.00	630.00	652.00	624.00
	33	572.00	547.00	478.00	501.00	563.00	577.00	474.00	476.00	531.00	662.00	617.00
	34	515.00	623.00	582.00	497.00	577.00	560.00	510.00	530.00	472.00	520.00	607.00
	35	551.00	522.00	507.00	461.00	622.00	616.00	521.00	522.00	512.00	614.00	600.00
	36	603.00	400.00	462.00	512.00	524.00	530.00	571.00	570.00	505.00	596.00	727.00
	37	462.00	516.00	546.00	607.00	541.00	471.00	507.00	603.00	577.00	726.00	592.00
	38	521.00	501.00	600.00	530.00	460.00	546.00	576.00	612.00	567.00	606.00	590.00
	39	592.00	605.00	590.00	506.00	501.00	573.00	575.00	607.00	586.00	572.00	677.00
	40	571.00	540.00	577.00	574.00	575.00	501.00	557.00	624.00	532.00	600.00	603.00
	41	603.00	528.00	577.00	571.00	572.00	595.00	532.00	557.00	521.00	662.00	600.00
	42	570.00	504.00	506.00	588.00	594.00	577.00	611.00	543.00	591.00	586.00	716.00
	43	553.00	457.00	522.00	605.00	553.00	542.00	550.00	554.00	531.00	708.00	672.00
	44	530.00	512.00	620.00	536.00	605.00	546.00	500.00	575.00	703.00	663.00	670.00
	45	616.00	532.00	551.00	522.00	522.00	613.00	671.00	571.00	578.00	595.00	592.00
	46	526.00	536.00	532.00	550.00	533.00	544.00	550.00	620.00	558.00	660.00	700.00

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47	530.00	525.00	600.00	527.00	527.00	672.00	540.00	597.00	570.00	600.00	602.00
48	515.00	603.00	553.00	643.00	642.00	540.00	541.00	505.00	641.00	500.00	725.00
49	643.00	549.00	520.00	540.00	551.00	555.00	616.00	520.00	563.00	604.00	597.00
50	531.00	614.00	521.00	512.00	515.00	520.00	613.00	571.00	654.00	727.00	790.00
51	592.00	536.00	501.00	520.00	530.00	534.00	567.00	630.00	622.00	604.00	505.00
52	506.00	521.00	530.00	590.00	606.00	570.00	671.00	670.00	501.00	639.00	640.00
53	600.00	631.00	616.00	639.00	535.00	644.00	531.00	563.00	656.00	577.00	609.00
54	515.00	503.00	514.00	597.00	595.00	603.00	621.00	637.00	569.00	537.00	597.00
55	626.00	597.00	602.00	527.00	625.00	536.00	631.00	644.00	649.00	600.00	600.00
56	600.00	514.00	513.00	525.00	530.00	620.00	557.00	576.00	576.00	600.00	532.00
57	514.00	513.00	529.00	601.00	607.00	505.00	670.00	679.00	503.00	525.00	644.00
58	570.00	590.00	595.00	636.00	602.00	617.00	570.00	550.00	671.00	650.00	700.00
59	515.00	621.00	526.00	520.00	556.00	544.00	505.00	603.00	605.00	691.00	644.00
60	549.00	603.00	631.00	634.00	630.00	651.00	540.00	773.00	791.00	625.00	701.00
61	624.00	510.00	546.00	545.00	531.00	560.00	755.00	599.00	599.00	699.00	622.00
62	603.00	601.00	712.00	710.00	720.00	742.00	637.00	662.00	670.00	602.00	711.00
63	545.00	539.00	560.00	562.00	554.00	504.00	622.00	643.00	647.00	600.00	734.00
64	555.00	511.00	539.00	542.00	570.00	557.00	611.00	629.00	680.00	722.00	605.00
65	582.00	624.00	573.00	599.00	611.00	622.00	655.00	634.00	501.00	650.00	650.00
66	582.00	573.00	590.00	592.00	609.00	586.00	633.00	670.00	632.00	640.00	653.00
67	559.00	612.00	596.00	581.00	501.00	620.00	610.00	647.00	645.00	644.00	592.00
68	644.00	510.00	620.00	643.00	631.00	630.00	560.00	505.00	509.00	576.00	633.00
69	626.00	553.00	673.00	631.00	665.00	637.00	510.00	380.00	400.00	600.00	550.00
70	607.00	604.00	613.00	619.00	634.00	654.00	635.00	636.00	640.00	507.00	532.00
71	634.00	566.00	536.00	510.00	508.00	513.00	592.00	614.00	605.00	500.00	757.00
72	607.00	483.00	476.00	601.00	610.00	626.00	624.00	554.00	557.00	724.00	690.00
73	476.00	601.00	601.00	549.00	552.00	565.00	653.00	609.00	633.00	607.00	754.00
74	606.00	531.00	573.00	572.00	567.00	630.00	664.00	672.00	614.00	717.00	699.00
75	551.00	676.00	609.00	562.00	622.00	600.00	537.00	600.00	677.00	667.00	651.00
76	577.00	623.00	567.00	620.00	570.00	503.00	611.00	604.00	655.00	600.00	710.00
77	576.00	636.00	609.00	612.00	520.00	645.00	507.00	595.00	602.00	664.00	9999.00
78	606.00	560.00	514.00	579.00	620.00	530.00	642.00	637.00	635.00	9999.00	9999.00
79	605.00	503.00	579.00	517.00	579.00	590.00	500.00	662.00	524.00	9999.00	9999.00
80	546.00	590.00	551.00	554.00	561.00	611.00	523.00	527.00	602.00	9999.00	9999.00
81	552.00	530.00	550.00	556.00	503.00	570.00	640.00	611.00	561.00	9999.00	9999.00
82	543.00	697.00	537.00	560.00	571.00	505.00	597.00	550.00	657.00	9999.00	9999.00
83	541.00	557.00	503.00	629.00	517.00	517.00	519.00	512.00	510.00	9999.00	9999.00
84	577.00	549.00	562.00	570.00	580.00	642.00	665.00	9999.00	9999.00	9999.00	9999.00
85	610.00	531.00	501.00	507.00	642.00	500.00	9999.00	9999.00	9999.00	9999.00	9999.00
86	504.00	545.00	622.00	510.00	521.00	519.00	9999.00	9999.00	9999.00	9999.00	9999.00
87	502.00	477.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
88	9999.00	494.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
89	9999.00	499.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
90	9999.00	562.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
91	9999.00	619.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
92	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00

MEANS	556.47	552.79	557.76	550.50	559.31	565.36	572.19	500.57	506.36	625.01	639.74
STANDARD	54.68	51.54	49.70	50.94	55.30	62.17	60.83	62.62	66.45	71.96	69.24
DEVIATIONS											
#	87	91	96	96	96	96	94	93	93	77	76

* ADJUST PAGE 00 PRINTING HEAD IS JUST ABOVE NEXT PERFORATION *

*** AND PRESS: RETURN ***

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Individual Body Weight Data for Male Rats

DOSE UNITS ARE PPM

INPUT DATA 9999 = DEAD ANIMAL OR MISSING DATA
MEANS THIS VALUE IS EXCLUDED FROM ALL CALCULATIONS

PPM	ANIMAL	DAY 406	DAY 408	DAY 407	DAY 524	DAY 551	DAY 570	DAY 612	DAY 646	DAY 677	DAY 704
0.0	1	667.00	660.00	670.00	667.00	675.00	634.00	647.00	604.00	494.00	506.00
	2	707.00	714.00	720.00	694.00	624.00	666.00	519.00	540.00	550.00	433.00
	3	652.00	690.00	711.00	670.00	453.00	556.00	565.00	420.00	477.00	555.00
	4	602.00	586.00	635.00	606.00	573.00	450.00	533.00	512.00	472.00	566.00
	5	604.00	533.00	566.00	437.00	561.00	570.00	662.00	601.00	614.00	701.00
	6	550.00	579.00	651.00	556.00	538.00	534.00	642.00	615.00	560.00	623.00
	7	537.00	657.00	657.00	640.00	772.00	643.00	352.00	556.00	492.00	400.00
	8	675.00	477.00	670.00	623.00	640.00	1033.00	611.00	561.00	502.00	552.00
	9	630.00	630.00	700.00	536.00	621.00	605.00	607.00	594.00	601.00	527.00
	10	687.00	670.00	583.00	767.00	527.00	470.00	604.00	540.00	916.00	591.00
	11	676.00	545.00	700.00	620.00	400.00	612.00	650.00	654.00	533.00	630.00
	12	470.00	763.00	732.00	639.00	733.00	591.00	566.00	093.00	542.00	546.00
	13	474.00	541.00	637.00	691.00	592.00	574.00	700.00	571.00	550.00	507.00
	14	761.00	670.00	646.00	615.00	611.00	613.00	571.00	462.00	576.00	777.00
	15	535.00	707.00	500.00	545.00	593.00	556.00	607.00	504.00	565.00	607.00
	16	713.00	602.00	647.00	621.00	597.00	551.00	572.00	594.00	642.00	9999.00
	17	723.00	625.00	666.00	630.00	629.00	650.00	662.00	504.00	543.00	9999.00
	18	600.00	539.00	624.00	501.00	571.00	604.00	607.00	674.00	672.00	9999.00
	19	628.00	633.00	666.00	545.00	590.00	591.00	500.00	725.00	601.00	9999.00
	20	567.00	591.00	584.00	624.00	574.00	550.00	577.00	500.00	520.00	9999.00
	21	632.00	633.00	661.00	641.00	614.00	664.00	750.00	507.00	472.00	9999.00
	22	534.00	546.00	696.00	644.00	600.00	657.00	612.00	677.00	712.00	9999.00
	23	620.00	650.00	772.00	655.00	605.00	583.00	656.00	561.00	350.00	9999.00
	24	592.00	670.00	647.00	736.00	702.00	745.00	677.00	503.00	599.00	9999.00
	25	570.00	460.00	707.00	543.00	662.00	624.00	525.00	545.00	9999.00	9999.00
	26	675.00	694.00	682.00	655.00	606.00	647.00	563.00	607.00	9999.00	9999.00
	27	686.00	744.00	703.00	665.00	637.00	614.00	642.00	570.00	9999.00	9999.00
	28	647.00	626.00	561.00	703.00	761.00	657.00	561.00	590.00	9999.00	9999.00
	29	771.00	661.00	686.00	655.00	662.00	638.00	570.00	735.00	9999.00	9999.00
	30	634.00	542.00	811.00	692.00	613.00	676.00	630.00	530.00	9999.00	9999.00
	31	607.00	654.00	720.00	653.00	661.00	479.00	615.00	625.00	9999.00	9999.00
	32	656.00	653.00	682.00	705.00	630.00	547.00	727.00	477.00	9999.00	9999.00
	33	661.00	776.00	731.00	701.00	642.00	651.00	620.00	9999.00	9999.00	9999.00
	34	538.00	671.00	710.00	667.00	365.00	641.00	557.00	9999.00	9999.00	9999.00
	35	660.00	677.00	741.00	547.00	525.00	597.00	628.00	9999.00	9999.00	9999.00
	36	766.00	722.00	603.00	672.00	630.00	637.00	580.00	9999.00	9999.00	9999.00
	37	597.00	719.00	706.00	596.00	535.00	643.00	436.00	9999.00	9999.00	9999.00
	38	680.00	703.00	572.00	561.00	572.00	520.00	9999.00	9999.00	9999.00	9999.00
	39	676.00	606.00	390.00	396.00	641.00	723.00	9999.00	9999.00	9999.00	9999.00
	40	717.00	661.00	637.00	564.00	633.00	465.00	9999.00	9999.00	9999.00	9999.00
	41	715.00	613.00	694.00	672.00	653.00	652.00	9999.00	9999.00	9999.00	9999.00
	42	727.00	564.00	574.00	675.00	603.00	565.00	9999.00	9999.00	9999.00	9999.00
	43	648.00	444.00	708.00	634.00	522.00	524.00	9999.00	9999.00	9999.00	9999.00
	44	603.00	567.00	716.00	710.00	728.00	657.00	9999.00	9999.00	9999.00	9999.00
	45	573.00	691.00	646.00	633.00	430.00	632.00	9999.00	9999.00	9999.00	9999.00
	46	486.00	446.00	626.00	626.00	670.00	446.00	9999.00	9999.00	9999.00	9999.00

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47	627.00	695.00	614.00	530.00	590.00	605.00	9999.00	9999.00	9999.00	9999.00
48	562.00	726.00	630.00	454.00	527.00	551.00	9999.00	9999.00	9999.00	9999.00
49	670.00	691.00	704.00	731.00	590.00	9999.00	9999.00	9999.00	9999.00	9999.00
50	500.00	607.00	562.00	475.00	615.00	9999.00	9999.00	9999.00	9999.00	9999.00
51	683.00	640.00	576.00	750.00	655.00	9999.00	9999.00	9999.00	9999.00	9999.00
52	737.00	641.00	500.00	653.00	620.00	9999.00	9999.00	9999.00	9999.00	9999.00
53	654.00	563.00	754.00	608.00	520.00	9999.00	9999.00	9999.00	9999.00	9999.00
54	607.00	574.00	671.00	575.00	610.00	9999.00	9999.00	9999.00	9999.00	9999.00
55	643.00	723.00	605.00	690.00	507.00	9999.00	9999.00	9999.00	9999.00	9999.00
56	600.00	501.00	507.00	660.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
57	607.00	427.00	624.00	507.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
58	505.00	752.00	670.00	591.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
59	707.00	657.00	667.00	656.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
60	477.00	611.00	606.00	653.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
61	507.00	665.00	667.00	507.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
62	644.00	620.00	605.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
63	751.00	701.00	674.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
64	622.00	600.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
65	626.00	607.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
66	650.00	655.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
67	706.00	622.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
68	721.00	651.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
69	605.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
70	676.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
71	666.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
72	680.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00

MEANS	630.46	631.71	652.41	627.10	606.10	609.37	607.70	597.50	574.96	507.27
STANDARD	70.70	70.56	69.00	77.70	70.20	91.08	76.05	66.03	106.12	134.75
DEVIATIONS										
N=	72	60	60	61	55	40	37	32	24	15

25.000	1	652.00	655.00	676.00	562.00	567.00	545.00	546.00	576.00	435.00	617.00
	2	679.00	660.00	637.00	463.00	525.00	507.00	447.00	451.00	635.00	400.00
	3	620.00	610.00	476.00	453.00	500.00	504.00	467.00	637.00	567.00	464.00
	4	560.00	555.00	404.00	460.00	685.00	655.00	660.00	707.00	541.00	570.00
	5	646.00	745.00	611.00	636.00	640.00	570.00	407.00	503.00	507.00	643.00
	6	577.00	642.00	567.00	551.00	625.00	591.00	512.00	591.00	647.00	551.00
	7	675.00	646.00	577.00	634.00	625.00	611.00	602.00	561.00	452.00	430.00
	8	655.00	603.00	514.00	644.00	620.00	720.00	606.00	620.00	531.00	413.00
	9	635.00	577.00	644.00	645.00	639.00	645.00	719.00	641.00	677.00	601.00
	10	605.00	631.00	637.00	740.00	672.00	570.00	507.00	524.00	570.00	503.00
	11	640.00	634.00	640.00	646.00	754.00	620.00	601.00	620.00	567.00	522.00
	12	620.00	627.00	737.00	663.00	623.00	567.00	572.00	535.00	440.00	577.00
	13	743.00	730.00	650.00	540.00	652.00	630.00	627.00	593.00	427.00	573.00
	14	652.00	642.00	654.00	502.00	664.00	605.00	620.00	661.00	534.00	9999.00
	15	637.00	657.00	640.00	647.00	575.00	591.00	555.00	442.00	677.00	9999.00
	16	640.00	632.00	604.00	477.00	433.00	637.00	630.00	437.00	627.00	9999.00
	17	730.00	590.00	476.00	430.00	630.00	615.00	621.00	450.00	426.00	9999.00
	18	605.00	310.00	617.00	630.00	552.00	508.00	507.00	501.00	504.00	9999.00
	19	653.00	602.00	637.00	592.00	620.00	634.00	606.00	709.00	620.00	9999.00
	20	649.00	594.00	505.00	557.00	625.00	499.00	603.00	631.00	506.00	9999.00
	21	577.00	610.00	630.00	656.00	637.00	677.00	510.00	603.00	9999.00	9999.00
	22	604.00	551.00	777.00	620.00	651.00	530.00	471.00	469.00	9999.00	9999.00
	23	622.00	574.00	593.00	660.00	470.00	547.00	541.00	675.00	9999.00	9999.00
	24	601.00	622.00	631.00	650.00	620.00	504.00	520.00	437.00	9999.00	9999.00
	25	605.00	661.00	659.00	630.00	474.00	597.00	547.00	600.00	9999.00	9999.00
	26	619.00	729.00	677.00	467.00	553.00	524.00	594.00	404.00	9999.00	9999.00
	27	716.00	631.00	670.00	412.00	603.00	666.00	711.00	9999.00	9999.00	9999.00
	28	634.00	651.00	641.00	530.00	535.00	742.00	605.00	9999.00	9999.00	9999.00
	29	636.00	672.00	567.00	702.00	732.00	599.00	624.00	9999.00	9999.00	9999.00

30	670.00	675.00	574.00	660.00	572.00	603.00	424.00	9999.00	9999.00	9999.00
31	661.00	606.00	622.00	512.00	539.00	314.00	510.00	9999.00	9999.00	9999.00
32	600.00	562.00	652.00	620.00	543.00	630.00	472.00	9999.00	9999.00	9999.00
33	607.00	634.00	673.00	604.00	625.00	540.00	700.00	9999.00	9999.00	9999.00
34	625.00	603.00	680.00	569.00	547.00	543.00	607.00	9999.00	9999.00	9999.00
35	563.00	641.00	642.00	722.00	453.00	343.00	600.00	9999.00	9999.00	9999.00
36	632.00	675.00	502.00	560.00	682.00	324.00	531.00	9999.00	9999.00	9999.00
37	603.00	671.00	710.00	543.00	742.00	772.00	9999.00	9999.00	9999.00	9999.00
38	667.00	502.00	574.00	503.00	526.00	604.00	9999.00	9999.00	9999.00	9999.00
39	662.00	664.00	566.00	500.00	621.00	610.00	9999.00	9999.00	9999.00	9999.00
40	657.00	621.00	602.00	501.00	363.00	642.00	9999.00	9999.00	9999.00	9999.00
41	712.00	570.00	584.00	623.00	644.00	541.00	9999.00	9999.00	9999.00	9999.00
42	570.00	560.00	620.00	612.00	560.00	9999.00	9999.00	9999.00	9999.00	9999.00
43	576.00	503.00	570.00	554.00	540.00	9999.00	9999.00	9999.00	9999.00	9999.00
44	701.00	601.00	622.00	550.00	319.00	9999.00	9999.00	9999.00	9999.00	9999.00
45	563.00	573.00	625.00	672.00	553.00	9999.00	9999.00	9999.00	9999.00	9999.00
46	522.00	610.00	552.00	522.00	700.00	9999.00	9999.00	9999.00	9999.00	9999.00
47	520.00	640.00	613.00	750.00	636.00	9999.00	9999.00	9999.00	9999.00	9999.00
48	621.00	610.00	552.00	672.00	651.00	9999.00	9999.00	9999.00	9999.00	9999.00
49	572.00	567.00	570.00	653.00	671.00	9999.00	9999.00	9999.00	9999.00	9999.00
50	610.00	623.00	653.00	260.00	532.00	9999.00	9999.00	9999.00	9999.00	9999.00
51	630.00	623.00	753.00	487.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
52	583.00	647.00	573.00	406.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
53	634.00	522.00	645.00	532.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
54	613.00	732.00	526.00	442.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
55	647.00	553.00	645.00	722.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
56	657.00	553.00	520.00	541.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
57	604.00	662.00	381.00	642.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
58	526.00	622.00	444.00	684.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
59	538.00	642.00	514.00	725.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
60	725.00	342.00	562.00	552.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
61	567.00	521.00	721.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
62	650.00	340.00	770.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
63	640.00	511.00	568.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
64	561.00	707.00	634.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
65	402.00	621.00	624.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
66	654.00	605.00	741.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
67	300.00	575.00	575.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
68	520.00	702.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
69	421.00	645.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
70	777.00	750.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
71	634.00	573.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
72	602.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
73	663.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
74	630.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
75	711.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
76	762.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
77	740.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00

MEANS	623.26	610.00	614.24	585.60	526.34	575.20	582.11	562.04	554.65	542.62
STANDARD	77.10	61.16	77.75	96.05	91.37	100.62	75.36	86.31	64.43	60.62
DEVIATIONS										
N	77	71	67	60	50	41	36	26	20	13

75.000	1	652.00	623.00	710.00	581.00	548.00	551.00	571.00	542.00	513.00	420.00
	2	731.00	722.00	615.00	664.00	612.00	572.00	522.00	602.00	602.00	582.00
	3	710.00	660.00	661.00	675.00	534.00	572.00	574.00	401.00	460.00	415.00
	4	610.00	655.00	644.00	667.00	582.00	576.00	524.00	526.00	500.00	375.00
	5	662.00	625.00	602.00	602.00	551.00	578.00	564.00	320.00	457.00	430.00
	6	653.00	525.00	622.00	624.00	563.00	372.00	364.00	415.00	556.00	521.00
	7	633.00	623.00	622.00	626.00	550.00	551.00	558.00	582.00	452.00	552.00

0	603.00	607.00	537.00	607.00	574.00	530.00	467.00	503.00	542.00	540.00
9	715.00	541.00	617.00	626.00	335.00	471.00	458.00	605.00	577.00	564.00
10	642.00	609.00	603.00	442.00	417.00	576.00	604.00	601.00	555.00	594.00
11	620.00	601.00	444.00	413.00	503.00	605.00	593.00	561.00	301.00	705.00
12	611.00	453.00	405.00	500.00	567.00	560.00	610.00	477.00	635.00	9999.00
13	494.00	413.00	513.00	569.00	544.00	605.00	584.00	601.00	601.00	9999.00
14	420.00	511.00	605.00	597.00	673.00	766.00	577.00	472.00	593.00	9999.00
15	516.00	604.00	592.00	391.00	577.00	602.00	544.00	551.00	611.00	9999.00
16	410.00	670.00	565.00	554.00	617.00	610.00	599.00	625.00	9999.00	9999.00
17	602.00	668.00	599.00	694.00	536.00	617.00	611.00	626.00	9999.00	9999.00
18	605.00	610.00	594.00	612.00	607.00	502.00	552.00	430.00	9999.00	9999.00
19	602.00	503.00	602.00	500.00	752.00	495.00	494.00	601.00	9999.00	9999.00
20	592.00	601.00	600.00	644.00	605.00	612.00	579.00	607.00	9999.00	9999.00
21	626.00	705.00	622.00	602.00	606.00	621.00	590.00	9999.00	9999.00	9999.00
22	554.00	564.00	673.00	627.00	395.00	617.00	517.00	9999.00	9999.00	9999.00
23	725.00	666.00	504.00	767.00	593.00	547.00	430.00	9999.00	9999.00	9999.00
24	609.00	650.00	650.00	642.00	566.00	658.00	600.00	9999.00	9999.00	9999.00
25	673.00	581.00	751.00	605.00	397.00	636.00	632.00	9999.00	9999.00	9999.00
26	598.00	604.00	620.00	643.00	541.00	569.00	563.00	9999.00	9999.00	9999.00
27	670.00	759.00	647.00	445.00	459.00	453.00	647.00	9999.00	9999.00	9999.00
28	753.00	670.00	665.00	631.00	603.00	582.00	619.00	9999.00	9999.00	9999.00
29	610.00	660.00	652.00	557.00	429.00	502.00	657.00	9999.00	9999.00	9999.00
30	643.00	641.00	503.00	560.00	599.00	453.00	633.00	9999.00	9999.00	9999.00
31	676.00	600.00	542.00	614.00	614.00	610.00	640.00	9999.00	9999.00	9999.00
32	667.00	695.00	704.00	676.00	626.00	591.00	9999.00	9999.00	9999.00	9999.00
33	609.00	602.00	729.00	575.00	592.00	610.00	9999.00	9999.00	9999.00	9999.00
34	630.00	722.00	587.00	502.00	600.00	370.00	9999.00	9999.00	9999.00	9999.00
35	709.00	612.00	603.00	392.00	620.00	620.00	9999.00	9999.00	9999.00	9999.00
36	619.00	603.00	600.00	625.00	605.00	643.00	9999.00	9999.00	9999.00	9999.00
37	743.00	602.00	502.00	643.00	644.00	645.00	9999.00	9999.00	9999.00	9999.00
38	624.00	667.00	676.00	660.00	507.00	573.00	9999.00	9999.00	9999.00	9999.00
39	600.00	580.00	653.00	695.00	590.00	646.00	9999.00	9999.00	9999.00	9999.00
40	616.00	570.00	550.00	599.00	620.00	637.00	9999.00	9999.00	9999.00	9999.00
41	603.00	645.00	475.00	602.00	641.00	676.00	9999.00	9999.00	9999.00	9999.00
42	690.00	683.00	616.00	699.00	645.00	657.00	9999.00	9999.00	9999.00	9999.00
43	679.00	679.00	600.00	660.00	595.00	657.00	9999.00	9999.00	9999.00	9999.00
44	591.00	702.00	591.00	747.00	641.00	9999.00	9999.00	9999.00	9999.00	9999.00
45	609.00	613.00	502.00	517.00	520.00	9999.00	9999.00	9999.00	9999.00	9999.00
46	701.00	591.00	699.00	535.00	636.00	9999.00	9999.00	9999.00	9999.00	9999.00
47	714.00	713.00	592.00	661.00	644.00	9999.00	9999.00	9999.00	9999.00	9999.00
48	727.00	592.00	609.00	664.00	571.00	9999.00	9999.00	9999.00	9999.00	9999.00
49	598.00	612.00	754.00	708.00	627.00	9999.00	9999.00	9999.00	9999.00	9999.00
50	599.00	770.00	478.00	626.00	666.00	9999.00	9999.00	9999.00	9999.00	9999.00
51	790.00	552.00	732.00	690.00	660.00	9999.00	9999.00	9999.00	9999.00	9999.00
52	572.00	625.00	535.00	663.00	637.00	9999.00	9999.00	9999.00	9999.00	9999.00
53	621.00	542.00	536.00	681.00	702.00	9999.00	9999.00	9999.00	9999.00	9999.00
54	578.00	690.00	678.00	589.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
55	702.00	687.00	669.00	659.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
56	657.00	548.00	705.00	493.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
57	547.00	658.00	600.00	730.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
58	717.00	680.00	722.00	701.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
59	705.00	716.00	600.00	757.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
60	667.00	615.00	663.00	824.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
61	727.00	716.00	601.00	722.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
62	630.00	654.00	506.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
63	684.00	662.00	665.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
64	731.00	661.00	494.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
65	645.00	592.00	534.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
66	670.00	646.00	704.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
67	598.00	569.00	730.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
68	650.00	455.00	779.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
69	531.00	737.00	702.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
70	511.00	702.00	641.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00

71	702.00	706.00	720.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
72	710.00	740.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
73	777.00	709.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
74	731.00	631.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
MEANS	645.01	635.24	620.62	610.39	503.75	505.04	562.13	541.05	500.10	529.55
STANDARD	74.37	70.34	77.40	95.14	81.29	83.40	66.92	87.07	72.47	90.21
DEVIATIONS										
N=	74	74	71	61	53	43	31	20	15	11

* ADJUST PAGE 00 PRINTING HEAD IS JUST ABOVE NEXT PERFORATION *
 **** AND PRESS: RETURN ****

SL 082417

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Individual Body Weight Data for Female Rats

DOSE UNITS ARE PPM

INPUT DATA 9999 = DEAD ANIMAL OR MISSING DATA
MEANS THIS VALUE IS EXCLUDED FROM ALL CALCULATIONS

PPM	ANIMAL	DAY 0	DAY 8	DAY 16	DAY 24	DAY 32	DAY 40	DAY 48	DAY 56	DAY 64	DAY 72	DAY 80	DAY 88
0.0	1	197.00	223.00	240.00	244.00	257.00	271.00	250.00	267.00	300.00	250.00	250.00	
	2	215.00	223.00	227.00	231.00	241.00	271.00	300.00	271.00	311.00	323.00	330.00	
	3	226.00	232.00	237.00	233.00	243.00	254.00	267.00	269.00	279.00	312.00	355.00	
	4	209.00	226.00	261.00	274.00	290.00	240.00	272.00	281.00	310.00	302.00	316.00	
	5	207.00	214.00	244.00	224.00	225.00	232.00	266.00	310.00	336.00	306.00	335.00	
	6	210.00	227.00	251.00	250.00	264.00	269.00	300.00	240.00	316.00	336.00	347.00	
	7	202.00	231.00	250.00	251.00	255.00	269.00	244.00	277.00	299.00	310.00	317.00	
	8	217.00	220.00	216.00	245.00	266.00	259.00	265.00	301.00	255.00	326.00	315.00	
	9	219.00	250.00	230.00	242.00	267.00	260.00	269.00	280.00	300.00	276.00	306.00	
	10	215.00	230.00	256.00	265.00	246.00	260.00	265.00	266.00	287.00	316.00	334.00	
	11	207.00	224.00	236.00	250.00	250.00	255.00	264.00	306.00	307.00	300.00	305.00	
	12	200.00	231.00	240.00	251.00	252.00	256.00	264.00	270.00	320.00	340.00	340.00	
	13	201.00	224.00	230.00	240.00	247.00	270.00	205.00	283.00	310.00	336.00	310.00	
	14	212.00	242.00	237.00	252.00	255.00	246.00	244.00	257.00	344.00	360.00	346.00	
	15	230.00	232.00	234.00	232.00	270.00	304.00	272.00	270.00	270.00	310.00	376.00	
	16	207.00	200.00	264.00	247.00	251.00	265.00	312.00	323.00	262.00	267.00	275.00	
	17	202.00	232.00	234.00	255.00	254.00	242.00	253.00	274.00	272.00	310.00	314.00	
	18	206.00	234.00	237.00	240.00	254.00	265.00	274.00	276.00	306.00	271.00	275.00	
	19	215.00	247.00	221.00	235.00	234.00	260.00	276.00	272.00	312.00	266.00	344.00	
	20	213.00	217.00	226.00	250.00	255.00	267.00	267.00	307.00	282.00	314.00	321.00	
	21	214.00	230.00	226.00	242.00	247.00	252.00	252.00	271.00	304.00	349.00	326.00	
	22	211.00	224.00	242.00	241.00	270.00	263.00	271.00	286.00	323.00	310.00	357.00	
	23	219.00	231.00	231.00	260.00	267.00	277.00	283.00	317.00	327.00	320.00	352.00	
	24	203.00	230.00	245.00	240.00	247.00	276.00	250.00	270.00	271.00	300.00	315.00	
	25	210.00	220.00	236.00	257.00	266.00	256.00	270.00	272.00	329.00	347.00	336.00	
	26	219.00	236.00	235.00	267.00	254.00	250.00	259.00	279.00	265.00	322.00	320.00	
	27	217.00	221.00	240.00	254.00	267.00	279.00	275.00	270.00	329.00	275.00	276.00	
	28	219.00	228.00	227.00	242.00	276.00	266.00	267.00	309.00	310.00	346.00	347.00	
	29	209.00	207.00	237.00	239.00	246.00	262.00	281.00	234.00	277.00	272.00	307.00	
	30	205.00	229.00	217.00	240.00	255.00	257.00	267.00	265.00	306.00	303.00	271.00	
	31	197.00	220.00	221.00	236.00	243.00	239.00	253.00	270.00	267.00	303.00	324.00	
	32	190.00	214.00	241.00	239.00	239.00	232.00	260.00	274.00	275.00	270.00	274.00	
	33	203.00	222.00	223.00	251.00	227.00	250.00	243.00	255.00	261.00	307.00	313.00	
	34	206.00	219.00	225.00	224.00	257.00	266.00	269.00	265.00	301.00	330.00	326.00	
	35	215.00	232.00	242.00	260.00	267.00	276.00	266.00	277.00	306.00	270.00	334.00	
	36	206.00	233.00	233.00	249.00	246.00	267.00	262.00	265.00	306.00	318.00	331.00	
	37	209.00	237.00	247.00	245.00	252.00	250.00	264.00	263.00	311.00	317.00	276.00	
	38	203.00	234.00	225.00	256.00	252.00	293.00	275.00	312.00	311.00	342.00	354.00	
	39	220.00	237.00	245.00	254.00	256.00	250.00	275.00	274.00	351.00	272.00	320.00	
	40	212.00	219.00	240.00	244.00	271.00	270.00	270.00	277.00	265.00	321.00	334.00	
	41	210.00	222.00	246.00	262.00	265.00	263.00	262.00	311.00	333.00	307.00	325.00	
	42	212.00	220.00	248.00	261.00	269.00	275.00	284.00	272.00	316.00	306.00	347.00	
	43	221.00	225.00	243.00	260.00	270.00	262.00	294.00	302.00	307.00	329.00	336.00	
	44	206.00	234.00	237.00	243.00	240.00	267.00	276.00	283.00	310.00	312.00	314.00	
	45	207.00	243.00	231.00	250.00	259.00	266.00	269.00	286.00	275.00	310.00	344.00	
	46	204.00	227.00	222.00	254.00	261.00	262.00	260.00	280.00	304.00	304.00	275.00	

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47	193.00	220.00	232.00	243.00	247.00	275.00	279.00	288.00	279.00	300.00	324.00
48	211.00	225.00	240.00	250.00	264.00	270.00	260.00	300.00	310.00	297.00	321.00
49	205.00	229.00	234.00	251.00	253.00	247.00	280.00	260.00	304.00	300.00	303.00
50	200.00	217.00	236.00	251.00	258.00	269.00	274.00	289.00	305.00	311.00	320.00
51	200.00	224.00	232.00	252.00	261.00	270.00	274.00	288.00	299.00	301.00	355.00
52	200.00	225.00	224.00	229.00	249.00	250.00	281.00	300.00	315.00	325.00	321.00
53	202.00	219.00	241.00	250.00	267.00	275.00	287.00	303.00	320.00	342.00	324.00
54	221.00	222.00	237.00	250.00	268.00	274.00	302.00	295.00	304.00	321.00	336.00
55	214.00	231.00	247.00	261.00	259.00	287.00	277.00	310.00	322.00	337.00	345.00
56	205.00	242.00	227.00	244.00	267.00	262.00	270.00	280.00	309.00	330.00	303.00
57	207.00	235.00	237.00	245.00	250.00	263.00	280.00	290.00	310.00	345.00	351.00
58	204.00	233.00	230.00	250.00	256.00	277.00	270.00	307.00	320.00	310.00	345.00
59	210.00	232.00	234.00	244.00	260.00	297.00	285.00	302.00	290.00	340.00	304.00
60	220.00	231.00	232.00	255.00	270.00	245.00	304.00	320.00	326.00	300.00	315.00
61	210.00	230.00	241.00	270.00	251.00	275.00	275.00	281.00	341.00	340.00	410.00
62	200.00	230.00	225.00	251.00	260.00	305.00	305.00	321.00	327.00	305.00	303.00
63	200.00	247.00	249.00	270.00	285.00	307.00	311.00	342.00	352.00	320.00	344.00
64	217.00	229.00	240.00	260.00	266.00	285.00	290.00	306.00	361.00	357.00	351.00
65	225.00	204.00	211.00	272.00	267.00	282.00	275.00	300.00	325.00	325.00	327.00
66	200.00	210.00	217.00	252.00	256.00	245.00	304.00	290.00	340.00	300.00	340.00
67	200.00	220.00	244.00	261.00	270.00	296.00	284.00	304.00	310.00	361.00	345.00
68	200.00	200.00	200.00	240.00	262.00	290.00	290.00	304.00	320.00	375.00	360.00
69	200.00	203.00	200.00	220.00	225.00	290.00	240.00	250.00	270.00	300.00	325.00
70	190.00	240.00	254.00	227.00	183.00	205.00	240.00	260.00	270.00	345.00	357.00
71	221.00	222.00	230.00	254.00	255.00	290.00	271.00	321.00	355.00	280.00	360.00
72	292.00	200.00	245.00	241.00	260.00	292.00	300.00	315.00	307.00	311.00	297.00
73	244.00	250.00	271.00	260.00	260.00	260.00	295.00	282.00	307.00	307.00	311.00
74	211.00	232.00	250.00	240.00	261.00	275.00	270.00	292.00	301.00	307.00	314.00
75	205.00	224.00	241.00	257.00	256.00	280.00	294.00	321.00	301.00	330.00	323.00
76	210.00	247.00	230.00	240.00	270.00	260.00	270.00	280.00	320.00	300.00	354.00
77	210.00	247.00	244.00	250.00	261.00	270.00	281.00	292.00	312.00	340.00	329.00
78	204.00	242.00	245.00	250.00	264.00	270.00	260.00	287.00	310.00	320.00	320.00
79	207.00	220.00	200.00	250.00	259.00	267.00	287.00	302.00	317.00	325.00	355.00
80	210.00	210.00	241.00	250.00	250.00	270.00	275.00	290.00	302.00	301.00	359.00
81	205.00	245.00	231.00	245.00	255.00	280.00	270.00	297.00	325.00	350.00	326.00
82	217.00	237.00	254.00	240.00	277.00	266.00	290.00	289.00	299.00	320.00	341.00
83	207.00	217.00	226.00	264.00	265.00	282.00	274.00	290.00	319.00	315.00	354.00
84	217.00	242.00	245.00	260.00	266.00	282.00	280.00	301.00	319.00	335.00	334.00
85	227.00	251.00	240.00	247.00	287.00	289.00	280.00	295.00	324.00	317.00	366.00
86	205.00	239.00	236.00	250.00	259.00	282.00	291.00	302.00	320.00	344.00	334.00
87	217.00	242.00	259.00	264.00	271.00	264.00	302.00	319.00	312.00	322.00	345.00
88	202.00	237.00	241.00	279.00	262.00	260.00	270.00	311.00	342.00	339.00	346.00
89	210.00	236.00	247.00	266.00	270.00	287.00	282.00	306.00	320.00	354.00	357.00
90	210.00	220.00	250.00	260.00	262.00	287.00	288.00	290.00	317.00	326.00	335.00
91	220.00	245.00	247.00	260.00	280.00	272.00	295.00	301.00	310.00	340.00	357.00
92	217.00	232.00	249.00	279.00	247.00	282.00	290.00	320.00	335.00	344.00	370.00
93	212.00	222.00	225.00	271.00	277.00	282.00	300.00	310.00	336.00	321.00	347.00
94	210.00	239.00	242.00	260.00	271.00	255.00	260.00	302.00	299.00	305.00	327.00
95	204.00	220.00	250.00	242.00	265.00	301.00	290.00	280.00	310.00	342.00	350.00
96	226.00	240.00	253.00	272.00	292.00	310.00	305.00	324.00	304.00	3777.00	3777.00
97	206.00	230.00	257.00	280.00	240.00	3777.00	3777.00	3777.00	3777.00	3777.00	3777.00
98	192.00	220.00	220.00	241.00	300.00	3777.00	3777.00	3777.00	3777.00	3777.00	3777.00
99	191.00	229.00	222.00	270.00	247.00	3777.00	3777.00	3777.00	3777.00	3777.00	3777.00
100	200.00	231.00	250.00	232.00	3777.00	3777.00	3777.00	3777.00	3777.00	3777.00	3777.00

MEANS	210.24	230.20	230.40	252.07	259.52	269.09	270.70	294.14	311.20	322.03	332.67
STANDARD	0.61	10.10	11.61	12.94	15.00	16.37	15.79	17.49	20.95	21.72	25.00
DEVIATIONS											
N=	100	100	100	100	99	96	96	96	96	95	95

25.000	1	227.00	221.00	267.00	239.00	260.00	260.00	265.00	269.00	231.00	300.00	204.00
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2	201.00	203.00	240.00	267.00	274.00	207.00	274.00	317.00	347.00	323.00	345.00
3	217.00	212.00	247.00	243.00	240.00	272.00	300.00	297.00	377.00	370.00	300.00
4	202.00	216.00	225.00	220.00	243.00	261.00	240.00	292.00	306.00	320.00	323.00
5	201.00	209.00	252.00	226.00	229.00	202.00	200.00	272.00	325.00	350.00	290.00
6	222.00	242.00	215.00	225.00	263.00	254.00	200.00	304.00	201.00	357.00	350.00
7	205.00	202.00	227.00	201.00	251.00	272.00	262.00	271.00	290.00	304.00	207.00
8	220.00	209.00	202.00	207.00	202.00	250.00	270.00	290.00	303.00	302.00	354.00
9	202.00	205.00	240.00	241.00	265.00	270.00	270.00	294.00	325.00	270.00	370.00
10	220.00	212.00	225.00	264.00	242.00	294.00	200.00	270.00	345.00	340.00	323.00
11	197.00	217.00	257.00	241.00	240.00	267.00	255.00	200.00	295.00	200.00	310.00
12	193.00	209.00	201.00	229.00	277.00	250.00	305.00	300.00	295.00	300.00	316.00
13	225.00	200.00	207.00	240.00	207.00	305.00	274.00	207.00	304.00	300.00	301.00
14	220.00	206.00	264.00	271.00	252.00	260.00	290.00	312.00	352.00	342.00	364.00
15	207.00	201.00	260.00	250.00	275.00	300.00	300.00	341.00	344.00	350.00	375.00
16	204.00	225.00	230.00	270.00	245.00	302.00	270.00	292.00	305.00	305.00	314.00
17	220.00	215.00	220.00	245.00	202.00	250.00	261.00	262.00	361.00	300.00	295.00
18	203.00	207.00	262.00	220.00	254.00	267.00	312.00	241.00	200.00	302.00	302.00
19	214.00	245.00	250.00	220.00	247.00	200.00	274.00	300.00	304.00	300.00	301.00
20	222.00	222.00	207.00	240.00	260.00	270.00	270.00	294.00	315.00	295.00	364.00
21	210.00	226.00	260.00	240.00	264.00	205.00	301.00	327.00	327.00	305.00	305.00
22	217.00	220.00	205.00	250.00	274.00	200.00	204.00	302.00	350.00	304.00	307.00
23	210.00	234.00	200.00	246.00	260.00	202.00	207.00	324.00	300.00	340.00	351.00
24	210.00	229.00	236.00	262.00	260.00	294.00	309.00	310.00	321.00	322.00	364.00
25	207.00	220.00	250.00	205.00	266.00	276.00	274.00	290.00	340.00	320.00	314.00
26	224.00	209.00	200.00	232.00	242.00	260.00	300.00	292.00	296.00	310.00	345.00
27	205.00	252.00	270.00	265.00	240.00	200.00	271.00	322.00	312.00	340.00	316.00
28	201.00	207.00	250.00	229.00	242.00	266.00	292.00	320.00	202.00	370.00	371.00
29	217.00	217.00	200.00	272.00	200.00	295.00	320.00	270.00	305.00	290.00	362.00
30	204.00	230.00	245.00	259.00	275.00	302.00	260.00	345.00	350.00	322.00	306.00
31	221.00	221.00	240.00	252.00	267.00	290.00	207.00	310.00	320.00	320.00	400.00
32	220.00	215.00	251.00	256.00	250.00	200.00	200.00	290.00	310.00	350.00	344.00
33	207.00	229.00	254.00	244.00	250.00	275.00	309.00	325.00	347.00	290.00	360.00
34	216.00	220.00	201.00	262.00	262.00	200.00	300.00	320.00	310.00	300.00	307.00
35	214.00	217.00	240.00	245.00	254.00	305.00	260.00	201.00	351.00	202.00	340.00
36	210.00	224.00	245.00	206.00	202.00	262.00	206.00	292.00	321.00	260.00	310.00
37	190.00	202.00	215.00	214.00	242.00	240.00	260.00	272.00	202.00	365.00	350.00
38	220.00	222.00	250.00	207.00	200.00	275.00	272.00	294.00	200.00	305.00	354.00
39	203.00	219.00	207.00	240.00	250.00	262.00	262.00	207.00	306.00	340.00	317.00
40	215.00	204.00	242.00	260.00	250.00	270.00	240.00	272.00	310.00	301.00	300.00
41	222.00	224.00	252.00	247.00	270.00	295.00	300.00	314.00	297.00	344.00	301.00
42	210.00	241.00	244.00	240.00	260.00	207.00	300.00	340.00	355.00	324.00	357.00
43	224.00	207.00	242.00	202.00	290.00	204.00	202.00	327.00	307.00	312.00	304.00
44	202.00	210.00	270.00	250.00	260.00	310.00	204.00	321.00	301.00	361.00	354.00
45	206.00	222.00	240.00	244.00	262.00	207.00	270.00	200.00	306.00	307.00	307.00
46	220.00	243.00	200.00	206.00	222.00	200.00	206.00	305.00	325.00	357.00	302.00
47	215.00	211.00	252.00	245.00	272.00	279.00	201.00	314.00	320.00	300.00	364.00
48	206.00	224.00	234.00	250.00	250.00	290.00	204.00	312.00	320.00	370.00	361.00
49	219.00	204.00	250.00	271.00	201.00	305.00	290.00	310.00	360.00	350.00	392.00
50	220.00	222.00	250.00	250.00	260.00	291.00	205.00	344.00	310.00	320.00	340.00
51	210.00	220.00	260.00	261.00	260.00	209.00	310.00	325.00	340.00	294.00	304.00
52	207.00	212.00	244.00	245.00	255.00	206.00	200.00	322.00	324.00	341.00	312.00
53	214.00	195.00	245.00	202.00	260.00	270.00	202.00	300.00	312.00	310.00	370.00
54	219.00	226.00	234.00	240.00	240.00	260.00	260.00	200.00	294.00	316.00	314.00
55	207.00	211.00	245.00	264.00	264.00	301.00	271.00	205.00	290.00	340.00	360.00
56	215.00	224.00	244.00	200.00	205.00	267.00	292.00	320.00	340.00	306.00	341.00
57	215.00	220.00	245.00	246.00	250.00	204.00	294.00	300.00	325.00	354.00	344.00
58	204.00	224.00	222.00	252.00	202.00	314.00	254.00	312.00	322.00	340.00	310.00
59	201.00	202.00	200.00	274.00	260.00	277.00	201.00	300.00	302.00	312.00	300.00
60	207.00	209.00	220.00	227.00	240.00	265.00	265.00	200.00	290.00	312.00	340.00
61	215.00	226.00	200.00	240.00	252.00	201.00	200.00	312.00	320.00	364.00	305.00
62	195.00	210.00	260.00	257.00	261.00	274.00	202.00	305.00	324.00	352.00	320.00
63	215.00	219.00	202.00	250.00	262.00	254.00	290.00	310.00	320.00	302.00	354.00
64	200.00	226.00	250.00	245.00	200.00	292.00	257.00	270.00	202.00	361.00	350.00

65	201.00	245.00	207.00	247.00	253.00	272.00	275.00	290.00	315.00	327.00	342.00
66	210.00	214.00	274.00	272.00	257.00	315.00	200.00	295.00	345.00	335.00	391.00
67	190.00	221.00	220.00	252.00	260.00	303.00	301.00	352.00	330.00	322.00	374.00
68	222.00	206.00	250.00	272.00	290.00	267.00	322.00	340.00	370.00	314.00	304.00
69	217.00	225.00	240.00	230.00	292.00	266.00	283.00	310.00	326.00	345.00	376.00
70	202.00	219.00	242.00	247.00	246.00	246.00	230.00	342.00	342.00	292.00	274.00
71	204.00	220.00	263.00	223.00	225.00	255.00	261.00	257.00	264.00	329.00	345.00
72	215.00	211.00	225.00	242.00	255.00	304.00	315.00	270.00	203.00	293.00	335.00
73	222.00	243.00	246.00	251.00	232.00	270.00	204.00	303.00	324.00	340.00	374.00
74	201.00	223.00	234.00	240.00	252.00	272.00	273.00	295.00	302.00	321.00	345.00
75	226.00	222.00	254.00	233.00	262.00	242.00	277.00	292.00	305.00	375.00	334.00
76	211.00	202.00	245.00	240.00	255.00	205.00	252.00	274.00	203.00	307.00	290.00
77	212.00	204.00	231.00	230.00	264.00	270.00	293.00	312.00	322.00	337.00	344.00
78	194.00	222.00	251.00	235.00	235.00	266.00	203.00	277.00	327.00	354.00	341.00
79	221.00	224.00	256.00	256.00	242.00	247.00	255.00	273.00	205.00	335.00	347.00
80	217.00	214.00	232.00	257.00	266.00	207.00	202.00	302.00	315.00	347.00	357.00
81	212.00	216.00	251.00	242.00	253.00	207.00	277.00	275.00	325.00	272.00	334.00
82	227.00	206.00	265.00	251.00	272.00	261.00	250.00	291.00	305.00	330.00	355.00
83	210.00	224.00	244.00	236.00	252.00	262.00	276.00	307.00	310.00	360.00	312.00
84	211.00	223.00	236.00	255.00	245.00	266.00	263.00	235.00	272.00	352.00	373.00
85	211.00	222.00	232.00	233.00	264.00	276.00	204.00	303.00	301.00	323.00	357.00
86	200.00	213.00	250.00	251.00	256.00	273.00	202.00	292.00	295.00	360.00	317.00
87	224.00	212.00	243.00	242.00	265.00	272.00	271.00	203.00	300.00	342.00	347.00
88	224.00	204.00	242.00	237.00	245.00	264.00	275.00	300.00	329.00	307.00	315.00
89	211.00	222.00	221.00	250.00	260.00	260.00	293.00	312.00	322.00	300.00	340.00
90	205.00	200.00	233.00	246.00	266.00	203.00	204.00	316.00	347.00	333.00	370.00
91	204.00	223.00	237.00	210.00	247.00	206.00	262.00	335.00	306.00	276.00	336.00
92	222.00	231.00	250.00	237.00	241.00	243.00	260.00	280.00	205.00	320.00	315.00
93	214.00	212.00	216.00	240.00	255.00	264.00	262.00	204.00	304.00	325.00	342.00
94	206.00	223.00	243.00	247.00	256.00	274.00	282.00	306.00	312.00	302.00	338.00
95	194.00	232.00	234.00	222.00	232.00	201.00	260.00	277.00	286.00	335.00	326.00
96	191.00	212.00	242.00	262.00	253.00	256.00	273.00	292.00	316.00	330.00	372.00
97	212.00	235.00	222.00	232.00	251.00	272.00	272.00	272.00	272.00	272.00	272.00
98	217.00	230.00	240.00	243.00	266.00	272.00	272.00	272.00	272.00	272.00	272.00
99	216.00	202.00	250.00	250.00	270.00	272.00	272.00	272.00	272.00	272.00	272.00
100	202.00	214.00	247.00	272.00	255.00	272.00	272.00	272.00	272.00	272.00	272.00

MEANS	212.50	221.30	243.40	246.52	258.60	277.72	290.04	301.51	317.20	322.17	342.63
STANDARD	2.97	11.31	13.44	14.65	15.00	16.60	17.55	21.72	24.61	24.74	28.22
DEVIATIONS											
N=	100	100	100	72	100	96	96	96	96	96	95

75.000	1	210.00	234.00	242.00	251.00	254.00	263.00	290.00	294.00	304.00	331.00	315.00
	2	207.00	239.00	242.00	241.00	257.00	271.00	271.00	293.00	322.00	336.00	310.00
	3	208.00	236.00	231.00	263.00	275.00	300.00	273.00	325.00	342.00	314.00	370.00
	4	214.00	251.00	243.00	240.00	256.00	261.00	290.00	314.00	290.00	340.00	343.00
	5	223.00	254.00	243.00	255.00	278.00	295.00	273.00	203.00	324.00	313.00	367.00
	6	220.00	258.00	273.00	250.00	259.00	265.00	274.00	322.00	341.00	330.00	350.00
	7	234.00	245.00	261.00	272.00	260.00	291.00	290.00	317.00	336.00	344.00	302.00
	8	210.00	249.00	241.00	251.00	266.00	206.00	313.00	307.00	301.00	346.00	370.00
	9	211.00	249.00	250.00	271.00	259.00	304.00	317.00	333.00	302.00	357.00	317.00
	10	216.00	262.00	201.00	275.00	202.00	303.00	267.00	330.00	360.00	310.00	360.00
	11	225.00	243.00	271.00	246.00	255.00	270.00	309.00	292.00	313.00	364.00	335.00
	12	230.00	264.00	240.00	254.00	204.00	262.00	203.00	282.00	353.00	310.00	309.00
	13	205.00	230.00	241.00	245.00	241.00	200.00	271.00	277.00	294.00	312.00	336.00
	14	211.00	230.00	236.00	236.00	264.00	255.00	259.00	203.00	321.00	328.00	342.00
	15	202.00	241.00	251.00	250.00	257.00	274.00	283.00	272.00	323.00	345.00	342.00
	16	211.00	245.00	252.00	246.00	265.00	267.00	202.00	272.00	322.00	345.00	325.00
	17	202.00	229.00	200.00	240.00	255.00	268.00	273.00	305.00	375.00	326.00	334.00
	18	209.00	233.00	235.00	202.00	300.00	322.00	336.00	353.00	306.00	340.00	333.00
	19	222.00	265.00	243.00	245.00	253.00	272.00	202.00	202.00	320.00	372.00	315.00

20	200.00	236.00	230.00	237.00	240.00	267.00	260.00	297.00	290.00	315.00	300.00
21	197.00	235.00	244.00	237.00	231.00	261.00	274.00	231.00	297.00	332.00	294.00
22	213.00	230.00	255.00	237.00	247.00	262.00	267.00	275.00	300.00	274.00	354.00
23	216.00	242.00	250.00	240.00	267.00	266.00	297.00	276.00	333.00	337.00	344.00
24	212.00	237.00	237.00	265.00	267.00	263.00	271.00	306.00	326.00	307.00	342.00
25	190.00	232.00	252.00	260.00	259.00	287.00	295.00	320.00	322.00	307.00	317.00
26	218.00	227.00	237.00	240.00	269.00	250.00	279.00	295.00	322.00	333.00	347.00
27	220.00	240.00	222.00	220.00	258.00	233.00	267.00	270.00	301.00	314.00	336.00
28	190.00	215.00	254.00	260.00	242.00	271.00	287.00	310.00	340.00	322.00	367.00
29	213.00	250.00	254.00	254.00	250.00	301.00	305.00	310.00	330.00	332.00	323.00
30	217.00	244.00	240.00	267.00	262.00	273.00	204.00	332.00	352.00	360.00	340.00
31	210.00	240.00	256.00	265.00	277.00	280.00	310.00	322.00	333.00	360.00	370.00
32	200.00	237.00	244.00	257.00	272.00	279.00	269.00	312.00	309.00	322.00	334.00
33	210.00	240.00	244.00	252.00	250.00	287.00	281.00	303.00	327.00	340.00	353.00
34	224.00	204.00	257.00	271.00	263.00	272.00	279.00	300.00	297.00	347.00	341.00
35	216.00	252.00	210.00	242.00	286.00	267.00	200.00	305.00	330.00	300.00	340.00
36	190.00	246.00	240.00	257.00	246.00	284.00	310.00	321.00	350.00	356.00	322.00
37	216.00	210.00	232.00	240.00	231.00	306.00	257.00	270.00	300.00	282.00	305.00
38	217.00	227.00	251.00	236.00	255.00	280.00	267.00	285.00	301.00	336.00	351.00
39	211.00	227.00	220.00	222.00	247.00	285.00	230.00	264.00	276.00	305.00	282.00
40	224.00	220.00	253.00	257.00	260.00	242.00	269.00	277.00	282.00	337.00	344.00
41	196.00	240.00	253.00	260.00	237.00	291.00	302.00	316.00	347.00	345.00	315.00
42	105.00	240.00	271.00	234.00	269.00	259.00	267.00	282.00	275.00	308.00	345.00
43	190.00	259.00	250.00	257.00	263.00	283.00	309.00	327.00	340.00	350.00	357.00
44	226.00	259.00	231.00	260.00	270.00	285.00	294.00	327.00	347.00	332.00	327.00
45	222.00	240.00	267.00	265.00	283.00	294.00	302.00	321.00	352.00	343.00	370.00
46	231.00	254.00	252.00	237.00	270.00	282.00	307.00	324.00	340.00	327.00	354.00
47	201.00	260.00	257.00	265.00	240.00	314.00	285.00	307.00	362.00	354.00	350.00
48	217.00	225.00	255.00	264.00	294.00	285.00	287.00	322.00	319.00	344.00	375.00
49	225.00	257.00	245.00	267.00	257.00	241.00	333.00	341.00	332.00	360.00	360.00
50	219.00	240.00	241.00	276.00	287.00	277.00	270.00	314.00	328.00	340.00	320.00
51	207.00	236.00	237.00	252.00	270.00	287.00	312.00	330.00	312.00	340.00	350.00
52	216.00	237.00	247.00	246.00	250.00	275.00	270.00	297.00	351.00	370.00	335.00
53	217.00	230.00	264.00	240.00	273.00	281.00	276.00	304.00	314.00	336.00	324.00
54	210.00	226.00	260.00	262.00	247.00	267.00	283.00	299.00	313.00	334.00	311.00
55	201.00	251.00	237.00	270.00	276.00	272.00	305.00	320.00	333.00	323.00	344.00
56	212.00	256.00	234.00	253.00	200.00	276.00	280.00	314.00	321.00	316.00	346.00
57	204.00	232.00	228.00	272.00	252.00	277.00	276.00	303.00	337.00	306.00	340.00
58	221.00	220.00	243.00	250.00	261.00	290.00	305.00	320.00	327.00	342.00	310.00
59	194.00	225.00	244.00	237.00	263.00	271.00	267.00	308.00	320.00	345.00	344.00
60	202.00	237.00	246.00	255.00	244.00	264.00	289.00	309.00	324.00	352.00	370.00
61	170.00	247.00	232.00	250.00	250.00	261.00	257.00	280.00	272.00	270.00	334.00
62	204.00	230.00	240.00	260.00	270.00	282.00	289.00	300.00	301.00	326.00	334.00
63	102.00	245.00	247.00	258.00	266.00	274.00	314.00	326.00	344.00	351.00	292.00
64	197.00	244.00	227.00	277.00	269.00	297.00	270.00	295.00	321.00	332.00	357.00
65	185.00	220.00	229.00	266.00	267.00	252.00	262.00	280.00	361.00	344.00	300.00
66	179.00	240.00	236.00	232.00	243.00	280.00	304.00	339.00	335.00	378.00	400.00
67	200.00	231.00	255.00	250.00	247.00	304.00	316.00	338.00	292.00	270.00	347.00
68	181.00	223.00	220.00	240.00	266.00	267.00	283.00	309.00	300.00	337.00	322.00
69	196.00	242.00	256.00	247.00	252.00	263.00	275.00	270.00	303.00	296.00	300.00
70	187.00	251.00	237.00	242.00	263.00	286.00	260.00	285.00	310.00	301.00	342.00
71	188.00	224.00	257.00	250.00	274.00	277.00	237.00	302.00	285.00	314.00	303.00
72	192.00	236.00	251.00	274.00	247.00	287.00	261.00	274.00	317.00	336.00	370.00
73	190.00	232.00	230.00	240.00	281.00	261.00	287.00	325.00	351.00	350.00	325.00
74	187.00	245.00	256.00	260.00	275.00	285.00	279.00	304.00	375.00	330.00	336.00
75	177.00	246.00	245.00	260.00	284.00	301.00	312.00	330.00	317.00	377.00	379.00
76	197.00	240.00	267.00	253.00	271.00	269.00	280.00	304.00	318.00	377.00	327.00
77	176.00	242.00	242.00	235.00	264.00	313.00	282.00	304.00	307.00	337.00	337.00
78	190.00	237.00	230.00	253.00	255.00	280.00	284.00	304.00	314.00	315.00	326.00
79	201.00	262.00	234.00	255.00	301.00	260.00	294.00	270.00	325.00	376.00	340.00
80	194.00	238.00	252.00	230.00	257.00	267.00	335.00	361.00	378.00	322.00	302.00
81	213.00	231.00	264.00	275.00	247.00	286.00	292.00	311.00	327.00	342.00	340.00
82	185.00	250.00	230.00	240.00	285.00	276.00	305.00	344.00	290.00	305.00	352.00

03	190.00	230.00	260.00	250.00	257.00	254.00	259.00	280.00	350.00	345.00	374.00
04	177.00	239.00	250.00	267.00	274.00	275.00	270.00	309.00	320.00	363.00	317.00
05	197.00	256.00	230.00	234.00	272.00	270.00	304.00	317.00	342.00	350.00	340.00
06	197.00	256.00	271.00	203.00	252.00	268.00	320.00	334.00	310.00	305.00	354.00
07	183.00	232.00	269.00	246.00	260.00	279.00	200.00	301.00	334.00	345.00	356.00
08	182.00	257.00	236.00	252.00	260.00	278.00	270.00	279.00	272.00	325.00	412.00
09	111.00	233.00	247.00	251.00	262.00	201.00	207.00	273.00	360.00	349.00	324.00
10	200.00	232.00	242.00	277.00	225.00	317.00	324.00	310.00	360.00	316.00	350.00
11	182.00	265.00	267.00	209.00	267.00	312.00	320.00	343.00	307.00	384.00	303.00
12	197.00	249.00	250.00	260.00	266.00	279.00	200.00	345.00	334.00	384.00	340.00
13	190.00	247.00	261.00	252.00	280.00	300.00	304.00	310.00	330.00	350.00	360.00
14	180.00	239.00	242.00	267.00	271.00	301.00	322.00	341.00	346.00	351.00	360.00
15	202.00	257.00	259.00	270.00	277.00	207.00	312.00	324.00	325.00	352.00	350.00
16	203.00	225.00	250.00	269.00	200.00	203.00	290.00	303.00	354.00	337.00	7777.00
17	176.00	243.00	226.00	230.00	278.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
18	181.00	212.00	228.00	238.00	242.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
19	200.00	239.00	251.00	250.00	264.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
100	201.00	242.00	7777.00	262.00	244.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00

MEANS	203.22	241.57	247.40	255.60	264.04	200.79	209.26	300.79	325.10	335.76	342.12
STANDARD	17.02	11.00	13.21	14.74	14.69	16.52	19.26	20.30	22.52	22.59	25.76
DEVIATIONS											
N=	100	100	77	100	100	76	76	76	76	76	75

* ADJUST PAGE SO PRINTING HEAD IS JUST ABOVE NEXT PERFORATION *

**** AND PRESS: RETURN ****

VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS

Individual Body Weight Data for Female Rats

DOSE UNITS ARE PPM

INPUT DATA 9999 = DEAD ANIMAL OR MISSING DATA
 # MEANS THIS VALUE IS EXCLUDED FROM ALL CALCULATIONS

PPM	ANIMAL	DAY 201	DAY 202	DAY 212	DAY 219	DAY 230	DAY 240	DAY 257	DAY 321	DAY 340	DAY 375	DAY 450
0.0	1	351.00	322.00	351.00	370.00	355.00	321.00	315.00	315.00	386.00	370.00	336.00
	2	323.00	307.00	314.00	350.00	312.00	341.00	320.00	370.00	304.00	340.00	374.00
	3	302.00	345.00	300.00	300.00	330.00	335.00	370.00	326.00	326.00	341.00	367.00
	4	365.00	316.00	307.00	317.00	326.00	308.00	322.00	332.00	352.00	347.00	365.00
	5	318.00	316.00	317.00	308.00	379.00	322.00	394.00	409.00	421.00	325.00	300.00
	6	327.00	355.00	354.00	357.00	310.00	307.00	333.00	342.00	358.00	340.00	444.00
	7	353.00	348.00	315.00	317.00	319.00	347.00	345.00	337.00	364.00	429.00	324.00
	8	316.00	317.00	322.00	349.00	320.00	307.00	323.00	335.00	358.00	305.00	200.00
	9	321.00	321.00	345.00	314.00	357.00	333.00	327.00	362.00	352.00	400.00	301.00
	10	273.00	375.00	271.00	296.00	347.00	370.00	310.00	202.00	351.00	345.00	325.00
	11	377.00	317.00	303.00	364.00	280.00	310.00	206.00	384.00	305.00	330.00	350.00
	12	310.00	206.00	360.00	286.00	314.00	297.00	375.00	342.00	290.00	352.00	362.00
	13	350.00	332.00	293.00	310.00	324.00	327.00	335.00	320.00	330.00	371.00	432.00
	14	327.00	301.00	330.00	316.00	290.00	320.00	331.00	314.00	316.00	427.00	383.00
	15	296.00	310.00	319.00	295.00	333.00	209.00	300.00	327.00	345.00	371.00	410.00
	16	387.00	324.00	297.00	290.00	359.00	375.00	346.00	361.00	414.00	400.00	304.00
	17	350.00	365.00	356.00	312.00	346.00	360.00	303.00	402.00	376.00	322.00	377.00
	18	307.00	301.00	366.00	345.00	324.00	295.00	264.00	357.00	396.00	342.00	330.00
	19	331.00	370.00	322.00	353.00	310.00	209.00	370.00	322.00	369.00	325.00	392.00
	20	328.00	356.00	303.00	306.00	356.00	351.00	205.00	301.00	319.00	373.00	310.00
	21	341.00	331.00	323.00	319.00	323.00	353.00	353.00	323.00	330.00	374.00	365.00
	22	303.00	300.00	340.00	354.00	311.00	307.00	300.00	317.00	324.00	335.00	435.00
	23	350.00	339.00	319.00	321.00	332.00	313.00	314.00	310.00	361.00	370.00	335.00
	24	274.00	300.00	317.00	322.00	341.00	310.00	304.00	333.00	375.00	406.00	366.00
	25	312.00	315.00	330.00	320.00	325.00	322.00	322.00	328.00	353.00	370.00	409.00
	26	294.00	337.00	362.00	336.00	324.00	327.00	325.00	342.00	369.00	373.00	374.00
	27	335.00	276.00	326.00	367.00	365.00	330.00	341.00	327.00	365.00	377.00	304.00
	28	347.00	321.00	295.00	292.00	304.00	305.00	390.00	420.00	359.00	369.00	415.00
	29	318.00	336.00	322.00	310.00	317.00	319.00	312.00	355.00	473.00	405.00	350.00
	30	321.00	323.00	371.00	364.00	322.00	309.00	305.00	359.00	333.00	400.00	400.00
	31	336.00	342.00	325.00	323.00	377.00	348.00	330.00	362.00	367.00	396.00	368.00
	32	321.00	329.00	327.00	338.00	335.00	319.00	360.00	346.00	355.00	372.00	373.00
	33	334.00	362.00	344.00	320.00	316.00	347.00	347.00	345.00	362.00	373.00	500.00
	34	303.00	305.00	326.00	343.00	340.00	357.00	340.00	370.00	393.00	370.00	300.00
	35	357.00	322.00	317.00	323.00	323.00	329.00	329.00	335.00	355.00	470.00	390.00
	36	342.00	320.00	305.00	300.00	298.00	320.00	324.00	334.00	373.00	362.00	369.00
	37	332.00	325.00	277.00	321.00	315.00	327.00	367.00	305.00	340.00	370.00	360.00
	38	341.00	336.00	323.00	270.00	293.00	368.00	337.00	352.00	401.00	382.00	469.00
	39	325.00	349.00	304.00	320.00	316.00	343.00	331.00	354.00	373.00	416.00	384.00
	40	343.00	326.00	335.00	326.00	345.00	340.00	346.00	351.00	367.00	533.00	592.00
	41	302.00	303.00	273.00	359.00	234.00	344.00	331.00	423.00	426.00	293.00	401.00
	42	320.00	331.00	352.00	261.00	361.00	376.00	392.00	354.00	373.00	390.00	346.00
	43	329.00	320.00	329.00	345.00	334.00	341.00	343.00	349.00	362.00	355.00	290.00
	44	354.00	305.00	319.00	324.00	320.00	342.00	346.00	357.00	349.00	355.00	404.00
	45	333.00	330.00	315.00	359.00	344.00	335.00	343.00	375.00	376.00	371.00	366.00
	46	324.00	330.00	355.00	323.00	331.00	400.00	461.00	477.00	399.00	307.00	390.00

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47	340.00	360.00	332.00	334.00	355.00	337.00	357.00	432.00	504.00	342.00	461.00
48	337.00	334.00	339.00	320.00	332.00	371.00	392.00	279.00	409.00	471.00	337.00
49	327.00	339.00	334.00	332.00	352.00	320.00	377.00	375.00	270.00	330.00	320.00
50	366.00	337.00	340.00	330.00	346.00	331.00	340.00	347.00	397.00	401.00	332.00
51	349.00	337.00	325.00	342.00	371.00	271.00	231.00	375.00	346.00	392.00	377.00
52	354.00	349.00	330.00	337.00	330.00	322.00	337.00	330.00	366.00	402.00	407.00
53	346.00	343.00	340.00	330.00	326.00	325.00	329.00	353.00	380.00	353.00	390.00
54	325.00	359.00	320.00	340.00	342.00	365.00	343.00	422.00	355.00	332.00	379.00
55	344.00	333.00	337.00	340.00	340.00	326.00	409.00	330.00	453.00	337.00	357.00
56	334.00	345.00	400.00	399.00	334.00	317.00	337.00	356.00	337.00	354.00	362.00
57	339.00	331.00	330.00	374.00	340.00	397.00	316.00	370.00	333.00	395.00	374.00
58	337.00	342.00	330.00	335.00	339.00	357.00	334.00	366.00	373.00	332.00	377.00
59	404.00	346.00	377.00	351.00	414.00	321.00	374.00	370.00	372.00	337.00	330.00
60	330.00	403.00	319.00	320.00	335.00	359.00	367.00	346.00	397.00	335.00	371.00
61	273.00	343.00	371.00	366.00	230.00	341.00	351.00	340.00	357.00	390.00	440.00
62	350.00	375.00	340.00	345.00	326.00	344.00	340.00	369.00	330.00	365.00	363.00
63	373.00	273.00	277.00	266.00	340.00	337.00	351.00	354.00	363.00	390.00	331.00
64	370.00	329.00	320.00	315.00	324.00	335.00	340.00	362.00	364.00	420.00	434.00
65	300.00	326.00	357.00	356.00	310.00	346.00	344.00	360.00	373.00	410.00	410.00
66	320.00	314.00	332.00	332.00	353.00	347.00	359.00	373.00	374.00	332.00	376.00
67	312.00	360.00	355.00	345.00	352.00	336.00	370.00	375.00	370.00	390.00	414.00
68	333.00	310.00	340.00	335.00	365.00	360.00	362.00	362.00	366.00	337.00	400.00
69	315.00	390.00	334.00	323.00	347.00	327.00	336.00	373.00	372.00	407.00	407.00
70	370.00	316.00	319.00	340.00	347.00	367.00	347.00	366.00	359.00	415.00	403.00
71	363.00	327.00	355.00	363.00	351.00	340.00	374.00	397.00	379.00	357.00	334.00
72	326.00	369.00	351.00	316.00	355.00	352.00	343.00	371.00	416.00	337.00	344.00
73	349.00	350.00	327.00	337.00	333.00	370.00	353.00	330.00	407.00	353.00	361.00
74	333.00	336.00	344.00	330.00	359.00	377.00	375.00	330.00	335.00	326.00	340.00
75	335.00	339.00	339.00	340.00	349.00	356.00	372.00	330.00	376.00	393.00	342.00
76	321.00	337.00	326.00	327.00	331.00	353.00	350.00	393.00	372.00	353.00	393.00
77	334.00	332.00	334.00	330.00	350.00	357.00	351.00	390.00	400.00	351.00	351.00
78	334.00	350.00	329.00	336.00	347.00	374.00	330.00	311.00	393.00	357.00	346.00
79	360.00	340.00	350.00	340.00	363.00	339.00	321.00	335.00	323.00	345.00	366.00
80	359.00	354.00	321.00	330.00	335.00	324.00	316.00	336.00	336.00	377.00	371.00
81	323.00	361.00	349.00	316.00	347.00	324.00	336.00	331.00	347.00	332.00	374.00
82	362.00	334.00	337.00	331.00	393.00	291.00	340.00	342.00	342.00	362.00	350.00
83	350.00	338.00	337.00	376.00	323.00	320.00	340.00	321.00	334.00	9999.00	9999.00
84	343.00	365.00	310.00	330.00	324.00	351.00	295.00	339.00	336.00	9999.00	9999.00
85	367.00	364.00	364.00	357.00	335.00	340.00	326.00	337.00	351.00	9999.00	9999.00
86	338.00	370.00	374.00	335.00	370.00	325.00	344.00	346.00	361.00	9999.00	9999.00
87	350.00	379.00	346.00	361.00	371.00	335.00	337.00	361.00	354.00	9999.00	9999.00
88	370.00	343.00	343.00	337.00	355.00	343.00	349.00	362.00	379.00	9999.00	9999.00
89	342.00	339.00	333.00	350.00	361.00	353.00	361.00	354.00	358.00	9999.00	9999.00
90	322.00	364.00	367.00	330.00	373.00	355.00	345.00	9999.00	9999.00	9999.00	9999.00
91	9999.00	344.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00

MEANS	330.18	337.11	332.63	331.73	330.73	339.60	343.67	356.09	367.94	376.74	379.60
STANDARD	25.14	24.53	25.60	25.95	27.43	30.23	29.84	30.75	33.10	36.30	43.63
DEVIATIONS											
N	90	91	90	90	90	90	90	89	89	82	82

25.000	1	325.00	331.00	350.00	299.00	367.00	297.00	297.00	343.00	393.00	340.00	420.00
	2	333.00	335.00	332.00	373.00	351.00	367.00	331.00	337.00	350.00	410.00	372.00
	3	354.00	349.00	316.00	368.00	230.00	340.00	370.00	304.00	395.00	371.00	393.00
	4	330.00	314.00	337.00	291.00	239.00	321.00	393.00	314.00	411.00	372.00	370.00
	5	334.00	295.00	343.00	363.00	320.00	331.00	329.00	325.00	332.00	345.00	350.00
	6	236.00	342.00	290.00	306.00	367.00	305.00	323.00	412.00	306.00	330.00	363.00
	7	328.00	346.00	321.00	391.00	332.00	394.00	351.00	355.00	352.00	350.00	315.00
	8	316.00	365.00	307.00	344.00	358.00	354.00	412.00	434.00	492.00	313.00	340.00
	9	322.00	326.00	358.00	355.00	332.00	356.00	390.00	416.00	420.00	349.00	360.00
	10	356.00	315.00	314.00	317.00	306.00	323.00	335.00	338.00	377.00	370.00	392.00

11	374.00	360.00	342.00	303.00	374.00	371.00	370.00	345.00	351.00	414.00	372.00
12	354.00	314.00	336.00	308.00	312.00	317.00	342.00	372.00	342.00	356.00	434.00
13	311.00	307.00	376.00	310.00	292.00	292.00	312.00	347.00	357.00	317.00	320.00
14	341.00	302.00	305.00	274.00	320.00	310.00	330.00	317.00	346.00	370.00	354.00
15	304.00	312.00	356.00	338.00	360.00	334.00	367.00	351.00	314.00	347.00	304.00
16	301.00	370.00	205.00	314.00	330.00	340.00	342.00	364.00	376.00	470.00	360.00
17	345.00	347.00	337.00	330.00	367.00	355.00	376.00	340.00	363.00	356.00	420.00
18	332.00	312.00	281.00	350.00	345.00	373.00	347.00	406.00	401.00	400.00	355.00
19	305.00	335.00	352.00	334.00	314.00	340.00	351.00	362.00	368.00	426.00	413.00
20	351.00	331.00	327.00	352.00	355.00	315.00	311.00	332.00	324.00	400.00	452.00
21	252.00	324.00	300.00	240.00	352.00	302.00	312.00	317.00	310.00	362.00	373.00
22	321.00	272.00	310.00	312.00	322.00	366.00	372.00	344.00	425.00	374.00	402.00
23	358.00	320.00	322.00	352.00	225.00	370.00	336.00	386.00	378.00	360.00	372.00
24	315.00	370.00	372.00	332.00	342.00	322.00	410.00	402.00	352.00	380.00	375.00
25	324.00	382.00	376.00	347.00	363.00	332.00	322.00	347.00	350.00	360.00	370.00
26	366.00	363.00	363.00	351.00	354.00	360.00	366.00	332.00	407.00	372.00	373.00
27	338.00	335.00	330.00	316.00	322.00	322.00	375.00	380.00	372.00	402.00	401.00
28	303.00	315.00	321.00	315.00	338.00	340.00	360.00	360.00	360.00	360.00	370.00
29	327.00	352.00	359.00	331.00	335.00	346.00	363.00	373.00	376.00	370.00	450.00
30	346.00	319.00	342.00	282.00	292.00	421.00	555.00	376.00	374.00	420.00	256.00
31	297.00	272.00	303.00	347.00	341.00	335.00	364.00	370.00	346.00	372.00	350.00
32	365.00	355.00	341.00	312.00	330.00	347.00	372.00	353.00	396.00	281.00	474.00
33	335.00	288.00	282.00	332.00	323.00	322.00	336.00	375.00	378.00	353.00	362.00
34	306.00	336.00	336.00	355.00	363.00	362.00	360.00	410.00	412.00	482.00	352.00
35	316.00	314.00	320.00	312.00	342.00	376.00	364.00	344.00	356.00	372.00	373.00
36	304.00	347.00	347.00	331.00	322.00	332.00	354.00	370.00	360.00	342.00	328.00
37	356.00	371.00	374.00	370.00	372.00	362.00	365.00	425.00	410.00	322.00	332.00
38	327.00	312.00	321.00	347.00	352.00	332.00	341.00	332.00	447.00	360.00	271.00
39	352.00	335.00	356.00	357.00	353.00	310.00	362.00	336.00	383.00	365.00	462.00
40	326.00	343.00	250.00	335.00	303.00	304.00	332.00	443.00	345.00	426.00	472.00
41	278.00	323.00	317.00	276.00	368.00	332.00	400.00	338.00	546.00	366.00	326.00
42	276.00	252.00	346.00	316.00	341.00	325.00	400.00	364.00	340.00	412.00	375.00
43	294.00	362.00	370.00	370.00	374.00	343.00	332.00	460.00	370.00	372.00	447.00
44	355.00	363.00	361.00	306.00	331.00	316.00	332.00	360.00	363.00	422.00	382.00
45	357.00	270.00	288.00	334.00	332.00	350.00	343.00	362.00	325.00	312.00	332.00
46	378.00	322.00	325.00	332.00	373.00	331.00	341.00	335.00	333.00	370.00	292.00
47	372.00	354.00	372.00	313.00	302.00	362.00	342.00	401.00	422.00	383.00	335.00
48	316.00	365.00	355.00	322.00	332.00	360.00	424.00	372.00	433.00	270.00	462.00
49	347.00	403.00	362.00	313.00	306.00	372.00	372.00	454.00	413.00	272.00	424.00
50	341.00	324.00	332.00	376.00	374.00	354.00	372.00	380.00	371.00	374.00	374.00
51	336.00	331.00	350.00	344.00	313.00	300.00	302.00	360.00	321.00	455.00	352.00
52	347.00	342.00	313.00	345.00	336.00	365.00	331.00	375.00	416.00	352.00	312.00
53	304.00	340.00	342.00	336.00	321.00	361.00	373.00	341.00	282.00	364.00	360.00
54	312.00	331.00	322.00	310.00	342.00	332.00	280.00	334.00	343.00	312.00	425.00
55	325.00	320.00	322.00	331.00	351.00	312.00	332.00	342.00	365.00	400.00	432.00
56	345.00	343.00	335.00	345.00	332.00	272.00	345.00	270.00	424.00	432.00	320.00
57	292.00	321.00	344.00	342.00	335.00	273.00	271.00	410.00	452.00	352.00	372.00
58	336.00	322.00	315.00	322.00	315.00	370.00	370.00	422.00	382.00	362.00	320.00
59	364.00	362.00	331.00	320.00	362.00	300.00	410.00	384.00	352.00	316.00	338.00
60	308.00	310.00	368.00	364.00	326.00	282.00	342.00	363.00	315.00	442.00	472.00
61	310.00	304.00	312.00	353.00	356.00	332.00	362.00	360.00	356.00	312.00	415.00
62	378.00	331.00	331.00	360.00	366.00	342.00	350.00	365.00	375.00	332.00	400.00
63	322.00	322.00	374.00	361.00	365.00	360.00	373.00	352.00	420.00	372.00	422.00
64	320.00	371.00	345.00	272.00	352.00	320.00	375.00	400.00	361.00	374.00	324.00
65	342.00	362.00	332.00	352.00	270.00	332.00	342.00	311.00	361.00	374.00	332.00
66	302.00	315.00	281.00	365.00	323.00	510.00	322.00	352.00	313.00	324.00	510.00
67	305.00	273.00	322.00	335.00	375.00	300.00	360.00	336.00	375.00	45.00	320.00
68	345.00	302.00	302.00	370.00	315.00	332.00	640.00	336.00	372.00	425.00	424.00
69	276.00	360.00	272.00	430.00	463.00	324.00	405.00	422.00	370.00	412.00	375.00
70	316.00	285.00	302.00	301.00	320.00	375.00	340.00	506.00	573.00	326.00	352.00
71	412.00	303.00	362.00	324.00	362.00	316.00	322.00	371.00	375.00	365.00	365.00
72	318.00	282.00	301.00	326.00	353.00	360.00	446.00	365.00	322.00	366.00	541.00
73	336.00	338.00	334.00	360.00	332.00	324.00	350.00	361.00	472.00	521.00	374.00

74	327.00	332.00	342.00	371.00	368.00	310.00	350.00	331.00	363.00	362.00	410.00
75	206.00	317.00	330.00	312.00	305.00	326.00	350.00	340.00	334.00	410.00	420.00
76	326.00	317.00	326.00	331.00	345.00	363.00	312.00	400.00	407.00	407.00	9999.00
77	342.00	341.00	355.00	339.00	349.00	431.00	336.00	412.00	391.00	392.00	9999.00
78	365.00	425.00	449.00	281.00	292.00	310.00	317.00	379.00	352.00	9999.00	9999.00
79	272.00	311.00	324.00	300.00	360.00	410.00	410.00	321.00	400.00	9999.00	9999.00
80	355.00	320.00	305.00	359.00	374.00	390.00	304.00	379.00	365.00	9999.00	9999.00
81	300.00	295.00	314.00	275.00	290.00	296.00	400.00	459.00	393.00	9999.00	9999.00
82	277.00	315.00	359.00	270.00	336.00	352.00	369.00	360.00	401.00	9999.00	9999.00
83	310.00	366.00	306.00	290.00	320.00	354.00	405.00	349.00	357.00	9999.00	9999.00
84	410.00	295.00	415.00	331.00	326.00	329.00	350.00	302.00	360.00	9999.00	9999.00
85	300.00	335.00	341.00	400.00	330.00	395.00	367.00	393.00	299.00	9999.00	9999.00
86	327.00	334.00	350.00	322.00	410.00	359.00	336.00	9999.00	9999.00	9999.00	9999.00
87	327.00	319.00	333.00	315.00	332.00	335.00	390.00	9999.00	9999.00	9999.00	9999.00
88	307.00	335.00	304.00	326.00	341.00	365.00	381.00	9999.00	9999.00	9999.00	9999.00
89	330.00	421.00	342.00	312.00	315.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
90	327.00	350.00	326.00	350.00	350.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
MEANS	331.11	334.53	335.27	335.00	336.93	340.01	362.06	370.98	377.14	375.25	306.23
STANDARD	20.43	30.37	31.14	31.41	31.76	37.19	49.32	39.21	51.62	46.27	53.93
DEVIATIONS											
N	20	90	90	20	90	80	80	85	85	77	75
75.000	1	357.00	306.00	303.00	310.00	305.00	362.00	322.00	366.00	402.00	345.00
	2	386.00	374.00	317.00	305.00	370.00	320.00	375.00	397.00	324.00	406.00
	3	316.00	363.00	353.00	357.00	347.00	377.00	303.00	332.00	300.00	356.00
	4	327.00	366.00	326.00	341.00	395.00	327.00	350.00	374.00	411.00	370.00
	5	355.00	326.00	326.00	370.00	313.00	411.00	414.00	419.00	343.00	405.00
	6	315.00	317.00	382.00	310.00	327.00	323.00	326.00	358.00	320.00	405.00
	7	366.00	314.00	367.00	361.00	363.00	375.00	326.00	324.00	372.00	302.00
	8	335.00	363.00	334.00	310.00	325.00	324.00	367.00	389.00	320.00	412.00
	9	315.00	323.00	319.00	331.00	327.00	333.00	342.00	383.00	377.00	320.00
	10	330.00	327.00	324.00	356.00	341.00	350.00	370.00	453.00	629.00	379.00
	11	327.00	323.00	340.00	330.00	327.00	348.00	347.00	673.00	309.00	359.00
	12	324.00	332.00	343.00	326.00	339.00	334.00	467.00	376.00	352.00	341.00
	13	302.00	339.00	380.00	303.00	337.00	306.00	294.00	300.00	301.00	304.00
	14	300.00	383.00	330.00	395.00	305.00	350.00	309.00	350.00	319.00	313.00
	15	339.00	309.00	310.00	352.00	314.00	294.00	340.00	370.00	317.00	359.00
	16	350.00	304.00	296.00	321.00	317.00	322.00	312.00	330.00	355.00	394.00
	17	312.00	322.00	321.00	342.00	350.00	350.00	366.00	352.00	351.00	501.00
	18	293.00	335.00	344.00	305.00	303.00	324.00	309.00	322.00	341.00	422.00
	19	320.00	320.00	341.00	331.00	319.00	349.00	357.00	344.00	345.00	302.00
	20	338.00	349.00	321.00	339.00	335.00	312.00	335.00	327.00	326.00	377.00
	21	320.00	353.00	342.00	319.00	300.00	334.00	320.00	343.00	375.00	351.00
	22	338.00	347.00	319.00	320.00	342.00	342.00	361.00	340.00	313.00	327.00
	23	334.00	356.00	364.00	366.00	305.00	376.00	352.00	357.00	302.00	362.00
	24	370.00	319.00	316.00	307.00	361.00	335.00	371.00	365.00	343.00	420.00
	25	350.00	322.00	342.00	347.00	361.00	366.00	312.00	317.00	350.00	350.00
	26	314.00	340.00	370.00	360.00	334.00	308.00	369.00	379.00	349.00	357.00
	27	305.00	314.00	301.00	337.00	349.00	337.00	303.00	355.00	353.00	373.00
	28	345.00	273.00	353.00	294.00	333.00	351.00	350.00	322.00	337.00	305.00
	29	327.00	322.00	350.00	345.00	304.00	290.00	347.00	362.00	279.00	305.00
	30	359.00	345.00	340.00	347.00	342.00	350.00	350.00	359.00	363.00	331.00
	31	344.00	343.00	287.00	274.00	296.00	310.00	317.00	322.00	327.00	404.00
	32	300.00	365.00	330.00	340.00	342.00	270.00	361.00	362.00	311.00	306.00
	33	283.00	303.00	326.00	324.00	274.00	307.00	270.00	303.00	332.00	363.00
	34	340.00	336.00	343.00	311.00	312.00	350.00	310.00	287.00	350.00	469.00
	35	327.00	366.00	358.00	305.00	312.00	325.00	374.00	332.00	373.00	360.00
	36	357.00	302.00	351.00	352.00	357.00	323.00	321.00	331.00	335.00	387.00
	37	350.00	360.00	331.00	317.00	322.00	364.00	321.00	353.00	331.00	393.00
	38	320.00	341.00	317.00	323.00	329.00	367.00	343.00	370.00	350.00	454.00

39	347.00	300.00	320.00	350.00	310.00	371.00	327.00	309.00	410.00	370.00	440.00
40	322.00	307.00	350.00	340.00	340.00	347.00	374.00	302.00	367.00	370.00	360.00
41	342.00	303.00	355.00	351.00	344.00	301.00	307.00	370.00	365.00	340.00	342.00
42	350.00	325.00	350.00	321.00	340.00	320.00	344.00	372.00	390.00	341.00	394.00
43	340.00	390.00	305.00	392.00	340.00	305.00	340.00	357.00	361.00	357.00	300.00
44	337.00	337.00	362.00	364.00	307.00	350.00	412.00	415.00	300.00	390.00	370.00
45	372.00	362.00	335.00	346.00	330.00	390.00	300.00	356.00	342.00	376.00	410.00
46	307.00	323.00	320.00	300.00	361.00	374.00	350.00	300.00	334.00	410.00	300.00
47	340.00	320.00	350.00	325.00	325.00	320.00	309.00	339.00	326.00	300.00	420.00
48	312.00	342.00	310.00	301.00	362.00	330.00	336.00	320.00	352.00	302.00	397.00
49	304.00	305.00	320.00	350.00	329.00	391.00	300.00	351.00	400.00	324.00	327.00
50	310.00	310.00	320.00	321.00	329.00	300.00	490.00	635.00	441.00	404.00	447.00
51	305.00	360.00	306.00	301.00	290.00	319.00	417.00	361.00	420.00	511.00	504.00
52	300.00	294.00	345.00	329.00	327.00	402.00	364.00	425.00	207.00	367.00	300.00
53	347.00	330.00	351.00	300.00	360.00	349.00	300.00	360.00	362.00	300.00	302.00
54	302.00	311.00	290.00	307.00	360.00	349.00	352.00	422.00	304.00	322.00	324.00
55	290.00	200.00	367.00	320.00	205.00	204.00	377.00	205.00	362.00	307.00	421.00
56	320.00	330.00	342.00	366.00	362.00	371.00	355.00	350.00	415.00	472.00	517.00
57	302.00	360.00	300.00	292.00	300.00	300.00	292.00	355.00	307.00	500.00	547.00
58	350.00	301.00	329.00	304.00	325.00	350.00	340.00	392.00	476.00	340.00	366.00
59	354.00	319.00	327.00	320.00	290.00	320.00	300.00	450.00	309.00	421.00	454.00
60	364.00	300.00	307.00	306.00	300.00	300.00	307.00	320.00	306.00	400.00	502.00
61	305.00	394.00	390.00	360.00	370.00	367.00	307.00	340.00	325.00	401.00	442.00
62	335.00	360.00	306.00	304.00	379.00	410.00	420.00	396.00	340.00	375.00	307.00
63	295.00	309.00	320.00	307.00	327.00	320.00	336.00	317.00	300.00	410.00	411.00
64	299.00	297.00	341.00	299.00	300.00	301.00	310.00	309.00	450.00	377.00	300.00
65	320.00	300.00	300.00	320.00	320.00	300.00	304.00	347.00	372.00	371.00	302.00
66	320.00	294.00	297.00	300.00	301.00	307.00	340.00	335.00	404.00	399.00	309.00
67	390.00	359.00	400.00	327.00	300.00	300.00	304.00	441.00	309.00	305.00	402.00
68	390.00	360.00	300.00	370.00	407.00	410.00	442.00	369.00	397.00	301.00	340.00
69	329.00	300.00	300.00	400.00	417.00	415.00	445.00	440.00	362.00	345.00	371.00
70	300.00	395.00	395.00	371.00	300.00	300.00	325.00	401.00	411.00	410.00	351.00
71	302.00	310.00	304.00	302.00	301.00	306.00	390.00	367.00	391.00	345.00	410.00
72	306.00	360.00	342.00	321.00	337.00	344.00	340.00	335.00	367.00	304.00	379.00
73	372.00	300.00	349.00	375.00	302.00	390.00	390.00	350.00	375.00	377.00	400.00
74	364.00	357.00	345.00	304.00	350.00	350.00	397.00	409.00	374.00	391.00	440.00
75	344.00	350.00	372.00	344.00	341.00	364.00	357.00	370.00	340.00	407.00	409.00
76	345.00	340.00	349.00	350.00	350.00	300.00	377.00	377.00	361.00	417.00	410.00
77	354.00	350.00	355.00	351.00	340.00	360.00	370.00	376.00	335.00	360.00	362.00
78	352.00	369.00	355.00	340.00	340.00	340.00	352.00	349.00	402.00	514.00	460.00
79	350.00	300.00	369.00	325.00	360.00	354.00	409.00	360.00	344.00	420.00	350.00
80	322.00	300.00	420.00	354.00	320.00	306.00	372.00	420.00	372.00	350.00	9999.00
81	395.00	320.00	370.00	421.00	410.00	417.00	320.00	322.00	307.00	9999.00	9999.00
82	360.00	374.00	327.00	365.00	357.00	340.00	309.00	307.00	336.00	9999.00	9999.00
83	357.00	376.00	360.00	300.00	365.00	375.00	376.00	350.00	325.00	9999.00	9999.00
84	309.00	326.00	379.00	361.00	367.00	367.00	304.00	372.00	300.00	9999.00	9999.00
85	310.00	322.00	306.00	301.00	300.00	300.00	340.00	304.00	394.00	9999.00	9999.00
86	307.00	304.00	310.00	306.00	304.00	347.00	342.00	342.00	300.00	9999.00	9999.00
87	320.00	310.00	350.00	304.00	320.00	311.00	310.00	325.00	397.00	9999.00	9999.00
88	324.00	379.00	309.00	310.00	317.00	370.00	399.00	399.00	9999.00	9999.00	9999.00
89	400.00	315.00	379.00	302.00	341.00	301.00	327.00	400.00	9999.00	9999.00	9999.00
90	367.00	355.00	315.00	305.00	371.00	302.00	402.00	309.00	9999.00	9999.00	9999.00
91	9999.00	9999.00	369.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00

MEANS	309.90	306.71	340.70	340.29	340.20	340.26	356.57	360.90	360.14	367.52	377.57
STANDARD	25.07	26.40	27.10	27.57	20.15	30.59	30.90	56.57	40.70	40.16	50.40
DEVIATIONS											
N=	90	90	91	90	90	90	90	90	07	00	79

* ADJUST PAGE 00 PRINTING HEAD TO JUST ABOVE NEXT PERFORATION *

*** AND PRESS RETURN ***

SL 082428

VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS

Individual Body Weight Data for Female Rats

DOSE UNITS ARE PPM

INPUT DATA 9999 = DEAD ANIMAL OR MISSING DATA
 # MEANS THIS VALUE IS EXCLUDED FROM ALL CALCULATIONS

PPM	ANIMAL	DAY 436	DAY 460	DAY 497	DAY 524	DAY 551	DAY 576	DAY 612	DAY 646	DAY 677	DAY 704
0.0	1	307.00	372.00	395.00	390.00	376.00	375.00	700.00	414.00	457.00	440.00
	2	341.00	364.00	370.00	391.00	398.00	500.00	394.00	397.00	450.00	410.00
	3	371.00	362.00	374.00	362.00	363.00	307.00	300.00	444.00	447.00	455.00
	4	365.00	372.00	360.00	362.00	367.00	371.00	422.00	377.00	417.00	320.00
	5	457.00	442.00	436.00	454.00	312.00	555.00	362.00	304.00	361.00	350.00
	6	326.00	330.00	422.00	445.00	462.00	322.00	371.00	370.00	342.00	402.00
	7	401.00	411.00	331.00	320.00	341.00	296.00	312.00	442.00	470.00	350.00
	8	290.00	300.00	294.00	294.00	290.00	346.00	402.00	596.00	366.00	441.00
	9	390.00	300.00	347.00	356.00	376.00	416.00	406.00	372.00	225.00	402.00
	10	341.00	345.00	361.00	374.00	367.00	400.00	300.00	320.00	562.00	375.00
	11	364.00	340.00	300.00	347.00	417.00	411.00	632.00	411.00	472.00	557.00
	12	351.00	365.00	442.00	405.00	422.00	476.00	326.00	454.00	375.00	267.00
	13	442.00	400.00	401.00	420.00	546.00	317.00	020.00	314.00	462.00	500.00
	14	306.00	379.00	302.00	395.00	315.00	631.00	465.00	252.00	322.00	417.00
	15	422.00	204.00	325.00	271.00	346.00	352.00	391.00	420.00	470.00	410.00
	16	300.00	422.00	432.00	400.00	377.00	421.00	372.00	332.00	374.00	632.00
	17	372.00	375.00	346.00	345.00	377.00	374.00	347.00	370.00	460.00	590.00
	18	303.00	334.00	301.00	362.00	502.00	370.00	317.00	505.00	617.00	350.00
	19	302.00	372.00	441.00	452.00	400.00	610.00	601.00	247.00	420.00	417.00
	20	375.00	340.00	302.00	427.00	421.00	597.00	466.00	371.00	404.00	320.00
	21	376.00	416.00	367.00	363.00	455.00	302.00	414.00	508.00	260.00	312.00
	22	542.00	615.00	362.00	420.00	325.00	506.00	574.00	437.00	594.00	450.00
	23	332.00	350.00	432.00	411.00	401.00	312.00	333.00	404.00	325.00	9999.00
	24	370.00	390.00	403.00	247.00	460.00	542.00	343.00	409.00	477.00	9999.00
	25	370.00	416.00	332.00	450.00	393.00	300.00	501.00	541.00	331.00	9999.00
	26	410.00	370.00	444.00	464.00	300.00	431.00	708.00	419.00	402.00	9999.00
	27	414.00	420.00	431.00	467.00	425.00	476.00	240.00	642.00	365.00	9999.00
	28	357.00	410.00	410.00	415.00	361.00	521.00	372.00	444.00	412.00	9999.00
	29	372.00	363.00	335.00	380.00	346.00	360.00	427.00	563.00	390.00	9999.00
	30	362.00	361.00	400.00	390.00	505.00	344.00	527.00	565.00	437.00	9999.00
	31	357.00	401.00	302.00	570.00	442.00	471.00	452.00	321.00	9999.00	9999.00
	32	377.00	307.00	392.00	400.00	377.00	500.00	390.00	331.00	9999.00	9999.00
	33	401.00	404.00	374.00	435.00	274.00	204.00	475.00	422.00	9999.00	9999.00
	34	386.00	300.00	531.00	365.00	411.00	360.00	372.00	334.00	9999.00	9999.00
	35	400.00	411.00	376.00	360.00	465.00	415.00	471.00	361.00	9999.00	9999.00
	36	372.00	350.00	364.00	424.00	357.00	402.00	443.00	304.00	9999.00	9999.00
	37	362.00	384.00	414.00	460.00	443.00	332.00	556.00	425.00	9999.00	9999.00
	38	407.00	622.00	431.00	296.00	360.00	340.00	477.00	420.00	9999.00	9999.00
	39	371.00	416.00	649.00	357.00	305.00	410.00	321.00	265.00	9999.00	9999.00
	40	614.00	395.00	374.00	455.00	360.00	405.00	491.00	9999.00	9999.00	9999.00
	41	422.00	282.00	300.00	408.00	374.00	360.00	422.00	9999.00	9999.00	9999.00
	42	357.00	352.00	410.00	325.00	411.00	397.00	474.00	9999.00	9999.00	9999.00
	43	290.00	372.00	350.00	310.00	392.00	412.00	324.00	9999.00	9999.00	9999.00
	44	375.00	377.00	422.00	350.00	300.00	402.00	377.00	9999.00	9999.00	9999.00
	45	372.00	402.00	325.00	477.00	372.00	421.00	372.00	9999.00	9999.00	9999.00
	46	407.00	324.00	342.00	406.00	342.00	302.00	440.00	9999.00	9999.00	9999.00

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47	333.00	335.00	402.00	443.00	420.00	503.00	433.00	7777.00	7777.00	7777.00
48	460.00	464.00	412.00	437.00	357.00	402.00	521.00	7777.00	7777.00	7777.00
49	337.00	390.00	405.00	372.00	336.00	411.00	349.00	7777.00	7777.00	7777.00
50	405.00	420.00	420.00	366.00	435.00	300.00	7777.00	7777.00	7777.00	7777.00
51	410.00	410.00	357.00	407.00	556.00	305.00	7777.00	7777.00	7777.00	7777.00
52	395.00	381.00	373.00	400.00	410.00	402.00	7777.00	7777.00	7777.00	7777.00
53	362.00	367.00	385.00	324.00	361.00	353.00	7777.00	7777.00	7777.00	7777.00
54	384.00	400.00	413.00	400.00	384.00	357.00	7777.00	7777.00	7777.00	7777.00
55	426.00	367.00	379.00	397.00	329.00	421.00	7777.00	7777.00	7777.00	7777.00
56	410.00	383.00	377.00	390.00	436.00	297.00	7777.00	7777.00	7777.00	7777.00
57	300.00	394.00	369.00	679.00	453.00	420.00	7777.00	7777.00	7777.00	7777.00
58	382.00	387.00	394.00	372.00	289.00	342.00	7777.00	7777.00	7777.00	7777.00
59	386.00	367.00	372.00	400.00	444.00	431.00	7777.00	7777.00	7777.00	7777.00
60	374.00	462.00	549.00	365.00	379.00	7777.00	7777.00	7777.00	7777.00	7777.00
61	374.00	395.00	388.00	429.00	439.00	7777.00	7777.00	7777.00	7777.00	7777.00
62	393.00	365.00	322.00	329.00	330.00	7777.00	7777.00	7777.00	7777.00	7777.00
63	456.00	414.00	420.00	421.00	244.00	7777.00	7777.00	7777.00	7777.00	7777.00
64	404.00	370.00	452.00	332.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
65	380.00	420.00	444.00	355.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
66	389.00	410.00	452.00	352.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
67	411.00	422.00	377.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
68	417.00	337.00	353.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
69	414.00	362.00	390.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
70	364.00	363.00	706.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
71	340.00	347.00	377.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
72	361.00	411.00	382.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
73	417.00	405.00	459.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
74	348.00	349.00	426.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
75	350.00	437.00	382.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
76	375.00	386.00	401.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
77	349.00	341.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
78	384.00	402.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
79	364.00	373.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
80	400.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00
81	346.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00	7777.00

MEANS	306.38	370.53	406.30	396.26	375.10	414.06	443.06	412.23	420.33	427.00
STANDARD	47.49	53.52	70.24	67.00	62.78	83.74	117.29	91.93	87.02	93.34
DEVIATIONS										
N#	81	77	76	66	63	57	47	37	30	22

25.000	1	423.00	383.00	376.00	397.00	477.00	389.00	00	556.00	423.00	30
	2	374.00	416.00	434.00	439.00	403.00	508.00	30	418.00	340.00	30
	3	376.00	381.00	402.00	321.00	343.00	346.00	00	376.00	607.00	00
	4	413.00	420.00	427.00	390.00	349.00	372.00	385.00	533.00	406.00	441.00
	5	352.00	532.00	601.00	332.00	382.00	451.00	493.00	537.00	596.00	492.00
	6	474.00	347.00	297.00	406.00	437.00	415.00	406.00	495.00	361.00	426.00
	7	315.00	313.00	386.00	217.00	318.00	354.00	424.00	451.00	706.00	388.00
	8	373.00	373.00	324.00	382.00	437.00	356.00	411.00	396.00	403.00	425.00
	9	347.00	357.00	365.00	388.00	370.00	382.00	407.00	582.00	374.00	588.00
	10	364.00	361.00	360.00	408.00	425.00	433.00	500.00	364.00	366.00	566.00
	11	365.00	370.00	375.00	338.00	386.00	450.00	372.00	356.00	406.00	419.00
	12	402.00	402.00	322.00	577.00	377.00	379.00	355.00	364.00	443.00	416.00
	13	375.00	414.00	382.00	364.00	582.00	365.00	348.00	403.00	450.00	347.00
	14	371.00	383.00	405.00	502.00	375.00	348.00	384.00	442.00	407.00	351.00
	15	328.00	348.00	359.00	409.00	344.00	348.00	550.00	441.00	373.00	643.00
	16	434.00	354.00	463.00	330.00	348.00	396.00	410.00	404.00	550.00	7777.00
	17	354.00	434.00	420.00	324.00	416.00	408.00	402.00	375.00	390.00	7777.00
	18	365.00	424.00	371.00	411.00	424.00	737.00	444.00	413.00	343.00	7777.00
	19	417.00	369.00	296.00	408.00	620.00	394.00	411.00	371.00	346.00	7777.00
	20	335.00	326.00	281.00	404.00	330.00	306.00	401.00	322.00	545.00	7777.00

21	351.00	335.00	411.00	573.00	393.00	370.00	377.00	371.00	443.00	9999.00
22	377.00	380.00	393.00	392.00	377.00	415.00	353.00	330.00	535.00	9999.00
23	401.00	395.00	418.00	503.00	370.00	400.00	390.00	452.00	557.00	9999.00
24	376.00	387.00	503.00	303.00	404.00	706.00	319.00	390.00	500.00	9999.00
25	450.00	400.00	490.00	374.00	305.00	379.00	400.00	454.00	9999.00	9999.00
26	395.00	393.00	342.00	362.00	413.00	332.00	371.00	536.00	9999.00	9999.00
27	432.00	405.00	412.00	393.00	450.00	413.00	342.00	525.00	9999.00	9999.00
28	331.00	321.00	270.00	393.00	374.00	329.00	412.00	9999.00	9999.00	9999.00
29	204.00	337.00	342.00	431.00	620.00	305.00	364.00	9999.00	9999.00	9999.00
30	447.00	401.00	374.00	570.00	393.00	316.00	437.00	9999.00	9999.00	9999.00
31	323.00	362.00	369.00	372.00	326.00	397.00	523.00	9999.00	9999.00	9999.00
32	364.00	380.00	391.00	576.00	405.00	366.00	492.00	9999.00	9999.00	9999.00
33	375.00	386.00	407.00	313.00	324.00	337.00	9999.00	9999.00	9999.00	9999.00
34	377.00	392.00	540.00	391.00	014.00	236.00	9999.00	9999.00	9999.00	9999.00
35	382.00	407.00	382.00	612.00	386.00	387.00	9999.00	9999.00	9999.00	9999.00
36	514.00	623.00	535.00	322.00	337.00	425.00	9999.00	9999.00	9999.00	9999.00
37	553.00	382.00	383.00	452.00	406.00	357.00	9999.00	9999.00	9999.00	9999.00
38	385.00	462.00	320.00	359.00	542.00	426.00	9999.00	9999.00	9999.00	9999.00
39	402.00	375.00	404.00	369.00	494.00	463.00	9999.00	9999.00	9999.00	9999.00
40	370.00	314.00	314.00	310.00	332.00	420.00	9999.00	9999.00	9999.00	9999.00
41	301.00	385.00	533.00	422.00	350.00	323.00	9999.00	9999.00	9999.00	9999.00
42	302.00	501.00	372.00	477.00	440.00	9999.00	9999.00	9999.00	9999.00	9999.00
43	443.00	463.00	361.00	442.00	391.00	9999.00	9999.00	9999.00	9999.00	9999.00
44	475.00	370.00	321.00	460.00	441.00	9999.00	9999.00	9999.00	9999.00	9999.00
45	357.00	365.00	408.00	335.00	372.00	9999.00	9999.00	9999.00	9999.00	9999.00
46	321.00	324.00	474.00	333.00	482.00	9999.00	9999.00	9999.00	9999.00	9999.00
47	377.00	450.00	397.00	400.00	344.00	9999.00	9999.00	9999.00	9999.00	9999.00
48	416.00	373.00	371.00	303.00	464.00	9999.00	9999.00	9999.00	9999.00	9999.00
49	351.00	407.00	417.00	454.00	346.00	9999.00	9999.00	9999.00	9999.00	9999.00
50	446.00	346.00	321.00	351.00	422.00	9999.00	9999.00	9999.00	9999.00	9999.00
51	382.00	405.00	340.00	370.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
52	340.00	322.00	392.00	360.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
53	330.00	513.00	515.00	701.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
54	492.00	376.00	420.00	440.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
55	341.00	441.00	381.00	327.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
56	433.00	458.00	330.00	662.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
57	402.00	342.00	357.00	567.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
58	422.00	383.00	382.00	467.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
59	337.00	577.00	632.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
60	387.00	433.00	331.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
61	537.00	336.00	434.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
62	432.00	391.00	391.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
63	377.00	342.00	421.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
64	344.00	367.00	705.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
65	362.00	415.00	532.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
66	360.00	405.00	420.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
67	397.00	447.00	460.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
68	422.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
69	410.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00

MEANS	391.36	397.31	411.37	419.26	422.48	405.60	411.72	435.12	460.71	462.67
STANDARD	55.46	62.10	91.22	92.90	117.65	90.17	63.21	75.62	98.02	93.66
DEVIATIONS										
N=	69	67	67	50	50	41	32	27	24	15

75.000

1	351.00	424.00	397.00	442.00	506.00	319.00	347.00	330.00	262.00	507.00
2	504.00	352.00	355.00	651.00	587.00	424.00	440.00	472.00	507.00	431.00
3	422.00	423.00	542.00	475.00	321.00	382.00	396.00	562.00	405.00	422.00
4	405.00	385.00	397.00	397.00	542.00	411.00	405.00	413.00	437.00	472.00
5	425.00	462.00	490.00	424.00	435.00	337.00	408.00	424.00	441.00	315.00
6	450.00	367.00	393.00	397.00	374.00	407.00	342.00	427.00	415.00	407.00

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7	421.00	404.00	427.00	388.00	376.00	375.00	412.00	373.00	342.00	511.00
8	337.00	373.00	391.00	425.00	411.00	310.00	530.00	500.00	424.00	455.00
9	335.00	374.00	442.00	377.00	333.00	341.00	347.00	345.00	400.00	304.00
10	330.00	355.00	401.00	400.00	345.00	373.00	474.00	597.00	520.00	444.00
11	334.00	374.00	402.00	301.00	333.00	476.00	356.00	305.00	436.00	410.00
12	351.00	345.00	311.00	343.00	374.00	407.00	392.00	373.00	364.00	541.00
13	360.00	307.00	354.00	350.00	347.00	342.00	444.00	304.00	419.00	426.00
14	402.00	377.00	371.00	345.00	413.00	333.00	737.00	426.00	403.00	514.00
15	363.00	405.00	375.00	344.00	364.00	337.00	415.00	736.00	570.00	357.00
16	403.00	357.00	354.00	400.00	453.00	422.00	574.00	403.00	400.00	305.00
17	403.00	430.00	334.00	344.00	340.00	364.00	423.00	470.00	421.00	9999.00
18	346.00	373.00	382.00	332.00	366.00	577.00	355.00	501.00	414.00	9999.00
19	312.00	329.00	476.00	412.00	377.00	373.00	400.00	321.00	454.00	9999.00
20	434.00	385.00	374.00	360.00	424.00	630.00	472.00	274.00	456.00	9999.00
21	325.00	363.00	372.00	417.00	332.00	457.00	360.00	370.00	350.00	9999.00
22	374.00	330.00	325.00	354.00	511.00	305.00	356.00	455.00	347.00	9999.00
23	372.00	322.00	356.00	342.00	417.00	616.00	663.00	450.00	373.00	9999.00
24	345.00	341.00	351.00	426.00	514.00	265.00	717.00	227.00	9999.00	9999.00
25	329.00	412.00	420.00	410.00	502.00	425.00	402.00	416.00	9999.00	9999.00
26	455.00	360.00	410.00	378.00	402.00	452.00	388.00	324.00	9999.00	9999.00
27	412.00	372.00	377.00	374.00	373.00	335.00	436.00	500.00	9999.00	9999.00
28	303.00	376.00	374.00	463.00	467.00	302.00	435.00	401.00	9999.00	9999.00
29	376.00	375.00	432.00	427.00	466.00	330.00	342.00	551.00	9999.00	9999.00
30	373.00	402.00	387.00	462.00	434.00	693.00	412.00	310.00	9999.00	9999.00
31	400.00	376.00	424.00	423.00	456.00	512.00	390.00	9999.00	9999.00	9999.00
32	593.00	351.00	416.00	371.00	406.00	507.00	451.00	9999.00	9999.00	9999.00
33	444.00	374.00	432.00	473.00	350.00	402.00	653.00	9999.00	9999.00	9999.00
34	371.00	402.00	375.00	472.00	336.00	366.00	563.00	9999.00	9999.00	9999.00
35	467.00	377.00	467.00	411.00	350.00	404.00	544.00	9999.00	9999.00	9999.00
36	360.00	300.00	402.00	410.00	622.00	406.00	337.00	9999.00	9999.00	9999.00
37	375.00	442.00	370.00	412.00	473.00	337.00	402.00	9999.00	9999.00	9999.00
38	402.00	311.00	302.00	240.00	447.00	322.00	9999.00	9999.00	9999.00	9999.00
39	424.00	423.00	422.00	437.00	407.00	370.00	9999.00	9999.00	9999.00	9999.00
40	332.00	414.00	432.00	322.00	406.00	333.00	9999.00	9999.00	9999.00	9999.00
41	431.00	457.00	362.00	350.00	377.00	405.00	9999.00	9999.00	9999.00	9999.00
42	434.00	340.00	462.00	337.00	383.00	554.00	9999.00	9999.00	9999.00	9999.00
43	323.00	302.00	365.00	506.00	375.00	467.00	9999.00	9999.00	9999.00	9999.00
44	430.00	336.00	345.00	304.00	402.00	417.00	9999.00	9999.00	9999.00	9999.00
45	452.00	344.00	332.00	483.00	320.00	324.00	9999.00	9999.00	9999.00	9999.00
46	343.00	430.00	556.00	487.00	386.00	400.00	9999.00	9999.00	9999.00	9999.00
47	340.00	518.00	333.00	430.00	344.00	9999.00	9999.00	9999.00	9999.00	9999.00
48	320.00	372.00	478.00	406.00	682.00	9999.00	9999.00	9999.00	9999.00	9999.00
49	372.00	448.00	462.00	601.00	417.00	9999.00	9999.00	9999.00	9999.00	9999.00
50	433.00	456.00	402.00	384.00	320.00	9999.00	9999.00	9999.00	9999.00	9999.00
51	523.00	427.00	410.00	373.00	436.00	9999.00	9999.00	9999.00	9999.00	9999.00
52	437.00	403.00	507.00	401.00	522.00	9999.00	9999.00	9999.00	9999.00	9999.00
53	332.00	416.00	330.00	420.00	377.00	9999.00	9999.00	9999.00	9999.00	9999.00
54	457.00	331.00	407.00	337.00	372.00	9999.00	9999.00	9999.00	9999.00	9999.00
55	407.00	302.00	330.00	374.00	273.00	9999.00	9999.00	9999.00	9999.00	9999.00
56	376.00	373.00	414.00	342.00	521.00	9999.00	9999.00	9999.00	9999.00	9999.00
57	373.00	403.00	9999.00	614.00	411.00	9999.00	9999.00	9999.00	9999.00	9999.00
58	303.00	341.00	9999.00	344.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
59	376.00	374.00	376.00	451.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
60	405.00	466.00	365.00	544.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
61	335.00	347.00	355.00	300.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
62	356.00	370.00	547.00	677.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
63	330.00	532.00	362.00	814.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
64	441.00	460.00	740.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
65	446.00	415.00	432.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
66	371.00	354.00	510.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
67	412.00	425.00	374.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
68	450.00	547.00	635.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00
69	361.00	353.00	640.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00	9999.00

70	444.00	2220.00	1000.00	2220.00	2220.00	2220.00	2220.00	2220.00	2220.00	2220.00	2220.00
71	300.00	2220.00	2220.00	2220.00	2220.00	2220.00	2220.00	2220.00	2220.00	2220.00	2220.00
72	500.00	2220.00	2220.00	2220.00	2220.00	2220.00	2220.00	2220.00	2220.00	2220.00	2220.00
MEANS	402.62	397.10	411.64	421.17	411.21	413.13	440.65	457.27	469.01	490.62	
STANDARD	40.21	40.74	37.17	39.45	39.37	39.00	110.10	120.00	109.02	62.42	
DEVIATIONS											
N=	72	60	67	63	57	46	37	30	23	16	

* ADJUST PAGE 00 PRINTING HEAD TO JUST ABOVE NEXT PERFORATION *
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SL 082433

APPENDIX II

Gross and Histopathology Data for Male and Female Rats

1 Month Interim Kill

SL 082434

TABLE II-1
VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY
IN RATS

Gross Pathologic Findings in Rats on Long-Term Exposure
30 Day Interim Kill

<u>Pathologic Findings</u>	<u>Vapor Concentration (ppm)</u>		
<u>Males</u>	<u>0</u>	<u>10</u>	<u>40</u>
No visible lesions	2/4	3/4	2/4
Focal corneal cloudiness	1/4	0/4	0/4
Subpleural 1 to 2 mm sized pale gray foci in the lungs	2/4	1/4	1/4
Caudate lobe of the liver appears strangulated and pale colored	0/4	0/4	1/4
<u>Females</u>			
No visible lesions	1/4	1/4	3/4
Clear fluid in the uterine horns	2/4	0/4	0/4
Subpleural 1 to 2 mm sized pale gray foci in the lungs	3/4	3/4	1/4
Intestinal nematodiasis	1/4	0/4	1/4

Data listed as number of rats affected/number of rats examined.

SL 082435

TABLE II-2

VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY
IN RATSHistopathologic Findings in Male Rats on Long-Term Exposure
30 Day Interim Kill

<u>Microscopic Examination</u>	<u>Vapor Concentration (ppm)</u>		
	<u>0</u>	<u>10</u>	<u>40</u>
Focal chronic interstitial nephritis	0/4	0/4	2/4
Focal renal tubular collapse and atrophy	2/4	2/4	2/4
Focal dilated renal tubules with eosinophilic staining casts	4/4	2/4	2/4
Focal chronic hepatitis	3/4	2/4	3/4
Focal subacute to chronic interstitial pneumonia	3/4	2/4	4/4
Chronic peribronchial lymphoid cellular infiltrate	4/4	4/4	4/4
Focal chronic tracheitis	2/4	2/4	2/4
Focal chronic interstitial prostatitis	3/4	2/4	4/4
Intestinal nematodiasis	2/4	0/4	2/4
Chronic focal myocarditis	1/4	0/4	1/4
Pituitary gland microcyst in the pars distalis	1/4	0/4	0/4

Data listed as number of rats affected/number of rats examined.

SL 082436

TABLE II-3
 VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY
 IN RATS
 Histopathologic Findings in Female Rats on Long-Term Exposure
 30 Day Interim Kill

<u>Microscopic Examination</u>	<u>Vapor Concentration (ppm)</u>		
	<u>0</u>	<u>10</u>	<u>40</u>
Focal renal tubular collapse and atrophy	1/4	2/4	0/4
Focal granular casts within the renal tubules	4/4	4/4	2/4
Focal chronic hepatitis	3/4	2/4	1/4
Focal subacute to chronic interstitial pneumonia	3/4	3/4	2/4
Focal peribronchial lymphoid cellular infiltrate	3/4	4/4	4/4
Focal chronic tracheitis	1/4	3/4	2/4
Intestinal nematodiasis	0/4	0/4	2/4
Focal chronic urocystitis	1/4	0/4	0/4
Focal chronic pancreatitis	1/4	0/4	0/4
Focal chronic myocarditis	0/4	1/4	0/4

Data listed as number of rats affected/number of rats examined.

APPENDIX III

Gross and Histopathology Data for Male and Female Rats
6 Month Interim Kill

SL 082438

TABLE III-1
VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY
IN RATS

Gross Pathologic Findings in Rats on Long-Term Exposure
6 Month Interim Kill

<u>Pathologic Findings</u>	<u>Vapor Concentration (ppm)</u>		
<u>Males</u>	<u>0</u>	<u>25</u>	<u>75</u>
No visible lesions	1/5	3/5	0/5
Focal corneal cloudiness	3/5	0/5	1/5
Subpleural 1 to 2 mm sized pale gray foci in the lungs	0/5	0/5	1/5
Pneumonia in the dependent lobes of the lung	1/5	0/5	0/5
Intestinal nematodiasis	3/5	1/5	3/5
Kidneys increased in size and pale colored	2/5	1/5	2/5
Linear pale area in one lobe of the liver 1 cm long	0/5	0/5	1/5
<u>Females</u>			
No visible lesions	0/5	1/5	2/5
Clear fluid in the uterine horns	2/5	2/5	2/5
Endometrial polyp 1 mm diameter	0/5	0/5	1/5
Subpleural 1 to 2 mm sized pale gray foci in the lungs	1/5	2/5	1/5
Intestinal nematodiasis	4/5	1/5	1/5
Liver pale colored with accentuation of the lobular pattern	0/5	1/5	1/5
Focal corneal cloudiness	0/5	1/5	0/5

Data listed as number of rats affected/number of rats examined.

Histopathologic Findings in Male Rats on Long-Term Exposure 6 Month Interim Kill

Data listed as number of rats affected/number of rats examined.

SL 082440

Histopathologic Findings in Female Rats on Long-Term Exposure 6 Month Interim Kill

Data listed as number of rats affected/number of rats examined.

APPENDIX IV

Gross and Histopathology Data for Male and Female Rats
12 Month Interim Kill

SL 082442

TABLE IV-1

VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY
IN RATSGross Pathologic Findings in Rats on Long-Term Exposure
12 Month Interim Kill

<u>Pathologic Findings</u>	<u>Vapor Concentration (ppm)</u>		
	<u>0</u>	<u>25</u>	<u>75</u>
<u>Males</u>			
No visible lesions	1/5	0/5	0/5
Focal corneal cloudiness	2/5	2/5	1/5
Subpleural 1 to 2 mm sized pale gray foci in the lungs	1/5	1/5	0/5
Kidneys increased in size and pale colored with mottling of the cortex	3/5	2/5	3/5
Testicular edema, bilateral	1/5	0/5	0/5
Decreased adipose tissue in the abdominal cavity	0/5	2/5	3/5
Tumor of the adrenal medulla, unilateral	0/5	0/5	1/5
Focal fat necrosis within the epididymal fat pad	0/5	0/5	1/5
<u>Females</u>			
No visible lesions	2/5	0/5	0/5
Clear fluid in the uterine horns	0/5	1/5	0/5
Ovarian cysts with hydrometra	0/5	0/5	1/5
Subpleural 1 to 2 mm sized pale gray foci in the lungs	1/5	0/5	0/5
Liver pale colored with accentuation of the lobular pattern	0/5	5/5	5/5

TABLE IV-1 (continued)
 VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY
 IN RATS

Gross Pathologic Findings in Rats on Long-Term Exposure
 12 Month Interim Kill

<u>Pathologic Findings</u>	<u>Vapor Concentration (ppm)</u>		
	<u>0</u>	<u>25</u>	<u>75</u>
<u>Females</u>			
Kidneys increased in size	0/5	1/5	3/5
Kidney with a 5 mm fluid-filled cyst in the cortex	0/5	1/5	0/5
Subcutaneous tumorous mass in the mammary gland region	1/5	0/5	0/5
Mammary gland hyperplasia with galactoceles formation	0/5	1/5	0/5
Suppurative oophoritis, unilateral	0/5	1/5	0/5
Pituitary gland, increased in size	0/5	1/5	0/5
White firm tumorous masses in the vagina and cervix $\frac{1}{2}$ cm diameter	0/5	0/5	1/5
Endometrial cysts	1/5	0/5	1/5

Data listed as number of rats affected/number of rats examined.

Histopathologic Findings in Male Rats on Long-Term Exposure
12 Month Interim Kill

Data listed as number of rats affected/number of rats examined.

Histopathologic Findings in Female Rats on Long-Term Exposure 12 Month Interim Kill

SL 082446

TABLE IV-3 (continued)

VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY
IN RATSHistopathologic Findings in Female Rats on Long-Term Exposure
12 Month Interim Kill

<u>Microscopic Examination</u>	<u>Vapor Concentration (ppm)</u>		
	<u>0</u>	<u>25</u>	<u>75</u>
Adrenal gland, hematocysts formation in the cortex	1/5	1/5	1/5
Focal pituitary adenoma with sinusoidal dilatation	1/5	1/5	2/5
Adrenal cortex, hyperplastic focus	1/5	0/5	0/5
Focal squamous metaplasia of the endometrium	0/5	3/5	1/5
Body of the uterus without a lumen associated with hydrometra and ovarian cysts	0/5	0/5	1/5
Fibroma of the vagina and cervix	0/5	0/5	1/5
Mammary gland hyperplasia with galactoceles formation	0/5	1/5	0/5
Suppurative oophoritis, unilateral	0/5	1/5	0/5

Data listed as number of rats affected/number of rats examined.

APPENDIX V

TEST MATERIAL ANALYSIS

SL 082448

TABLE V-1

VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS

Typical Analysis of Vinylidene Chloride and Calculated
Chamber Concentrations of Impurities

<u>Impurities</u>	<u>Analysis*</u>	<u>Maximum Concentration (Calculated) in 75 ppm Atmosphere</u>
Vinyl chloride	0-0.13%**	113 ppb
Vinyl bromide	0-14 ppm	1.1 ppb
cis 1,2-dichloroethylene	0.003-0.16%	126 ppb
trans 1,2-dichloroethylene	0.01-0.3%	237 ppb
1,1,1 trichloroethane	0-8 ppm	0.5 ppb
1,1,2 trichloroethane	0-0.9 ppm	0.05 ppb
<u>Inhibitors</u>		
Hydroquinone monomethyl ether	130-400 ppm***	121 ppb
<u>Vinylidene Chloride</u>		74.41 ppm

* Gas chromatographic analysis

** Analyses from batches were between 2 and 66 ppm except for one at 1300 ppm.

*** There were single determinations of 558 and 1600 ppm for single containers from the last portions of two batches used.

APPENDIX VI

Individual Animal Data
Hematology

SL 082450

TABLE VI-1
VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Hematology Values for Male Rats Exposed for 6 Months

Conc. (ppm)	Slide Number	HCT %	RBC X10 ⁶	Hgb g/100 cc.	WBC X10 ³	DIFFERENTIAL COUNT						Remarks
						Neut		Lym.	Mon.	Eos.	Bas.	
						SEG	B/J					
0	11	49.0	7.33	15.9	13.1	18	0	75	6	1	0	1 nuc RBC
	12	53.5	7.99	17.0	10.5	16	0	80	4	0	0	
	13	56.0	8.67	17.7	10.6	14	0	81	3	2	0	
	14	53.0	7.83	17.1	10.2	16	0	81	1	2	0	
	15	57.0	8.19	17.8	11.2	9	0	87	2	2	0	
	Mean ±S.D.	53.7 3.1	8.00 0.49	17.1 0.8	11.1 1.2	15	0	31	3	1	0	
25	1	53.0	7.81	17.1	7.7	18	0	77	2	3	0	
	2	53.0	6.48	17.3	12.8	17	0	76	3	3	1	
	3	53.0	7.79	17.4	9.5	13	0	82	2	3	0	
	4	53.0	7.58	17.0	12.2	22	0	81	5	1	0	
	5	54.0	7.65	18.0	9.3	22	0	78	0	0	0	
	Mean ±S.D.	53.2 0.4	7.46 0.56	17.4 0.4	10.3 2.1	18	0	78	2	2	0	
75	21	54.0	6.58	17.2	8.6	8	0	88	4	0	0	
	22	54.0	8.19	17.4	13.7	10	0	82	7	1	0	
	23	55.0	7.68	17.1	10.2	21	0	74	3	2	0	
	24	55.0	8.19	17.7	11.4	16	0	81	3	0	0	
	25	54.0	7.87	16.9	39.9	40	0	51	9	0	0	
	Mean ±S.D.	54.4 0.5	7.70 0.66	17.3 0.3	16.8 13.1	19	0	75	5	1	0	

No statistically significant differences from control mean by analysis of variance and Dunnett's test, $p < 0.05$.

TABLE VI-2
VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Hematology Values for Female Rats Exposed for 6 Months

Conc. (ppm)	Slide Number	HCT %	RBC X10 ⁶	Hgb g/100 cc.	WBC X10 ³	DIFFERENTIAL COUNT						Remarks
						Neut		Lym.	Mon.	Eos.	Bas.	
						SEG	B/J					
0	16	47.5	7.49	16.3	6.8	9	0	87	2	2	0	
	17	56.5	8.02	17.1	8.7	10	0	84	4	2	0	
	18	53.0	7.39	17.1	11.9	9	0	81	8	2	0	
	19	52.0	7.03	16.2	12.0	7	0	91	1	1	0	
	20	49.5	6.77	16.0	10.5	9	0	87	3	1	0	
	Mean ±S.D.	51.7 3.4	9.34 0.48	16.5 0.5	10.0 2.2	9	0	86	4	1	0	
25	6	48.0	6.52	15.9	6.4	20	0	74	5	1	0	
	7	46.5	6.42	15.0	6.1	21	0	76	3	0	0	
	8	56.0	7.55	18.2	11.4	14	0	79	5	2	0	
	9	50.0	6.51	16.5	11.1	19	0	75	5	1	0	
	10	48.0	6.23	15.4	4.8	14	0	83	2	1	0	
	Mean ±S.D.	49.7 3.7	6.65 0.52	16.2 1.3	8.0 3.1	18	0	77	4	1	0	
75	26	50.0	7.03	16.6	7.6	9	0	85	3	3	0	
	27	54.0	7.00	17.9	9.3	16	0	80	2	2	0	
	28	49.5	7.30	16.4	10.4	10	0	84	5	1	0	
	29	52.5	8.17	18.0	9.2	19	0	79	1	1	0	
	30	57.5	9.08	18.0	11.3	10	0	86	3	1	0	
	Mean ±S.D.	52.7 3.3	7.72 0.90	17.4 0.8	9.6 1.4	13	0	83	3	1	0	

No statistically significant differences from control mean by analysis of variance and Dunnett's test, $p < 0.05$.

SL 08245

TABLE VI-3
VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Hematology Values for Male Rats Exposed for 12 Months

Animal Number	Conc. (ppm)	HCT %	RBC X10 ⁶	Hgb g/100 cc.	WBC X10 ³	DIFFERENTIAL COUNT						Remarks
						Neut		Lym.	Mon.	Eos.	Bas.	
						SEG	B/J					
74-1135	0	49.5	8.10	15.7	12.6	25	2/0	73	0	0	0	
1136		49.0	8.00	16.1	9.2	20	0	77	3	0	0	
1137		52.5	8.59	17.0	9.0	15	0	84	1	0	0	
1138		49.5	8.63	16.2	7.9	13	0	93	2	2	0	
1139		52.5	9.08	17.1	8.5	14	0	84	1	1	0	
		Mean	50.6	8.48	16.4	9.4	0	82	1	0	0	
		±S.D.	1.7	0.44	0.6	1.8						
74-1533	25	54.0	8.23	17.9	11.0	14	0	85	0	1	0	
1534		49.0	8.93	17.3	8.5	25	1/0	67	1	6	0	
1535		47.0	8.46	16.4	6.4	33	0	67	0	0	0	
1536		50.0	8.36	16.3	5.5	21	0	74	3	2	0	
1537		53.0	8.27	17.8	7.1	15	0	84	0	0	1	
		Mean	50.6	8.46	17.1	7.7	0	75	1	2	0	
		±S.D.	2.9	0.28	0.8	2.1						
74-1335	75	53.5	8.96	17.6	10.1	17	0	79	2	2	0	
1336		53.0	8.52	17.3	10.0	6	0	88	0	6	0	
1337		53.5	9.29	18.1	14.0	12	1/0	87	0	0	0	
1338		53.5	9.15	17.3	10.1	16	0	82	1	1	0	
1339		52.0	8.66	16.8	6.7	27	0	70	1	2	0	
		Mean	53.1	8.92	17.4	10.2	0	81	1	2	0	
		±S.D.	0.7	0.32	0.5	2.6						

No statistically significant differences from control mean by analysis of variance and Dunnett's test, $p < 0.05$.

SL 082453

TABLE VI-4
VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Hematology Values for Female Rats Exposed for 12 Months

Animal Number	Conc., (ppm)	HCT %	RBC $\times 10^6$	Hgb g/100 cc.	WBC $\times 10^3$	DIFFERENTIAL COUNT						Remarks
						Neut SEG	B/J	Lym.	Mon.	Eos.	Bas.	
74-1229	0	44.0	7.02	14.7	7.5	8	0	90	2	0	0	
1230		47.0	7.56	15.4	7.1	10	0	85	3	2	0	
1231		47.0	7.52	15.5	9.4	20	0	80	0	0	0	
1232		48.0	7.38	15.8	6.7	16	0	75	5	4	0	
1233		46.5	7.23	15.2	5.2	15	0	85	0	0	0	
		Mean	46.5	7.34	15.3	14	0	83	2	1	0	
		±S.D.	1.5	0.22	0.4	1.5						
74-1633	25	50.5	8.24	16.3	5.6	10	0	87	0	3	0	
1634		48.5	7.26	15.4	3.7	10	0	88	1	1	0	
1635		43.5	7.38	14.1	2.8	14	0	83	1	2	0	
1636		50.5	8.20	16.7	4.0	13	0	86	0	1	0	
1637		48.5	7.63	16.7	4.1	10	0	89	0	1	0	
		Mean	48.3	7.74	15.8	11	0	87	0	2	0	
		±S.D.	2.9	0.46	1.1	1.0						
74-1430	75	46.0	7.80	15.0	6.7	11	1/0	85	1	2	0	
1431		46.0	7.83	15.6	5.4	24	1/0	75	0	0	0	
1432		47.0	7.75	15.9	8.3	21	0	74	1	4	0	
1433		48.0	8.11	15.5	7.3	14	0	86	0	0	0	
1434		45.0	7.73	15.3	5.3	24	0	72	2	2	0	
		Mean	46.4	7.84	15.5	19	0	78	1	2	0	
		±S.D.	1.1	0.15	0.3	1.3						

*Significantly different from control mean by analysis of variance and Dunnett's test, $p < 0.05$.

SL 082454

TABLE VI-5
VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Hematology Values for Male Rats Exposed for 24 Months

Animal Number	Conc. (ppm)	HCT %	RBC $\times 10^6$	Hgb g/100 cc.	WBC $\times 10^3$	DIFFERENTIAL COUNT					
						Neut		Lym.	Mon.	Eos.	Bas.
						SEG	B/J				
74-1201	0	46.0	8.11	14.0	28.9	34	1/1	58	6	0	0
1202		45.0	7.07	14.5	13.8	37	0	52	7	4	0
1203		52.0	8.84	16.2	11.2	30	0	69	1	0	0
1204		48.0	7.93	15.5	14.0	41	0	52	5	2	0
1205		49.0	7.53	15.1	28.5	29	0	68	3	0	0
1206		48.0	7.62	15.3	22.0	25	0	73	1	1	0
1207		23.0	4.77	8.9	25.2	60	0	40	0	0	0
1208		45.0	7.48	14.6	20.8	19	0	76	4	1	0
1209		50.0	8.36	16.3	11.7	43	0	53	1	3	0
1210		47.0	7.36	15.6	10.9	31	0	64	3	2	0
		Mean	45.3	7.51	14.6	18.7	35	61	3	1	0
		S.D.	8.1	1.1	2.1	7.2					
74-1603	25	46.0	7.73	14.9	28.3	11	0	81	7	1	0
1604		35.0	6.03	12.6	14.2	30	0	65	5	0	0
1605		40.0	6.79	13.7	12.2	33	0	62	5	0	0
1606		45.0	7.42	15.5	11.9	50	0	45	3	2	0
1607		48.0	8.42	15.9	11.8	22	0	73	1	4	0
1608		50.0	7.96	16.0	20.3	38	0	61	1	0	0
1609		45.0	6.95	14.4	14.1	50	0	44	3	3	0
1610		46.0	7.14	14.8	15.7	42	0	57	1	0	0
1611		30.0	4.50	9.3	30.9	65	0	32	2	1	0
1612		49.0	7.97	16.5	13.7	41	0	64	4	1	0
		Mean	43.4	7.09	14.4	17.3	38	58	3	1	0
		S.D.	6.5	1.1	2.1	6.9					
74-1406	75	38.0	6.44	12.4	23.9	41	1/0	51	7	0	0
1407		48.0	7.64	15.6	12.2	29	0	65	3	3	0
1408		52.0	7.84	16.6	15.1	59	0	57	3	1	0
1409		46.0	7.32	16.3	13.1	52	0	42	3	3	0
1410		53.0	8.16	16.2	23.1	47	0	47	5	1	0
1411		41.0	6.72	14.7	8.9	39	0	54	6	1	0
1412		43.0	7.39	14.7	13.6	58	0	40	2	0	0
1413		53.0	8.53	17.1	12.7	23	0	72	2	2	0
1414		51.0	8.31	17.0	13.0	29	0	68	3	0	0
1415		48.0	7.77	15.8	15.8	21	0	77	2	0	0
		Mean	47.3	7.61	15.6	15.1	38	57	4	1	0
		S.D.	5.3	0.67	1.4	4.8					

No statistically significant differences from control mean by analysis of variance and Dunnett's test, $p < 0.05$.

TABLE VI-6
VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Hematology Values for Female Rats Exposed for 24 Months

Animal Number	Conc. (ppm)	HCT %	RBC $\times 10^6$	Hgb g/100 cc.	WBC $\times 10^3$	DIFFERENTIAL COUNT					
						Neut		Lym.	Mon.	Eos.	Bas.
						SEG	B/J				
74-1297	0	44.0	7.15	14.1	10.3	32	0	64	3	1	0
1298		27.0	3.23	8.0	21.8	42	9/1	45	2	1	0
1299		40.0	6.66	13.5	12.2	38	0	58	2	2	0
1300		40.0	6.71	13.9	7.4	54	0	41	3	1	0
1301		31.0	4.99	9.9	9.2	34	0	62	3	1	0
1302		38.0	5.53	12.9	13.1	35	0	64	1	0	0
1303		47.0	6.94	15.0	11.0	31	0	65	2	1	0
1304		48.0	7.58	15.7	10.1	46	0	50	2	2	0
1305		33.0	4.96	10.6	16.6	34	0	64	2	0	0
1306		42.0	6.65	13.6	19.9	52	0	45	3	0	0
Mean		39.0	6.04	12.7	13.2	40	1/0	56	2	1	0
±S.D.		6.9	1.3	2.4	4.8						
74-1699	25	30.0	4.21	9.3	27.1	47	2/0	46	5	0	0
1700		48.0	7.14	15.0	7.7	24	0	69	2	5	0
1701		36.0	6.03	11.7	12.7	43	1/0	50	5	1	0
1702		29.0	4.88	10.3	4.8	18	0	79	2	1	0
1703		58.0	9.30	19.7	18.6	25	0	72	0	3	0
1704		40.0	6.55	14.0	16.5	21	0	57	1	16	5
1705		43.0	6.63	14.2	16.6	49	2/0	43	4	2	0
1706		39.0	7.14	14.0	8.0	51	0	47	0	2	0
1707		36.0	5.42	11.7	19.8	34	2/0	59	4	1	0
1708		40.0	6.07	13.6	18.9	44	0	53	1	2	0
Mean		39.9	6.34	13.4	15.1	36	1/0	58	2	3	0
±S.D.		8.5	1.41	2.9	6.8						
74-1498	75	42.0	6.41	13.5	14.2	40	0	52	7	1	0
1499		44.0	6.96	14.3	26.0	49	1/0	43	2	5	0
1500		45.0	7.22	14.8	14.9	23	1/0	73	3	0	0
1501		40.0	6.61	13.6	15.0	50	1/0	44	4	1	0
1502		40.0	6.35	13.1	8.4	42	0	54	4	0	0
1503		33.0	5.64	11.7	15.5	36	1/0	59	2	2	0
1504		40.0	6.55	12.9	9.4	36	0	60	4	0	0
1505		43.0	6.55	14.8	14.4	56	0	41	3	0	0
1506		43.0	7.04	14.5	18.0	48	0	46	1	5	0
1507		43.0	7.26	14.7	7.5	38	0	55	6	1	0
Mean		41.3	6.66	13.8	14.3	42	0	53	3	2	0
±S.D.		3.4	0.49	1.0	5.4						

No statistically significant differences from control mean by analysis of variance and Dunnett's test, $p < 0.05$.

APPENDIX VII
Individual Animal Data
Urinalysis

SL 082457

TABLE VII-1

VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS

Urinalysis Values for Male Rats Exposed for 6 Months

Conc. (ppm)	Specific Gravity	pH	Sugar	Albumin	Ketones	Bilirubin	Blood
0	1.044	7.0	-	+++	-	-	-
	1.034	7.0	-	+++	-	-	-
	1.022	7.0	-	++	-	-	-
	1.034	6.5	-	+++	-	-	-
	1.034	7.0	-	+++	-	-	-
	Mean ±S.D.	1.0336 0.0078					
25	1.025	7.5	-	+++	-	-	-
	1.039	6.5	-	+++	-	-	-
	1.039	6.5	-	++	-	-	-
	1.036	7.0	-	+++	-	-	-
	1.048	7.0	-	+++	-	-	-
	Mean ±S.D.	1.0378 0.0135					
75	1.038	7.0	-	+++	-	-	-
	1.027	7.0	-	+++	-	-	-
	1.022	7.0	-	+++	-	-	-
	1.054	8.0	-	+++	-	-	-
	1.048	7.0	-	+++	-	-	-
	Mean ±S.D.	1.0374 0.0083					

No statistically significant difference from control mean by analysis of variance and Dunnett's test, $p < 0.05$.

TABLE VII-2

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Urinalysis Values for Female Rats Exposed for 6 Months

<u>Conc.</u> <u>(ppm)</u>	<u>Specific</u> <u>Gravity</u>	<u>pH</u>	<u>Sugar</u>	<u>Albumin</u>	<u>Ketones</u>	<u>Bilirubin</u>	<u>Blood</u>
0	1.016	6.0	-	Trace	-	-	-
	1.024	6.0	-	-	-	-	-
	1.036	6.0	-	Trace	-	-	-
	1.036	6.0	-	Trace	-	-	-
	1.014	6.5	-	Trace	-	-	-
	Mean ±S.D.	1.0252 0.0105					
25	1.021	7.0	-	Trace	-	-	-
	1.034	6.0	-	+	-	-	-
	1.033	6.5	-	++	-	-	-
	1.038	6.0	-	Trace	-	-	-
	1.044	6.0	-	Trace	-	-	-
	Mean ±S.D.	1.0158 0.0056					
75	1.020	6.5	-	+	-	-	-
	1.010	6.0	-	++	-	-	-
	1.013	6.0	-	Trace	-	-	-
	1.007	6.0	-	+	-	-	-
	1.019	6.0	-	+	-	-	-
	Mean ±S.D.	1.0138 0.0056					

No statistically significant difference from control mean by analysis of variance and Dunnett's test, $p < 0.05$.

TABLE VII-3

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
 Urinalysis Values for Male Rats Exposed for 12 Months

Conc. (ppm)	Animal Number	Specific Gravity	pH	Sugar	Albumin	Ketones	Bilirubin	Blood
0	74-1135	1.033	6.0	-	3+	-	-	-
	1136	1.034	6.5	-	3+	-	-	-
	1137	1.015	7.0	-	2+	-	-	small
	1138	1.013	6.5	-	3+	-	-	small
	1139	1.029	7.5	-	2+	-	-	trace
	Mean ±S.D.	1.0248 0.0101						
25	74-1533	1.043	6.5	-	3+	-	-	small
	1534	1.013	6.5	-	3+	-	-	-
	1535	1.006	5.5	-	3+	-	-	mod.
	1536	1.019	7.0	-	3+	-	-	-
	1537	1.010	6.0	-	2+	-	-	-
	Mean ±S.D.	1.0364 0.0112						
75	74-1335	1.022	6.0	-	3+	-	-	-
	1336	1.029	6.5	-	3+	-	-	-
	1337	1.037	7.0	-	3+	-	-	-
	1338	1.044	7	-	3+	-	-	-
	1339	1.050	6.0	-	3+	-	-	-
	Mean ±S.D.	1.0182 0.0147						

No statistically significant difference from control mean by analysis of variance and Dunnett's test, $p < 0.05$.

TABLE VII-4

VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS

Urinalysis Values for Female Rats Exposed for 12 Months

Conc. (ppm)	Animal Number	Specific Gravity	pH	Sugar	Albumin	Ketones	Bilirubin	Blood
0	74-1229	1.035	7.0	-	2+	-	-	-
	1230	1.034	6.0	-	2+	-	-	-
	1231	1.033	6.5	-	2+	-	-	-
	1232	1.033	6.0	-	2+	-	-	-
	1233	1.021	7.0	-	2+	-	-	small
	Mean	1.0312						
	±S.D.	0.0058						
25	1633	1.022	7.0	-	3+	-	-	-
	1634	1.041	6.0	-	2+	-	-	-
	1635	1.013	5.5	-	2+	-	-	-
	1636	1.006	6.0	-	3+	-	-	-
	1637	1.028	7.5	-	3+	-	-	-
	Mean	1.0228						
	±S.D.	0.0137						
75	74-1430	1.040	6.5	-	3+	-	-	-
	1431	1.025	6.5	-	3+	-	-	large
	1432	1.031	7.0	-	3+	-	-	large
	1433	1.009	6.5	-	2+	-	-	small
	1434	1.009	6.0	-	2+	-	-	small
	Mean	1.0220						
	±S.D.	0.0135						

No statistically significant difference from control mean by analysis of variance and Dunnett's test, $p < 0.05$.

SL 082461

TABLE VII-5

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Urinalysis Values for Male Rats Exposed for 24 Months

Conc. (ppm)	Animal Number	Specific Gravity	pH	Sugar	Albumin	Ketones	Bilirubin	Blood	Urobilinogen
0	74-1201		unable to obtain sample						
	1202	1.020	6.5	-	3+	-	-	-	1.0
	1203	1.034	6.0	-	3+	-	-	-	0.1
	1204	1.027	6.0	-	3+	-	-	-	1.0
	1205	1.032	6.0	-	3+	-	-	-	0.1
	1206	1.049	6.0	-	3+	-	-	-	1.0
	1207	1.017	6.0	-	3+	-	-	-	1.0
	1208	1.020	6.0	-	3+	-	-	-	1.0
	1209	1.026	7.0	-	3+	-	-	-	1.0
	1210	1.021	6.0	-	3+	-	-	-	1.0
	Mean	1.0273							
	±S.D.	0.0099							
25	74-1603	1.034	6.0	-	3+	-	-	-	1.0
	1604	1.038	6.0	-	3+	-	-	-	1.0
	1605	1.019	6.0	-	3+	-	-	-	0.1
	1606	1.020	6.5	-	3+	-	-	-	0.1
	1607	1.018	6.0	-	3+	-	-	-	1.0
	1608	1.033	6.0	-	3+	-	-	-	0.1
	1609	1.023	8.0	-	3+	-	-	-	0.1
	1610	1.045	6.0	-	3+	-	-	-	0.1
	1611	1.021	6.0	-	3+	-	-	-	1.0
	1612	1.026	6.0	-	3+	-	-	-	0.1
	Mean	1.0267							
	±S.D.	0.0089							
75	74-1406	1.023	6.5	-	3+	-	-	-	1.0
	1407	1.023	6.0	-	3+	-	-	-	1.0
	1408	1.038	6.0	-	3+	-	-	-	0.1
	1409	1.019	6.0	-	3+	-	-	-	0.1
	1410	1.014	6.5	-	3+	-	-	-	1.0
	1411	1.025	6.0	-	3+	-	-	-	1.0
	1412	1.020	6.0	-	3+	-	-	-	1.0
	1413	1.034	7.0	-	3+	-	-	-	1.0
	1414	1.029	6.0	-	3+	-	-	-	0.1
	1415	1.042	6.0	-	3+	-	-	-	1.0
	Mean	1.0277							
	±S.D.	0.0093							

No statistically significant differences from control mean by analysis of variance and Dunnett's test, $p < 0.05$.

TABLE VII-6

VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS

Urinalysis Values for Female Rats Exposed for 24 Months

Conc. (ppm)	Animal Number	Specific Gravity	pH	Sugar	Albumin	Ketones	Bilirubin	Blood	Urobilinogen
0	74-1297	1.043	6.0	-	3+	-	-	-	0.1
	1298	1.032	6.0	-	3+	-	-	-	1.0
	1299	1.028	6.5	-	2+	-	-	-	1.0
	1300	1.022	6.5	-	3+	-	-	-	1.0
	1301	1.039	6.0	-	3+	-	-	-	1.0
	1302	1.042	6.0	-	3+	-	-	-	1.0
	1303	1.048	6.0	-	3+	-	-	-	1.0
	1304	1.026	6.0	-	3+	-	-	-	0.1
	1305	unable to obtain sample							
	1306	1.025	7.0	-	2+	-	-	-	1.0
	Mean	1.0339							
	±S.D.	0.0093							
25	74-1699	1.049	6.0	-	3+	-	-	-	1.0
	1700	1.045	6.0	-	3+	-	-	-	0.1
	1701	1.035	6.0	-	3+	-	-	-	1.0
	1702	1.038	6.5	-	3+	-	-	-	1.0
	1703	1.033	6.0	-	3+	-	-	-	1.0
	1704	1.044	7.0	-	3+	-	-	-	1.0
	1705	1.033	7.0	-	3+	-	-	-	1.0
	1706	1.030	7.0	-	3+	-	-	-	1.0
	1707	1.032	6.5	-	3+	-	-	-	1.0
	1708	1.028	6.5	-	3+	-	-	-	0.1
	Mean	1.0302							
	±S.D.	0.0108							
75	74-1498	1.021	6.0	-	3+	-	-	-	1.0
	1499	1.020	5.5	-	3+	-	-	-	1.0
	1500	1.029	6.0	-	3+	-	-	-	0.1
	1501	1.035	6.0	-	3+	-	-	-	1.0
	1502	1.016	6.5	-	3+	-	-	-	1.0
	1503	1.032	6.5	-	3+	-	-	-	1.0
	1504	1.038	6.0	-	3+	-	-	-	1.0
	1505	1.047	6.0	-	3+	-	-	-	1.0
	1506	1.044	6.0	-	3+	-	-	-	1.0
	1507	1.020	6.5	-	3+	-	-	-	1.0
	Mean	1.0367							
	±S.D.	0.0071							

No statistically significant difference from control mean by analysis of variance and Dunnett's test, $p < 0.05$.

APPENDIX VIII

Individual Animal Data

Clinical Chemistry

SL 082464

TABLE VIII-1
VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
SGPT Values for Rats Exposed for 2 Weeks

MALES			FEMALES		
Animal Number	Conc. (ppm)	SGPT mU/ml	Animal Number	Conc. (ppm)	SGPT mU/ml
1K	0	36	101K	0	40
2K	0	43	102K	0	37
8K	0	33	103K	0	30
9K	0	43	104K	0	30
-tag K	0	30	105K	0	27
	Mean	37.0		Mean	32.8
	±S.D.	5.9			5.4
1L	10	30	101L	10	40
2L	10	47	102L	10	35
3L	10	39	103L	10	38
4L	10	30	104L	10	39
5L	10	42	105L	10	35
	Mean	37.6		Mean	37.4
	±S.D.	7.5		±S.D.	2.3
501H	40	32	403H	40	26
502H	40	31	404H	40	35
503H	40	26	405H	40	36
504H	40	30	-tag H	40	29
597H	40	26	-tag H	40	30
	Mean	29.0		Mean	31.2
	±S.D.	2.8		±S.D.	4.2

No significant difference from control mean by analysis of variance and Dunnett's test, $p < 0.05$.

TABLE VIII-2

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Clinical Chemistry for Male Rats Exposed for 30 days

<u>Animal Number</u>	<u>Conc. (ppm)</u>		<u>BUN mg/100ml</u>	<u>SGPT mU/ml</u>	<u>Alk. Phos. mU/ml</u>
74-1119	0		23	34	144
74-1120	0		27	32	121
74-1121	0		17	29	149
74-1122	0		17.5	27	150
		Mean	21.1	30.5	141.0
		±S.D.	4.8	3.1	13.6
74-1521	10		23	27	184
74-1522	10		22.5	27	150
74-1523	10		26	29	192
74-1524	10		20	34	166
		Mean	22.9	29.3	173.0*
		±S.D.	2.5	3.3	18.8
74-1319	40		20.5	25	117
74-1320	40		18	29	109
74-1321	40		23	27	132
74-1322	40		21	26	111
		Mean	20.6	26.8	117.3
		±S.D.	2.1	1.7	10.4

* Statistically significant difference from control mean by analysis of variance and Dunnett's test, $p < 0.05$.

SL 082466

TABLE VIII-3

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Clinical Chemistry Values for Female Rats Exposed for 30 Days

<u>Animal Number</u>	<u>Conc. (ppm)</u>		<u>BUN mg/100ml</u>	<u>SGPT mU/ml</u>	<u>Alk. Phos. mU/ml</u>
74-1218	0		22	27	102
74-1219	0		21	20	75
74-1220	0		25	22	89
74-1221	0		23	26	151
		Mean	22.8	23.8	104.3
		±S.D.	1.7	3.3	33.0
74-1618	10		20	22	128
74-1619	10		25.5	24	155
74-1620	10		22.5	25	102
74-1621	10		21	25	101
		Mean	22.3	24.0	121.5
		±S.D.	2.4	1.4	25.6
74-1418	40		18	20	100
74-1419	40		26.5	25	127
74-1420	40		27.5	28	136
74-1421	40		23.5	20	93
		Mean	23.9	23.3	114.0
		±S.D.	4.3	3.9	20.7

No statistically significant difference from control mean by analysis of variance and Dunnett's test, $p < 0.05$.

TABLE VIII-4

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Clinical Chemistry Values for Rats Exposed for 7 Weeks

	Animal Number	Conc. (ppm)	BUN mg/100ml	SGPT mU/ml	Alk. Phos. mU/ml
MALE RATS	74-1119	0	23	34	144
	74-1120	0	27	32	121
	74-1121	0	17	29	149
	74-1122	0	17.5	27	150
		Mean	21.1	30.5	141.0
		±S.D.	4.8	3.1	13.6
	74-1521	10	23	27	184
	74-1522	10	22.5	27	150
	74-1523	10	26	29	192
	74-1524	10	20	34	166
		Mean	22.9	29.3	173.0
		±S.D.	2.5	3.3	18.8*
	74-1319	40	20.5	25	117
	74-1320	40	18	29	109
	74-1321	40	23	27	132
	74-1322	40	21	26	111
		Mean	20.6	26.8	117.3
		±S.D.	2.1	1.7	10.4
FEMALE RATS	74-1218	0	22	27	102
	74-1219	0	21	20	75
	74-1220	0	25	22	89
	74-1221	0	23	26	151
		Mean	22.8	23.8	104.3
		±S.D.	1.7	3.3	33.0
	74-1618	10	20	22	128
	74-1619	10	25.5	24	155
	74-1620	10	22.5	25	102
	74-1621	10	21	25	101
		Mean	22.3	24.0	121.5
		±S.D.	2.4	1.4	25.6
	74-1418	40	18	20	100
	74-1419	40	26.5	25	127
	74-1420	40	27.5	28	136
	74-1421	40	23.5	20	93
		Mean	23.9	23.3	114.0
		±S.D.	4.3	3.9	20.7

*Statistically significant difference from control mean by analysis of variance and Dunnett's test, $p < 0.05$.

SL 082468

TABLE VIII-5

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Clinical Chemistry Values for Male Rats Exposed for 6 Months

<u>Animal Number</u>	<u>Conc. (ppm)</u>		<u>BUN mg/100ml</u>	<u>SGPT mU/ml</u>	<u>Alk. Phos. mU/ml</u>
74-1125	0		17	23	96
74-1126	0		17	29	131
74-1127	0		17	28	97
74-1128	0		19	42	90
74-1129	0		18	34	131
		Mean	17.6	31	109
		±S.D.	0.9	7	20
74-1526	25		20	26	90
74-1527	25		14	24	122
74-1528	25		31	33	129
74-1529	25		28	27	161
74-1530	25		18	23	116
		Mean	22.2	27	124
		±S.D.	7.1	4	26
74-1326	75		16.0	50	112
74-1327	75		16.0	21	131
74-1328	75		16.5	28	102
74-1329	75		14.5	21	109
74-1330	75		20.0	29	117
		Mean	16.6	30	114
		±S.D.	2.0	12	11

No statistically significant difference from control means by analysis of variance and Dunnett's test, $p < 0.05$.

SL 082469

TABLE VIII-6

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Clinical Chemistry Values for Female Rats Exposed for 6 Months

<u>Animal Number</u>	<u>Conc. (ppm)</u>		<u>BUN mg/100ml</u>	<u>SGPT mU/ml</u>	<u>Alk. Phos. mU/ml</u>
74-1223	0		26.0	30	64
74-1224	0		22.0	30	150
74-1225	0		27.0	25	112
74-1226	0		30.5	27	124
74-1227	0		26.0	27	90
		Mean	26.3	28	108
		±S.D.	3.0	2	33
74-1623	25		26.0	23	75
74-1624	25		25.0	28	70
74-1625	25		26.0	25	97
74-1626	25		27.0	28	112
74-1627	25		27.0	39	239
		Mean	26.2	29	119
		±S.D.	0.8	6	69
74-1423	75		21.0	31	75
74-1424	75		21.5	21	72
74-1425	75		19.5	16	70
74-1426	75		30.0	18	83
74-1427	75		19.0	23	99
		Mean	22.2	22	80
		±S.D.	4.5	6	12

No statistically significant difference from control mean by analysis of variance and Dunnett's test, $p < 0.05$.

TABLE VIII-7

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Clinical Chemistry Values for Male Rats Exposed for 12 Months

<u>Animal Number</u>	<u>Conc. (ppm)</u>	<u>BUN mg/100ml</u>	<u>SGPT mU/ml</u>	<u>Alk. Phos. mU/ml</u>	<u>Glucose mg/100ml</u>
74-1135	0	17	51	74	126
74-1136	0	20	39	70	134
74-1137	0	14	42	97	136
74-1138	0	12.5	45	91	127
74-1139	0	14	45	96	150
	Mean	15.5	44.4	85.6	134.6
	±S.D.	3.0	4.4	12.7	9.6
74-1533	25	21	46	64	118
74-1534	25	28	52	132	124
74-1535	25	14	47	125	116
74-1536	25	17	53	121	126
74-1537	25	12.5	39	81	140
	Mean	18.5	47.4	104.6	124.8
	±S.D.	6.2	5.6	30.2	9.4
74-1335	75	14.5	37	98	96
74-1336	75	14	39	113	96
74-1337	75	27	42	76	110
74-1338	75	14.5	35	121	110
74-1339	75	15	49	148	102
	Mean	17.0	40.4	111.2	102.8
	±S.D.	5.6	5.5	26.8	7.0*

*Statistically significant difference from control mean by analysis of variance and Dunnett's test, $p < 0.05$.

TABLE VIII-8

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Clinical Chemistry Values for Female Rats Exposed for 12 Months

<u>Animal Number</u>	<u>Conc. (ppm)</u>		<u>BUN mg/100ml</u>	<u>SGPT mU/ml</u>	<u>Alk. Phos. mU/ml</u>	<u>Glucose mg/100ml</u>
74-1229	0		27	38	79	134
74-1230	0		18.5	33	47	146
74-1231	0		17	47	80	125
74-1232	0		13	33	60	131
74-1233	0		14.5	36	87	143
		Mean	18.0	37.4	70.6	135.8
		±S.D.	5.5	5.8	16.6	8.6
74-1633	25		12.5	35	50	136
74-1634	25		12	29	81	140
74-1635	25		10	39	88	156
74-1636	25		24	44	53	127
74-1637	25		16	40	56	126
		Mean	14.9	37.4	65.6	137.0
		±S.D.	5.5	5.7	17.6	12.2
74-1430	75		13	34	73	126
74-1431	75		17.5	56	97	152
74-1432	75		14	33	59	154
74-1433	75		14	33	64	123
74-1434	75		14	36	93	132
		Mean	14.5	38.4	77.2	137.4
		±S.D.	1.7	9.9	17.1	14.6

No statistically significant difference from control mean by analysis of variance and Dunnett's test, $p < 0.05$.

TABLE VIII-9
VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Glucose Values for Rats Exposed for 18 Months

<u>MALE</u>			<u>FEMALE</u>		
<u>Animal Number</u>	<u>Conc. (ppm)</u>	<u>Glucose mg/100ml</u>	<u>Animal Number</u>	<u>Conc. (ppm)</u>	<u>Glucose mg/100ml</u>
1	0	78	1	0	89
2	0	89	2	0	103
3	0	88	3	0 ¹	94
4	0	120	4	0	101
5	0	83	5	0	113
		Mean			Mean
		±S.D.			±S.D.
		92			100
		16			9
11	25	90	11	25	102
12	25	84	12	25	105
13	25	96	13	25	89
14	25	85	14	25	79
15	25	97	15	25	93
		Mean			Mean
		±S.D.			±S.D.
		90			94
		6			10
6	75	86	6	75	90
7	75	98	7	75	106
8	75	98	8	75	98
9	75	102	9	75	100
10	75	97	10	75	91
		Mean			Mean
		±S.D.			±S.D.
		96			97
		6			7

¹No statistically significant difference from control mean using Dunnett's test, $p < 0.05$.

TABLE VIII-10
VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Clinical Chemistry Values for Male Rats Exposed for 24 Months

Animal Number	Conc. (ppm)	BUN mg/100ml	SGPT mU/ml	Alk. Phos. mU/ml	Glucose mg/100ml
74-1201	0	30	31	102	133
74-1202	0	24	37	83	90
74-1203	0	25	31	71	102
74-1204	0	30	36	113	92
74-1205	0	28	28	77	97
74-1206	0	18	46	75	110
74-1208	0	39	24	82	58
74-1209	0	16	32	124	109
74-1210	0	37	32	137	117
74-1213	0	24	38	102	98
74-1214	0	44	27	80	122
74-1215	0	38	44	116	111
74-1216	0	29	31	55	105
		Mean	34	94	103
		±S.D.	6	24	18
74-1603	25	21	34	81	106
74-1604	25	150	29	99	148
74-1605	25	240	77	168	148
74-1606	25	36	41	55	110
74-1607	25	16	52	105	86
74-1608	25	28	40	65	74
74-1609	25	43	261	79	72
74-1610	25	27	49	149	107
74-1611	25	31	27	114	110
74-1612	25	33	26	115	80
74-1614	25	32	29	121	85
74-1615	25	108	36	135	99
74-1616	25	16	51	86	135
		Mean	58	106	105
		±S.D.	63	33	26
74-1407	75	28	31	72	104
74-1408	75	21	47	85	89
74-1409	75	26	47	105	52
74-1410	75	65	50	115	99
74-1412	75	16	49	100	96
74-1413	75	51	38	110	84
74-1414	75	26	30	95	108
74-1415	75	25	30	112	110
		Mean	40	99	93
		±S.D.	17	15	19

No statistically significant difference from control mean using Dunnett's test, $p < 0.05$.

SL 082475

APPENDIX IX

Individual Animal Data
Organ Weights, Fasted Body Weights
and Organ to Body Weight Ratios

SL 082476

TABLE VIII-11

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Clinical Chemistry Values for Female Rats Exposed for 24 Months

Animal Number	Conc. (ppm)	BUN mg/100ml	SGPT mU/ml	Alk. Phos. mU/ml	Glucose mg/100ml
74-1297	0	22	26	63	114
74-1298	0	21	29	447	72
74-1299	0	16	52	116	74
74-1300	0	12	50	169	110
74-1301	0	17	34	145	118
74-1302	0	29	33	77	92
74-1303	0	22	32	75	99
74-1304	0	14	37	67	92
74-1306	0	16	25	55	134
74-1308	0	30	19	82	83
74-1309	0	24	39	146	100
74-1310	0	114	40	162	112
74-1311	0	19	32	82	104
74-1312	0	21	22	64	84
74-1313	0	29	51	75	141
74-1314	0	114	68	267	45
74-1315	0	14	44	127	128
74-1316	0	9	25	46	109
74-1317	0	22	39	92	106
	Mean	30	37	124	101
	±S.D.	30	12	95	23
74-1699	25	19	28	51	111
74-1700	25	15	33	63	104
74-1701	25	25	31	89	110
74-1702	25	18	34	59	88
74-1703	25	46	53	279	20
74-1704	25	24	44	219	89
74-1705	25	19	39	51	98
74-1706	25	16	41	50	60
74-1708	25	-	-	-	-
74-1714	25	31	40	64	76
74-1716	25	14	32	63	122
74-1717	25	14	32	47	103
	Mean	22	37	94	89
	±S.D.	10	7	79	29
74-1498	75	29	21	45	131
74-1499	75	228	46	188	81
74-1500	75	20	42	74	131
74-1501	75	22	22	70	122
74-1502	75	89	23	188	109
74-1503	75	17	40	93	98
74-1504	75	21	35	98	70
74-1505	75	15	33	39	102
74-1506	75	15	32	60	84
74-1507	75	22	22	192	90
74-1510	75	11	38	70	91
74-1511	75	20	25	38	73
74-1512	75	19	33	143	84
74-1513	75	21	32	53	77
74-1514	75	11	40	53	80
74-1515	75	20	25	60	90
	Mean	36	32	92	95
	±S.D.	54	8	55	20

No statistically significant difference from control mean using Dunnett's test, $p < 0.05$.

TABLE IX-1
VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Organ and Body Weight Values for Male Rats Exposed for 1 Month

Animal Number	Dose ppm	Body Weight	Brain		Heart		Liver		Kidney		Testes	
			g	g/100g	g	g/100g	g	g/100g	g	g/100g	g	g/100g
74-1119	0	360	1.765	0.490	1.021	0.284	10.610	2.947	2.485	0.690	3.816	1.060
74-1120	0	389	1.834	0.472	1.264	0.325	10.931	2.810	2.800	0.720	3.852	0.990
74-1121	0	391	1.975	0.505	1.395	0.357	11.945	3.055	2.828	0.723	3.767	0.963
74-1122	0	354	1.689	0.477	1.117	0.316	11.124	3.142	2.708	0.765	3.268	0.923
	Mean	373	1.82	0.49	1.20	0.321	11.15	2.989	2.71	0.725	3.68	0.984
	±S.D.	19	0.12	0.01	0.16	0.03	0.57	0.14	0.16	0.03	0.27	0.06
74-1521	10	398	1.826	0.459	1.170	0.294	12.053	3.028	3.058	0.768	3.690	0.927
74-1522	10	426	1.873	0.440	1.169	0.274	12.723	2.987	2.823	0.663	4.106	0.964
74-1523	10	378	1.861	0.492	1.106	0.293	11.255	2.978	2.806	0.742	3.754	0.993
74-1524	10	345	1.809	0.524	1.061	0.308	9.010	2.612	2.367	0.686	3.527	1.022
	Mean	387	1.84	0.48	1.13	0.292	11.26	2.901	2.76	0.715	3.76	0.977
	±S.D.	34	0.03	0.04	0.05	0.01	1.62	0.91	0.29	0.05	0.24	0.04
74-1319	40	402	1.887	0.469	1.206	0.300	11.699	2.910	2.927	0.728	3.664	0.911
74-1320	40	401	1.798	0.448	1.151	0.287	11.938	2.978	3.075	0.767	3.523	0.879
74-1321	40	425	1.851	0.436	1.488	0.350	13.051	3.071	2.785	0.655	3.727	0.877
74-1322	40	403	1.876	0.466	1.188	0.295	12.678	3.146	2.926	0.726	3.297	0.818
	Mean	408	1.85	0.45	1.26	0.308	12.34	3.026	2.93	0.719	3.55	0.871*
	±S.D.	12	0.04	0.02	0.15	0.03	0.63	0.10	0.12	0.05	0.19	0.04

*Statistically significant difference from control mean using Dunnett's test, $p < 0.05$.

SL 082477

TABLE IX-2
VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Organ and Body Weight Values for Female Rats Exposed for 1 Month

Animal Number	Dose ppm	Body Weight	Brain		Heart		Liver		Kidney	
			g	g/100g	g	g/100g	g	g/100g	g	g/100g
74-1218	0	279	1.76	0.631	0.83	0.296	6.92	2.480	1.92	0.690
74-1219	0	234	1.73	0.738	0.78	0.331	6.16	2.633	1.42	0.608
74-1220	0	240	1.79	0.745	0.82	0.342	6.42	2.673	1.81	0.753
74-1221	0	249	1.65	0.661	0.80	0.322	6.32	2.540	1.67	0.669
	Mean	251	1.73	0.69	0.81	0.323	6.45	2.58	1.70	0.68
	S.D.	20	0.06	0.06	0.02	0.02	0.33	0.09	0.22	0.06
74-1618	10	252	1.78	0.708	0.81	0.321	6.21	2.464	1.95	0.775
74-1619	10	250	1.70	0.680	0.77	0.309	6.51	2.604	1.75	0.700
74-1620	10	244	1.77	0.725	0.80	0.328	6.31	2.586	1.87	0.766
74-1621	10	250	1.75	0.699	0.93	0.372	6.90	2.759	1.87	0.748
	Mean	249	1.75	0.70	0.83	0.33	6.48	2.60	1.86	0.75
	S.D.	3	0.04	0.02	0.07	0.03	0.30	0.12	0.08	0.02
74-1418	40	244	1.74	0.712	0.77	0.315	5.92	2.425	1.73	0.707
74-1419	40	210	1.67	0.795	0.66	0.313	5.53	2.635	1.49	0.711
74-1420	40	259	1.78	0.686	0.84	0.323	6.50	2.506	1.88	0.724
74-1421	40	231	1.76	0.763	0.75	0.323	5.54	2.398	1.63	0.704
	Mean	236	1.74	0.074	0.75	0.32	5.87	2.49	1.68	0.71
	S.D.	21	0.05	0.05	0.07	0.01	0.45	0.11	0.16	0.01

No statistically significant difference from control mean using Dunnett's test, $p < 0.05$.

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TABLE IX-3
VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Organ and Body Weight Values for Male Rats Exposed for 6 Months

Animal Number	Dose ppm	Body Weight	Brain		Heart		Liver		Kidney		Testes	
			g	g/100g	g	g/100g	g	g/100g	g	g/100g	g	g/100g
74-1125	0	532	1.844	0.3466	1.512	0.2842	14.834	2.7883	3.964	0.7451	4.216	0.7925
74-1126	0	524	1.950	0.3721	1.574	0.3004	12.445	2.3750	3.429	0.6544	3.988	0.7611
74-1127	0	531	1.899	0.3576	1.435	0.2702	12.573	2.3687	3.223	0.6070	3.839	0.7230
74-1128	0	625	1.716	0.2746	1.725	0.2760	21.200*	3.3920	4.535	0.7256	3.402	0.5443
74-1129	0	555	1.761	0.3173	1.359	0.2449	15.022	2.7067	3.688	0.6645	3.939	0.7097
	Mean	553	1.83	0.33	1.52	0.28		2.73	3.77	0.68	3.88	0.71
	±S.D.	417	0.10	0.04	0.14	0.02		0.42	0.51	0.06	0.30	0.10
74-1526	25	534	2.044	0.3828	1.276	0.2390	14.573	2.7290	3.297	0.6174	3.766	0.7052
74-1527	25	557	1.837	0.3298	1.426	0.2560	16.544	2.9702	4.016	0.7210	3.804	0.6829
74-1528	25	480	1.949	0.4060	1.328	0.2767	11.582	2.4129	3.274	0.6821	3.780	0.7875
74-1529	25	508	1.921	0.3781	1.564	0.3079	13.194	2.5972	3.977	0.7829	3.958	0.7791
74-1530	25	529	1.970	0.3724	1.401	0.2648	13.155	2.4868	3.606	0.6817	3.957	0.7480
	Mean	522	1.94	0.37	1.40	0.2689		2.64	3.63	0.70	3.85	0.74
	±S.D.	29.1	0.08	0.03	0.11	0.03		0.22	0.36	0.06	0.10	0.05
74-1326	75	523	1.975	0.3776	1.576	0.3013	13.830	2.6444	3.568	0.6822	4.388	0.8306
74-1327	75	593	2.013	0.3395	1.582	0.2668	15.031	2.5347	4.417	0.7449	4.106	0.6924
74-1328	75	518	1.934	0.3734	1.498	0.2892	12.434	2.4004	3.019	0.5828	3.638	0.7023
74-1329	75	460	2.002	0.4352	1.379	0.2998	10.828	2.3539	3.322	0.7222	3.976	0.8643
74-1330	75	504	1.891	0.3752	1.425	0.2827	14.019	2.7815	3.542	0.7028	3.440	0.6825
	Mean	520	1.96	0.38	1.49	0.29		2.54	3.57	0.69	3.90	0.75
	±S.D.	48.0	0.05	0.03	0.09	0.01		0.18	0.52	0.06	0.36	0.09

*Due to this outlier, mean and standard deviation were not calculated.

No statistically significant difference from control mean by Dunnett's test, $p < 0.05$.

TABLE IX-4
VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Organ and Body Weight Values for Female Rats Exposed for 6 Months

Animal Number	Dose ppm	Body Weight	Brain		Heart		Liver		Kidney	
			g	g/100g	g	g/100g	g	g/100g	g	g/100g
74-1223	0	323	1.839	0.5693	0.976	0.3022	7.546	2.3362	2.049	0.6344
74-1224	0	336	1.803	0.5366	1.024	0.3048	8.865	2.6384	2.327	0.6926
74-1225	0	305	1.812	0.5941	0.901	0.2954	6.645	2.1787	1.937	0.6351
74-1226	0	328	1.770	0.5396	1.061	0.3235	7.440	2.2683	2.237	0.6820
74-1227	0	343	1.825	0.5321	0.918	0.2676	5.769	1.6819	1.603	0.4673
	Mean	327	1.81	0.55	0.98	0.30	7.25	2.22	2.03	0.62
	S.D.	14.5	0.03	0.03	0.07	0.02	1.15	0.35	0.28	0.09
74-1623	25	325	1.848	0.5686	1.022	0.3145	6.897	2.1222	1.955	0.6015
74-1624	25	363	1.848	0.5091	1.077	0.2967	9.065	2.4972	2.119	0.5837
74-1625	25	283	1.831	0.6470	0.893	0.3155	6.174	2.1816	1.986	0.7018
74-1626	25	315	1.736	0.5511	0.964	0.306	6.754	2.1441	2.010	0.6381
74-1627	25	230	1.777	0.7726	0.665	0.2891	5.804	2.5235	1.334	0.5800
	Mean	303	1.81	0.61	0.92	0.30	6.94	2.29	1.88	0.62
	S.D.	49.9	0.05	0.10	0.16	0.01	1.27	0.20	0.31	0.05
74-1423	75	342	1.761	0.5149	0.980	0.2865	8.22	2.4035	1.860	0.5439
74-1424	75	329	1.798	0.5465	0.991	0.3012	7.225	2.1960	2.042	0.6207
74-1425	75	333	1.833	0.5505	0.983	0.2952	7.490	2.2490	2.162	0.6492
74-1426	75	297	1.862	0.6269	0.891	0.3000	6.318	2.1273	1.919	0.6461
74-1427	75	332	1.905	0.5738	0.928	0.2795	8.115	2.443	2.231	0.6720
	Mean	327	1.83	0.56	0.95	0.29	7.47	2.28	2.04	0.63
	S.D.	17.2	0.06	0.04	0.04	0.01	0.77	0.14	0.16	0.05

No statistically significant difference from control mean by Dunnett's test, $p < 0.05$.

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TABLE 1X-5
VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Organ and Body Weight Values for Male Rats Exposed for 12 Months

Animal Number	Dose ppm	Body Weight	Brain		Heart		Liver		Kidney		Testes	
			g	g/100g	g	g/100g	g	g/100g	g	g/100g	g	g/100g
74-1135	0	612	1.90	.31	1.57	.26	20.32	3.32	4.42	.72	3.67	.60
74-1136	0	615	1.89	.31	1.57	.26	22.03	3.58	5.25	.85	3.92	.64
74-1137	0	699	2.07	.30	1.57	.23	19.56	2.80	3.95	.56	4.35	.62
74-1138	0	673	2.02	.30	1.84	.27	18.75	2.79	4.23	.63	4.38	.65
74-1139	0	703	2.04	.29	1.87	.27	22.17	3.15	4.13	.59	4.09	.58
	Mean	660.4	1.98	.30	1.68	.26	20.57	3.13	4.39	.67	4.08	.62
	±S.D.	44.3	.08	.01	.16	.02	1.51	.34	.51	.12	.30	.03
74-1533	25	565	2.02	.36	1.54	.27	16.84	2.98	4.45	.79	3.94	.70
74-1534	25	615	1.88	.31	1.58	.26	16.71	2.72	4.18	.68	3.82	.62
74-1535	25	626	1.91	.31	1.64	.26	16.80	2.68	3.97	.63	4.12	.66
74-1536	25	505	2.07	.41	1.54	.30	12.42	2.46	3.52	.70	4.40	.87
74-1537	25	564	1.99	.35	1.60	.28	13.66	2.42	3.60	.64	3.89	.69
	Mean	575*	1.97	.35	1.58	.28	15.28*	2.65*	3.94	.69	4.04	.71
	±S.D.	48.3	.08	.04	.04	.02	2.10	.23	.39	.06	.23	.10
74-1335	75	614	1.93	.31	1.57	.26	15.78	2.57	3.99	.65	3.75	.61
74-1336	75	593	1.89	.32	1.70	.29	16.10	2.73	4.05	.68	3.79	.64
74-1337	75	553	1.94	.35	1.49	.27	17.39	3.15	4.83	.87	3.70	.67
74-1338	75	509	1.94	.38	1.54	.30	12.06	2.37	3.41	.67	4.02	.79
74-1339	75	545	1.96	.36	1.42	.26	14.24	2.61	3.90	.72	4.14	.76
	Mean	562.8*	1.93	.34	1.54	.27	15.13*	2.69	4.04	.72	3.88	.69
	±S.D.	41.4	.03	.03	.11	.02	2.06	.29	.51	.09	.19	.08

*Statistically significant difference from control mean by Dunnett's test, $p < 0.05$.

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TABLE IX-6
VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Organ and Body Weight Values for Female Rats Exposed for 12 Months

Animal Number	Dose ppm	Body Weight	Brain		Heart		Liver		Kidney	
			g	g/100g	g	g/100g	g	g/100g	g	g/100g
74-1229	0	326	1.90	.58	.95	.29	7.29	2.24	2.10	.64
74-1230	0	360	1.77	.49	1.15	.32	8.41	2.34	2.10	.58
74-1231	0	313	1.81	.58	.95	.30	7.06	2.25	2.03	.65
74-1232	0	330	1.75	.53	1.10	.33	7.84	2.38	2.23	.67
74-1233	0	316	1.86	.59	1.01	.32	6.63	2.10	1.97	.62
	Mean	329	1.82	.55	1.03	.31	7.45	2.26	2.09	.63
	±S.D.	18.7	.06	.01	.09	.02	.69	.11	.10	.03
74-1633	25	394	1.85	.47	1.19	.30	8.21	2.08	2.38	.61
74-1634	25	344	1.91	.55	1.07	.31	7.06	2.05	2.28	.66
74-1635	25	374	1.86	.50	.96	.26	7.72	2.06	2.38	.64
74-1636	25	383	1.78	.46	1.03	.27	8.01	2.09	2.27	.59
74-1637	25	333	1.68	.50	1.22	.37	10.97	3.29	2.91	.87
	Mean	365.6	1.82	.50	1.09	.30	8.39	2.32	2.44*	.67
	±S.D.	26.0	.09	.04	.11	.04	1.51	.55	.26	.11
74-1430	75	312	1.77	.57	1.06	.34	9.40	3.01	2.51	.80
74-1431	75	396	1.85	.47	1.10	.28	10.16	2.57	2.68	.68
74-1432	75	362	1.67	.46	1.08	.30	8.88	2.45	2.66	.73
74-1433	75	307	1.78	.58	1.07	.35	7.98	2.60	2.82	.92
74-1434	75	321	1.77	.55	1.07	.33	8.79	2.74	2.35	.73
	Mean	339.6	1.77	.53	1.08	.32	9.04	2.67	2.60*	.77
	±S.D.	38.3	.06	.06	.01	.03	.80	.21	.18	.09

*Statistically significant difference from control mean by Dunnett's test, $p < 0.05$.

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TABLE IX-7
VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Organ and Body Weight Values for Male Rats Exposed for 24 Months

Animal Number	Dose ppm	Body Weight	Brain		Heart		Liver		Kidney		Testes	
			g	g/100g	g	g/100g	g	g/100g	g	g/100g	g	g/100g
74-1201	0	474	2.00	0.42	1.84	0.39	16.17	3.41	3.87	0.82	3.76	0.79
74-1202	0	382	2.08	0.55	1.47	0.39	13.95	3.65	6.57	1.72	3.98	1.04
74-1203	0	514	1.99	0.39	2.02	0.39	18.34	3.57	6.11	1.19	4.41	0.86
74-1204	0	526	2.03	0.38	1.86	0.35	16.98	3.23	4.49	0.85	4.59	0.87
74-1205	0	685	1.80	0.26	1.84	0.27	20.16	2.94	5.28	0.77	3.96	0.58
74-1206	0	580	2.04	0.35	1.90	0.33	18.73	3.23	5.29	0.91	5.52	0.95
74-1208	0	494	1.90	0.38	1.84	0.37	18.42	3.73	6.13	1.24	2.64	0.54
74-1209	0	554	1.96	0.35	1.61	0.29	16.40	2.96	4.50	0.81	4.82	0.87
74-1210	0	478	1.92	0.40	1.86	0.39	19.50	4.08	7.22	1.51	3.51	0.74 ^a
74-1213	0	633	1.88	0.30	1.99	0.31	20.63	3.26	6.54	1.03	- ^a	- ^a
74-1214	0	570	2.02	0.35	2.08	0.36	20.68	3.63	7.36	1.29	4.66	0.82
74-1215	0	498	1.70	0.34	2.04	0.41	18.98	3.81	6.34	1.27	5.23	1.05
74-1216	0	466	1.87	0.40	2.11	0.45	18.76	4.03	6.33	1.36	3.53	0.76
	Mean	527	1.94	0.38	1.88	0.36	18.28	3.50	5.85	1.14	4.22	0.82
	±S.D.	78	0.11	0.07	0.18	0.05	1.95	0.37	1.08	0.30	0.81	0.16
74-1603	25	586	2.07	0.35	2.00	0.34	19.98	3.41	4.40	0.75	3.08	0.53
74-1604	25	420	1.98	0.47	2.34	0.56	18.19	4.33	6.85	1.63	2.22	0.53
74-1605	25	393	2.09	0.53	1.96	0.50	14.28	3.63	5.59	1.42	3.25	0.83
74-1606	25	529	2.21	0.42	1.62	0.31	16.89	3.19	5.21	0.99	4.12	0.78
74-1607	25	598	2.11	0.35	1.72	0.29	15.62	2.61	4.95	0.83	4.12	0.69
74-1608	25	508	1.96	0.39	1.75	0.34	15.08	2.97	4.63	0.91	3.84	0.76
74-1609	25	364	1.86	0.51	1.37	0.38	12.84	3.53	4.06	1.12	2.74	0.75
74-1610	25	376	1.98	0.53	1.62	0.43	12.32	3.28	4.20	1.12	3.70	0.98
74-1611	25	622	1.90	0.31	2.11	0.34	22.77	3.66	6.40	1.03	4.10	0.66
74-1612	25	526	2.02	0.38	2.16	0.41	18.97	3.61	6.16	1.17	4.14	0.79
74-1614	25	535	1.88	0.35	2.01	0.38	17.91	3.35	5.85	1.09	2.75	0.51
74-1615	25	500	1.84	0.37	2.24	0.45	18.71	3.74	6.36	1.27	3.91	0.78
74-1616	25	484	1.92	0.40	1.50	0.31	16.41	3.39	4.63	0.96	4.30	0.89
	Mean	495	1.99	0.41	1.88	0.39	16.92	3.44	5.33	1.10	3.56	0.73
	±S.D.	85	0.11	0.07	0.30	0.08	2.94	0.41	0.93	0.24	0.68	0.14
74-1407	75	552	2.00	0.36	1.95	0.35	18.52	3.35	5.43	0.98	4.34	0.79
74-1408	75	374	1.92	0.51	1.59	0.42	11.59	3.10	3.88	1.04	3.74	1.00
74-1409	75	441	1.95	0.44	1.59	0.36	15.86	3.60	5.91	1.34	3.92	0.89
74-1410	75	476	1.96	0.41	1.78	0.37	18.49	3.88	6.52	1.37	3.48	0.73
74-1412	75	511	2.04	0.40	1.75	0.34	17.38	3.40	5.36	1.05	4.84	0.95
74-1413	75	494	1.88	0.38	1.96	0.40	15.98	3.24	5.00	1.01	4.10	0.83
74-1414	75	533	2.04	0.38	1.98	0.37	18.05	3.39	5.91	1.11	4.61	0.86
74-1415	75	551	2.00	0.36	2.14	0.39	19.81	3.59	5.29	0.96	4.13	0.75
	Mean	492	1.97	0.41	1.84	0.38	16.96	3.44	5.41	1.11	4.14	0.85
	±S.D.	61	0.06	0.05	0.20	0.03	2.54	0.24	0.78	0.16	0.45	0.09

No statistically significant difference from control mean using Dunnett's test, $p < 0.05$.

^aTestes retained in abdominal cavity and were hypoplastic. They were not included in data analysis.

TABLE IX-8
VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
Organ and Body Weight Values for Female Rats Exposed for 24 Months

Animal Number	Dose ppm	Body Weight	Brain		Heart		Liver		Kidney	
			g	g/100g	g	g/100g	g	g/100g	g	g/100g
74-1297	0	427	1.89	0.44	1.23	0.29	17.58	4.12	3.38	0.79
74-1298	0	381	1.83	0.48	1.34	0.35	11.97	3.14	2.56	0.67
74-1299	0	424	1.72	0.41	1.12	0.26	10.86	2.56	2.88	0.68
74-1300	0	329	1.75	0.53	0.93	0.28	10.05	3.05	2.39	0.73
74-1301	0	330	1.84	0.56	1.23	0.37	8.41	2.55	2.72	0.83
74-1302	0	444	1.78	0.40	1.17	0.26	20.09	4.52	3.09	0.70
74-1303	0	328	1.77	0.54	1.21	0.37	12.16	3.71	2.80	0.85
74-1304	0	416	1.86	0.45	1.44	0.35	10.37	2.49	2.94	0.71
74-1306	0	454	1.88	0.41	1.11	0.25	16.08	3.54	2.68	0.59
74-1308	0	399	1.83	0.46	1.29	0.32	14.17	3.55	2.64	0.66
74-1309	0	359	1.69	0.47	1.29	0.36	14.46	4.03	3.78	1.05
74-1310	0	234	1.74	0.74	1.35	0.58	9.65	4.12	3.46	1.48
74-1311	0	478	1.80	0.38	1.54	0.32	18.72	3.92	3.62	0.76
74-1312	0	551	1.86	0.34	1.41	0.26	17.93	3.25	2.80	0.51
74-1313	0	629	1.75	0.28	1.11	0.18	18.96	3.01	2.38	0.38
74-1314	0	536	1.73	0.32	1.13	0.21	9.94	1.85	2.31	0.43
74-1315	0	299	1.82	0.61	1.10	0.37	8.08	2.70	2.67	0.89
74-1316	0	391	1.71	0.44	1.09	0.28	15.43	3.95	3.59	0.92
74-1317	0	293	1.75	0.60	1.29	0.44	10.36	3.54	2.68	0.92
74-1217	0	420	1.81	0.43	1.44	0.34	19.93	4.75	3.90	0.93
74-1516	0	323	1.82	0.56	1.21	0.37	7.74	2.40	2.37	0.73
	Mean	402	1.79	0.47	1.24	0.32	13.47	3.37	2.94	0.77
	±S.D.	95	0.06	0.11	0.15	0.09	4.17	0.76	0.49	0.23
74-1700	25	371	1.75	0.47	1.80	0.49	11.08	2.99	2.74	0.74
74-1701	25	426	1.69	0.40	1.10	0.26	17.32	4.07	2.63	0.62
74-1702	25	419	1.79	0.43	1.43	0.34	13.12	3.13	2.77	0.66
74-1703	25	431	1.83	0.42	1.14	0.26	12.17	2.82	2.74	0.64
74-1704	25	406	1.69	0.42	1.07	0.26	12.42	3.06	2.31	0.57
74-1705	25	334	1.78	0.53	1.41	0.42	12.05	3.61	3.85	1.15
74-1706	25	390	1.79	0.46	1.15	0.29	10.67	2.73	2.81	0.72
74-1714	25	377	1.68	0.45	1.50	0.40	16.81	4.46	4.70	1.25
74-1716	25	308	1.83	0.59	1.29	0.42	8.63	2.80	2.47	0.80
74-1717	25	307	1.82	0.59	1.19	0.39	10.54	3.43	2.88	0.94
74-1617	25	599	1.85	0.31	1.21	0.20	18.20	3.04	2.66	0.44
74-1517	25	685	1.83	0.27	1.29	0.19	21.81	3.18	3.08	0.45
74-1699	25	385	1.75	0.45	1.19	0.31	11.86	3.08	2.89	0.75
	Mean	418	1.77	0.45	1.29	0.33	13.59	3.26	2.96	0.75
	±S.D.	109	0.06	0.09	0.20	0.09	3.77	0.51	0.63	0.24
74-1498	75	448	1.80	0.40	1.59	0.35	23.31	5.20	4.10	0.92
74-1499	75	337	1.71	0.51	1.19	0.35	9.10	2.70	2.66	0.79
74-1500	75	391	1.70	0.43	1.33	0.34	12.43	3.18	2.88	0.74
74-1501	75	496	1.75	0.35	1.23	0.25	15.38	3.10	2.68	0.54
74-1502	75	276	1.74	0.63	1.42	0.52	12.75	4.62	4.48	1.62
74-1503	75	377	1.74	0.46	1.38	0.36	11.52	3.06	2.99	0.79
74-1504	75	495	1.73	0.35	1.24	0.25	12.80	2.59	2.75	0.56
74-1505	75	424	1.74	0.41	1.34	0.32	21.36	5.04	3.29	0.77
74-1506	75	335	1.66	0.50	1.22	0.36	10.51	3.14	2.66	0.79
74-1507	75	417	1.92	0.46	1.46	0.35	16.97	4.07	3.53	0.85
74-1510	75	323	1.74	0.54	1.11	0.34	8.65	2.68	2.64	0.82
74-1511	75	523	1.67	0.32	1.12	0.21	15.97	3.05	3.06	0.58
74-1512	75	400	1.78	0.44	1.20	0.30	10.06	2.51	2.96	0.74
74-1513	75	492	1.81	0.37	1.06	0.22	19.05	3.87	2.53	0.52
74-1514	75	397	1.84	0.46	1.04	0.25	9.97	2.51	2.90	0.73
74-1515	75	340	1.78	0.52	1.36	0.40	14.03	4.13	3.42	1.01
	Mean	404	1.76	0.45	1.27	0.32	13.99	3.47	3.10	0.80
	±S.D.	72	0.07	0.08	0.15	0.08	4.39	0.90	0.55	0.26

No statistically significant difference from control mean using Dunnett's test, $p < 0.05$.

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APPENDIX X
GROSS AND HISTOPATHOLOGY DATA
UNIDENTIFIED ANIMALS

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TABLE

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS

Gross Pathologic Observations of Nontumors for Unidentified Male Rats

<u>Number of rats autopsied during 19-24 mo. interval</u>	<u>1</u>
	<u>Cumulative Results</u>
<u>GENERAL</u>	
Malocclusion A-09	1
Abscess of molar teeth with inflammation of surrounding tissues A-19	1
<u>ADIPOSE TISSUE</u>	
Depleted or any decrease in quantity D-01	1
<u>REPRODUCTIVE SYSTEM</u>	
Testicular atrophy (flaccid) - unilateral and bilateral (decreased in size) IE-2	1
<u>LYMPHORETICULAR SYSTEM</u>	
Lymph Node(s) - swollen and/or congested, edematous - local, containing hematogenous pigment or cystic G-01	1
<u>KIDNEY</u>	
Chronic renal disease with or without cyst formation - L = minimal I2-L	1

TABLE X-2

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
 Histopathologic Diagnosis and Number of Nontumors in Unidentified Male Rats

<u>Number of rats autopsied during 19-24 mo. interval</u>	<u>1</u>
	<u>Cumulative Results</u>
<u>LIVER</u>	
Generalized hepatic lobular atrophy H-02	1
<u>RESPIRATORY SYSTEM</u>	
<u>Lungs</u>	
Focal alveolar histiocytosis R-22	1
Peribronchial lymphoid cellular infiltrate R-23	1
<u>URINARY SYSTEM</u>	
<u>Kidney</u>	
Minimal degree of chronic nephropathy U-01	1
<u>ADIPOSE TISSUE</u>	
Mediastinal or renal fat atrophy B-01	1
<u>CARDIOVASCULAR SYSTEM</u>	
<u>Heart</u>	
Minimal degree of focal myocardial degeneration and fibrosis C-01	1
<u>MUSCULOSKELETAL SYSTEM</u>	
Atrophy of skeletal muscle with or without mineraliza- tion M-01	1
<u>LYMPHORETICULAR SYSTEM</u>	
<u>Mesenteric Lymph Nodes</u>	
Lymphoid hyperplasia L-35	1
<u>Spleen</u>	
Atrophy of spleen with or without hemosiderin pigment L-38	1

TABLE X-2 (continued)

VINYLDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS
 Histopathologic Diagnosis and Number of Nontumors in Unidentified Male Rats

<u>Number of rats autopsied during 19-24 mo. interval</u>	<u>1</u>
	<u>Cumulative Results</u>
<u>GASTROINTESTINAL SYSTEM</u>	
<u>Stomach</u>	
Focal erosion of gastric mucosa G-05	1
<u>Cecum</u>	
Acute suppurative inflammation with squamous metaplasia of the ducts with keratinization of the lining epithelium G-73	1
<u>REPRODUCTIVE SYSTEM</u>	
<u>Testes</u>	
Testicular atrophy X-02	1
<u>ADRENAL GLAND</u>	
<u>Cortex</u>	
Focus of lipomatosis A-27	1

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TABLE X-3

VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS

Number of Unidentified Male Rats for Which the Specified Tissue
was Examined Microscopically

<u>Number of rats autopsied during 19-24 mo. interval</u>	<u>1</u>
	<u>Cumulative Results</u>
Liver	1
Heart	1
Kidney	1
Lungs	1
Pancreas	1
Spleen	1
Skeletal Muscle	1
Mediastinal Fat	1
Salivary Gland	1
Esophagus	1
Trachea	1
Parathyroid	1
Thyroid	1
Stomach	1
Small Intestine	1
Urinary Bladder	1
Testes	1
Epididymis	1
Peripheral Nerve	1
Spinal Cord	1
Adrenal Gland	1
Cerebellum	1
Cerebral Cortex	1
Mediastinal Lymphoid Tissue	1

TABLE X-4

VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS

Gross Pathologic Observations of Nontumors for Unidentified Female Rats

<u>Number of rats autopsied at terminal kill</u>	<u>4</u>
	<u>Cumulative Results</u>
<u>GENERAL</u>	
External ulcerated lesion A-12	1
<u>INTEGUMENTARY SYSTEM AND TONGUE</u>	
Mammary gland hyperplasia B-05	1
<u>REPRODUCTIVE SYSTEM</u>	
Ovary - cyst 2E-2	1
Uterus - hyperplasia with or without cysts 2E-14	1
<u>LIVER</u>	
Enlarged or congested with or without secondary darkening H-01	1
Small white foci (also pale) H-03	1
Red subcapsular foci H-04	1
Accentuation of lobular pattern H-11	1
<u>KIDNEY</u>	
Chronic renal disease with or without cyst formation - moderate I2-M	1
<u>ADRENAL GLAND</u>	
Mottled appearance J-05	4
<u>RESPIRATORY SYSTEM</u>	
Small pale subpleural foci K-15	2
<u>NERVOUS SYSTEM</u>	
Pituitary - red foci with focal enlargement N-09	1

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TABLE X-5

VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS

Histopathologic Diagnosis and Number of Nontumors in Unidentified
Female Rats

<u>Number of rats autopsied at terminal kill</u>	<u>4</u>
	<u>Cumulative Results</u>
<u>LIVER</u>	
Foci of eosinophilic ground-glass appearing cells H-01	1
Area of eosinophilic ground-glass appearing cells H-02	1
Foci of mononuclear cells within the portal area or lobule H-10	3
Atrophy without fatty change H-12	1
Focal necrosis H-14	1
Extramedullary hematopoiesis H-31	3
Sinusoidal vascular dilatation H-35	2
Centrilobular atrophy H-40	2
<u>RESPIRATORY SYSTEM</u>	
<u>Lungs</u>	
Focal peribronchiolar mononuclear cell infiltrate R-22	4
Focal areas of alveolar histiocytosis R-23	4
<u>URINARY SYSTEM</u>	
<u>Kidney</u>	
Chronic focal progressive nephrosis - minimal U-01	3
Chronic focal progressive nephrosis - severe U-03	1
Mineralized deposits in kidney U-08	1
<u>CARDIOVASCULAR SYSTEM</u>	
<u>Heart</u>	
Focal myocardial degeneration and fibrosis - minimal C-01	2
<u>Blood Vessels</u>	
Periarteritis and sclerosis of mesenteric blood vessels and other selected blood vessels C-41	1

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TABLE X-5 (continued)

VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS

Histopathologic Diagnosis and Number of Nontumors in Unidentified
Female Rats

<u>Number of rats autopsied at terminal kill</u>	<u>4</u>
	<u>Cumulative Results</u>
<u>NERVOUS SYSTEM</u>	
<u>Spinal Cord</u>	
Vacuolization of spinal cord N-18	2
<u>Peripheral Nerves</u>	
Vacuolization of myelin within peripheral nerves N-32	2
<u>LYMPHORETICULAR SYSTEM</u>	
<u>Spleen</u>	
Increased extramedullary hematopoiesis in spleen L-40	3
<u>GASTROINTESTINAL SYSTEM</u>	
<u>Large Intestine</u>	
Intestinal nematodiasis G-50	1
<u>Pancreas</u>	
Focal atrophy of pancreatic acinar tissue P-03	1
Focal interstitial pancreatitis P-05	1
<u>ADRENAL GLAND</u>	
Hematocyst formation within adrenals A-02	3
Hyperplastic focus of adrenal cortex A-24	2
<u>SUBCUTANEOUS TISSUES, MAMMARY GLAND, AND INTEGUMENT</u>	
<u>Integument</u>	
Chronic granulation tissue with ulceration and necrosis of the rear limb S-55	1
<u>THYROID AND PARATHYROID</u>	
Hyperplastic focus of thyroid T-05	2

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TABLE X-6

VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS

Gross Pathologic Observations of Tumors or Tumor-Like Lesions
in Unidentified Female Rats

<u>Number of rats autopsied at terminal kill</u>	<u>4</u>
	<u>Cumulative Results</u>
<u>INTEGUMENTARY SYSTEM AND TONGUE</u>	
Subcutaneous tumor - mammary and midcervical region B-02-()	
Number per rat = (3)	1
Number per rat = (4)	1
Number per rat = (5)	1
<u>REPRODUCTIVE SYSTEM</u>	
Uterus - endometrial polyp 2E-05	1
<u>LYMPHORETICULAR SYSTEM</u>	
Local invasion of tumor with regional lymph node(s) involved G-04	1
<u>NERVOUS SYSTEM</u>	
Pituitary gland - increased in size or irregular in shape - with or without associated generalized color and consistency changes N-02	2
<u>THYROID AND PARATHYROID</u>	
Thyroid gland - increased in size O-01	1

TABLE X-7

VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS

Histopathologic Diagnosis and Number of Tumors or Tumor-Like Lesions
in Unidentified Female Rats

<u>Number of rats autopsied at terminal kill</u>	<u>4</u>
	<u>Cumulative Results</u>
<u>NERVOUS SYSTEM</u>	
<u>Pituitary</u>	
Pituitary adenoma N-44	2
<u>REPRODUCTIVE SYSTEM</u>	
<u>Uterus</u>	
Endometrial polyp formation X-77	2
<u>ADRENAL GLAND</u>	
<u>Medulla</u>	
Adrenal pheochromocytoma, unilateral A-47	1
<u>SUBCUTANEOUS TISSUES, MAMMARY GLAND, AND INTEGUMENT</u>	
Subcutaneous fibrosarcoma without metastasis S-05	1
Mammary gland fibroadenoma/adenofibroma S-25	11/3 ^b

^bNumber of tumors/number of animals with tumors.

TABLE X-8

VINYLIDENE CHLORIDE: A CHRONIC INHALATION TOXICITY AND ONCOGENICITY STUDY IN RATS

Number of Unidentified Female Rats for Which the Specified Tissue
was Examined Microscopically

Number of rats autopsied at terminal killCumulative Results

Liver	4
Heart	4
Kidney	4
Lung	4
Pancreas	2
Spleen	4
Skeletal Muscle	3
Mediastinal or Perirenal Fat	2
Salivary Gland	2
Aorta	2
Esophagus	3
Trachea	4
Parathyroid	1
Thyroid	4
Stomach	1
Small Intestine	2
Large Intestine	2
Mesenteric Lymph Nodes	2
Mesenteric Vessels	2
Urinary Bladder	3
Ovaries	3
Oviducts	3
Uterus	3
Peripheral Nerve	2
Spinal Cord	2
Pituitary Gland	4
Adrenal Glands	4
Cerebellum	4
Cerebral Cortex	4
Eyes	4
Skin	1
Mediastinal Lymphoid Tissue	2