# I. GLP COMPLIANCE STATEMENT

This study was conducted in compliance with EPA Good Laboratory Practices as set forth in 79.60, CFR Vol. 59, No. 122, 27 June 1994 with the following exceptions:

The identity, strength, purity and composition or other characteristics to define the positive control article have not been determined by the Testing Facility. The positive control article has been characterized as per the Certificate of Analysis on file with the Testing Facility. The stability of the positive control article has not been determined by the Testing Facility. Analyses to determine the uniformity (as applicable) or concentration of the positive control mixture were not performed by the Testing Facility. The stability of the positive control article mixture has not been determined by the Testing Facility.

Kimber L. White, Jr., Ph.D.
Principal Investigator
ImmunoTox®, Inc.

07 Jan 13
Date

Gary M. Hoffman, B.A., DABT
Study Director
Huntingdon Life Sciences

31 May 2013
Date

## II. QUALITY ASSURANCE STATEMENT

Test Substance: Gasoline DIPE Vapor Condensate

Report Title: Immunological Evaluation of Gasoline DIPE Vapor Condensate in Female Sprague Dawley Rats Using the Plaque-Forming Cell Assay

Protocol Title: Gasoline DIPE Vapor Condensate: A 13-Week Whole-Body Inhalation Toxicity Study in Rats with Neurotoxicity Assessments And 4-Week *In Vivo* Genotoxicity and Immunotoxicity Assessments

Protocol No.: HLS Study No. 00-6130

The final report for the indicated protocol has been reviewed by the Quality Assurance Unit of Virginia Commonwealth University. Furthermore, the Quality Assurance Unit has conducted the following inspections and reported to the ImmunoTox®, Inc. Principal Investigator, and then has submitted written reports of said inspections to the Study Director and Management.

Inspection/Audits were performed and reported on the following dates:

| Performed | Reported | Activity |
|---|---|---|
| 15 Mar 02 | 15 Mar 02 | AFC Assay |
| 01 Sep 02 | 09 Sep 02 | Data Audit |
| 07 Sep 02 | 09 Sep 02 | 1st Draft Report Audit |

Approved and submitted by: _____ 1/10/2013
Quality Assurance Manager Date

## HUNTINGDON LIFE SCIENCES QUALITY ASSURANCE STATEMENT

Listed below are the dates that this study was inspected by the Quality Assurance Unit of Huntingdon Life Sciences, East Millstone, New Jersey, and the dates that findings were reported to the Study Director and Management. This report reflects the raw data as far as can be reasonably established.

| Type of Inspection | Date(s) of Inspection | Reported to Study Director and Management |
|---|---|---|
| General Facility Inspection | 26 Sep 00 | 05 Dec 00[a] |
| GLP Protocol Review | 16 Nov 01 | 19 Nov 01 |
| GC Characterization | 22 Feb 02 | 22 Feb 02 |
| Positive Dose Control (Immunotox) | 12 Mar 02 | 12 Mar 02 |
| Immunotoxicity Necropsy | 14 Mar 02 | 14 Mar 02 |
| Subcontractor Report and Study Data | 17 Dec 02, 04 Mar 03 | 04 Mar 03 |

Fran Jannone — 29 May 13

Fran Jannone, B.A., RQAP-GLP
Quality Assurance Group Leader

Date

[a]General Facility Inspection reported to Testing Facility Management.

## III. SIGNATURE OF PRINCIPALS

This report describes the results used to evaluate the relative immunotoxicological potential of the test substance, Gasoline DIPE Vapor Condensate, which was administered by inhalation via whole-body exposure to female Sprague Dawley rats.

Kimber L. White, Jr., Ph.D., Principal Investigator, was responsible for the overall conduct of the immunotoxicity evaluations in this study. Vanessa L. Peachee, Ph.D., served as the Assistant Principal Investigator and was responsible for the day-to-day activities of the immunotoxicity evaluations in this study.

Kimber L. White, Jr., Ph.D.
Principal Investigator
ImmunoTox®, Inc.

Date 07 Jan 13

Vanessa L. Peachee, Ph.D.
Assistant Principal Investigator
ImmunoTox®, Inc.

Date 07 Jan 13

Approved:

Gary M. Hoffman, B.A., DABT
Study Director
Huntingdon Life Sciences

31 May 2013
Date

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# IV. EXECUTIVE SUMMARY

The study was conducted as part of Huntingdon Life Sciences (HLS) Study No. 00-6130 at ImmunoTox®, Inc., Richmond, Virginia. The Principal Investigator was Kimber L. White, Jr., Ph.D., and Vanessa L. Peachee, Ph.D., served as the Assistant Principal Investigator. The study was conducted to provide evaluation of immunological parameters for Huntingdon Life Sciences.

The objective of the study was to determine the potential effects of Gasoline DIPE Vapor Condensate for its ability to affect the humoral immune component of the immune system, when evaluated in the antibody-forming cell response to the T-dependent antigen, sheep erythrocytes. Female Sprague Dawley rats were administered Gasoline DIPE Vapor Condensate for 5 days per week for 4 weeks by inhalation via whole body exposure by Huntingdon Life Sciences (HLS) Princeton Research Center (PRC) personnel. Three exposure levels of 2,000, 10,000 and 20,000 mg/m$^3$ of the test substance were used in the study. The in-life phase of the study was conducted by HLS, East Millstone, NJ, and the immunological evaluation was conducted by ImmunoTox®, Inc., Richmond, VA. On the day of sacrifice, spleens were placed in tubes containing media, placed on ice, and shipped to ImmunoTox®, Inc. in Richmond, VA, for assay evaluation on the following day.

Executive Summary Table ES-1 shows a summary of the selected toxicology and immunology parameters evaluated. Exposure to Gasoline DIPE Vapor Condensate resulted in no statistically significant changes in terminal body weight for any exposure level. Furthermore, there were no statistically significant effects observed in either thymus or spleen weight following exposure to Gasoline DIPE Vapor Condensate, when evaluated as absolute weight, as compared to the air control. When evaluated as relative weight (% body weight) in the spleen, there was a statistically significant increase at the low (2000 mg/m$^3$) dose exposure level of Gasoline DIPE Vapor Condensate, however there was not a dose-dependent effect and the decrease at the low dose is not considered to be biologically significant. There was no effect in the thymus relative weight.

Exposure to Gasoline DIPE Vapor Condensate resulted in a statistically significant dose-related decrease in the IgM antibody-forming cell (AFC) response to the T-dependent antigen, sheep erythrocytes, when evaluated as either specific activity (AFC/10$^6$ spleen cells) or as total spleen activity (AFC/spleen). The decrease reached the level of statistical significance at the high (20,000 mg/m$^3$) exposure level. The positive control, CPS, produced the anticipated results in the various parameters evaluated.

In conclusion, the results of this immunotoxicological evaluation demonstrate that, under the experimental conditions used, exposure to the Gasoline DIPE Vapor Condensate test substance adversely affected the functional ability of the humoral immune component of the immune system, with statistically significant effects at 20,000 mg/m$^3$, the highest dose level evaluated. Therefore, based on this study, the No Observed Adverse Effect Level (NOAEL) was 10,000 mg/m$^3$.

Table ES-1

SUMMARY TABLE FOR TOXICOLOGY AND IMMUNOLOGY STUDIES

| Parameter | Result | Maximum Effect | Exposure Level (mg/m$^3$) |
|---|---|---|---|
| **Terminal Body Weight** | | | |
| Day 29 | No Effect | | |
| **Organ Weights (Absolute and Relative)** | | | |
| Spleen (Absolute) | No Effect | | |
| Spleen (Relative) | Increase | 21% | 2,000 |
| Thymus (Absolute) | No Effect | | |
| Thymus (Relative) | No Effect | | |
| **Spleen IgM Antibody-Forming Cell Response to Sheep Erythrocytes** | | | |
| IgM AFC/10$^6$ Spleen Cells | Decrease | 63% | 20,000 |
| IgM AFC/Spleen (x10$^3$) | Decrease | 64% | 20,000 |

# V. INTRODUCTION

The purpose of this study was to provide evaluation of immunological parameters for Huntingdon Life Sciences (HLS) Study No. 00-6130. In this study, the test substance, Gasoline DIPE Vapor Condensate, was evaluated for its ability to affect the humoral immune component of the immune system, when evaluated in the antibody-forming cell response to the T-dependent antigen sheep erythrocytes. The study was conducted in female animals because female rats have a more robust immune response than do the male animal of the species. Accordingly, female rats have a greater sensitivity for detecting an adverse effect of a compound should one occur. Routinely, immunotoxicology evaluations conducted by the National Toxicology Program (NTP) evaluate compounds only in female animals. Four days prior to sacrifice, ImmunoTox®, Inc. personnel sensitized the rats by intravenous administration of sheep erythrocytes at the HLS facility. On the day of sacrifice, HLS Princeton Research Center (PRC) personnel aseptically removed the spleen from each animal. The spleens were weighed, placed in tubes containing media, and sent to ImmunoTox®, Inc. in Richmond, VA, on ice for evaluation the following day. Spleens were received on 15 March 2002 and the immunological evaluation was conducted on the same day. The IgM antibody-forming cell (AFC) response to the T-dependent antigen sheep erythrocytes, also referred to as the plaque assay, was the immunological assay conducted to evaluate the effect of Gasoline DIPE Vapor Condensate on the immune response. This assay has been shown to be the most predictive functional assay for determining the immunotoxicological potential of a compound (Luster *et al.*[1]).

Kimber L. White, Jr., Ph.D., was the Principal Investigator for the immunological evaluation conducted by ImmunoTox®, Inc., and Gary M. Hoffman, B.A., DABT, was the HLS Study Director. Vanessa L. Peachee, Ph.D., served as the Assistant Principal Investigator for ImmunoTox®, Inc. and was responsible for carrying out the IgM antibody-forming cell assay.

In evaluating the effects of Gasoline DIPE Vapor Condensate on the immune system, the immunologic and toxicologic parameters evaluated were spleen and thymus weights, and the spleen IgM antibody response to the T-dependent antigen (sheep erythrocytes, sRBC).

To the best of our knowledge, no significant protocol or standard operating procedure deviations occurred during the study, which affected the quality of the data and the ability to interpret the data with respect to the immunotoxicology of Gasoline DIPE Vapor Condensate.

# VI. METHODS OF PROCEDURE

## EXPERIMENTAL DESIGN

The immunotoxicological satellite study consisted of a vehicle group, three exposure levels of Gasoline DIPE Vapor Condensate, and a positive control group. There were 10 female Sprague Dawley rats in each of the groups. Animals were exposed by Huntingdon Life Sciences Princeton Research Center (PRC) personnel to either vehicle (air only) or Gasoline DIPE Vapor Condensate at exposure levels of 2,000, 10,000 or 20,000 mg/m$^3$ via inhalation for 4 weeks (5 days per week). Cyclophosphamide (CPS) was given as the positive control. Cyclophosphamide, obtained from the Sigma Chemical Company (responsible for its characterization), was dissolved and diluted in phosphate buffered saline at Huntingdon Life Sciences to stock concentrations of 5.0 mg/mL for use as the positive control for this study. The positive control animals received 50 mg/kg @ 10 mL/kg of CPS, a known immunosuppressive agent, administered intraperitoneally (i.p.) once on the last 4 days of exposure. These animals were not chamber exposed. On the day of sacrifice, one day after the last exposure, PRC personnel aseptically removed the spleen from each animal, weighed it, placed it in a collecting tube containing Earle's Balanced Salt Solution (EBSS) with HEPES and Gentamicin solution (prepared at PRC), and shipped the spleens on ice in individual shipping containers at 2-8°C by carrier to ImmunoTox®, Inc. for overnight delivery. Upon receipt, spleens were further processed for determination of IgM antibody response.

## VARIABLES ASSESSED

Terminal Body and Organ Weights. Huntingdon Life Sciences PRC personnel collected blood (serum) samples (orbital collection anesthetized via carbon dioxide/oxygen inhalation) and then sacrificed (carbon dioxide inhalation) the animals on the day after the final exposure. The serum samples were frozen ($\leq$-20°C). The thymuses were removed, weighed, and preserved (formalin) for possible histopathology. Spleens were removed, weighed, and shipped at the time of sacrifice by PRC personnel to ImmunoTox, Inc. for immunotoxicological evaluation.

Splenocyte Preparation. Upon arrival at the ImmunoTox®, Inc. testing facility, spleens were accessioned in accordance with the SOP for receipt of biological samples. Single-cell suspensions were prepared from each spleen using a Stomacher® 80 Lab Blender in accordance with the SOP for rat spleens. Cell suspensions were then centrifuged and resuspended in Earle's Balanced Salt

Solution with HEPES. Viability of splenocytes was determined using propidium iodide (PI) and the Coulter EPICS XL-MCL Flow Cytometer.

Spleen IgM Antibody Response to the T-dependent Antigen, sRBC. Day 4 Response. The primary IgM response to sheep erythrocytes was measured using a modified hemolytic plaque assay of Jerne[2]. Rats were exposed to the test article for 5 days per week for 4 weeks. Rats were sensitized by ImmunoTox®, Inc. personnel with $2x10^8$ sRBC i.v. four days prior to sacrifice and, on the day after the last exposure, animals were sacrificed by PRC personnel. Spleen cell suspensions were prepared as described above. The cells were centrifuged and resuspended in a 6-ml volume, and 1:50 and 1:150 dilutions were prepared. An 0.1-ml aliquot of spleen cells from each suspension was added to separate test tubes, each containing 25 $\mu$l guinea pig complement, 25 $\mu$l sRBC, and 0.5 ml of warm agar (0.5%). After thoroughly mixing, each test tube mixture was plated onto a separate petri dish, covered with a microscope cover slip, and incubated at approximately 36-38°C for 3 hours. Spleen cell counts were performed on the 6-ml samples using a Model Z1 Coulter Counter. The spleen weight, cells/spleen, AFC/$10^6$ spleen cells, and AFC/spleen were determined. The plaques, which developed, were counted using a Bellco plaque viewer. A plaque, occurring from the lysis of sRBC, is elicited as a result of the interaction of complement and antibodies (produced in response to the i.v. sensitization) directed against sRBC. Each plaque is generated from a single IgM antibody-producing B cell, permitting the number of AFC present in the whole spleen to be calculated. The data are expressed as specific activity (AFC/$10^6$ spleen cells) and total spleen activity (AFC/spleen).

As background, sheep erythrocytes (sRBC) are a T-dependent antigen and, thus, T cells, B cells, and macrophages are required to function properly in order to obtain an antibody-forming cell (AFC) response. If the test article affects any of these cell types to a significant degree, an altered response will be observed. As a result, the T-dependent IgM response to sRBC is one of the most sensitive immunotoxicological assays currently in use. A significant modulation in the IgM AFC response, when appropriately compared to vehicle controls, indicates that the test agent is capable of modifying the humoral immune response in the whole animal and, thus, has the potential for immunotoxicity. This assay is one of the Tier I assays used by the NTP[3].

DATA

Data Handling and Statistical Analysis. The data obtained in this study were analyzed in accordance with standard operating procedure. Data in tables are presented as means ± SE (standard error). Data were first tested for homogeneity of variances using the Bartlett's Chi Square Test[4]. Homogeneous data were evaluated by a parametric one-way analysis of variance[5]. When significant differences occur, exposed groups were compared to the vehicle control group using the Dunnett's Test[6]. Non-homogeneous data were evaluated using a non-parametric analysis of variance[5]. When significant differences occur, exposed groups were compared to vehicle control group using the Gehan-Wilcoxon Test[7] when appropriate. The Jonckheere's Test[8] was used to test for exposure level-related trends across the vehicle and exposed groups. The positive control was compared to the vehicle control group using the Student t Test[9]. The criteria for accepting the results of the positive control in the assay was a statistically significant ($p \leq 0.05$) decrease in the response as compared to the vehicle control group.

P values of 0.05 or less, as compared to the vehicle control group, were considered statistically significant and are indicated in the tables and in the figures with a single asterisk (*). A double asterisk (**) was used to indicate a p value of 0.01 or less. In the text, the word significant indicates that the response was statistically significant at $p \leq 0.05$. In the tables the abbreviation NS is used to indicate "Not Significant" for p values greater than 0.05.

Data Retention. All data and records were returned to the Contracting Sponsor following acceptance of the final report. Upon completion of this study, the report and raw data for this study will be maintained in the archives of Huntingdon Life Sciences.

# VII. RESULTS

## TERMINAL BODY AND ORGAN WEIGHTS.

The terminal body weight data from the study are shown in Table 1 for the control and Test Substance-exposed groups. The terminal body weights were obtained by Huntingdon Life Sciences PRC personnel. The mean ending weight for the vehicle-exposed rats was 251.6 $\pm$ 4.3 grams. No statistically significant differences were observed in terminal body weights of the Gasoline DIPE Vapor Condensate-exposed animals at any exposure level as compared to the vehicle (air only) controls.

The organ weights of the control and Test Substance-exposed rats are shown in Table 1. No effect was observed, following exposure to Gasoline DIPE Vapor Condensate, on spleen or thymus weights when evaluated as absolute weight. When evaluated as relative weight, there was a statistically significant increase in the spleen of 21% at the low dose exposure level when compared to the vehicle control. However, the effect on relative weight was not dose dependent and is not considered to be biologically significant. Furthermore, there was no effect on the relative weight of the thymus when exposed to Gasoline DIPE Vapor Condensate. Treatment with the positive control, cyclophosphamide, had a significant decrease of 51% on absolute spleen weight and a significant decrease of 77% on absolute thymus weight, compared to the vehicle control. In addition, the positive control, cyclophosphamide, had a significant decrease of 45% on relative spleen weight and a 75% decrease on relative thymus weight, compared to the vehicle control. Shown graphically in Figures 1 and 2 is the effect on spleen and thymus weights following exposure to Gasoline DIPE Vapor Condensate.

Figure 1

Absolute (mg) and Relative (%) Spleen Weight in Female Sprague Dawley Rats Exposed to Gasoline DIPE Vapor Condensate via Inhalation for 5 Days per Week for 4 Weeks

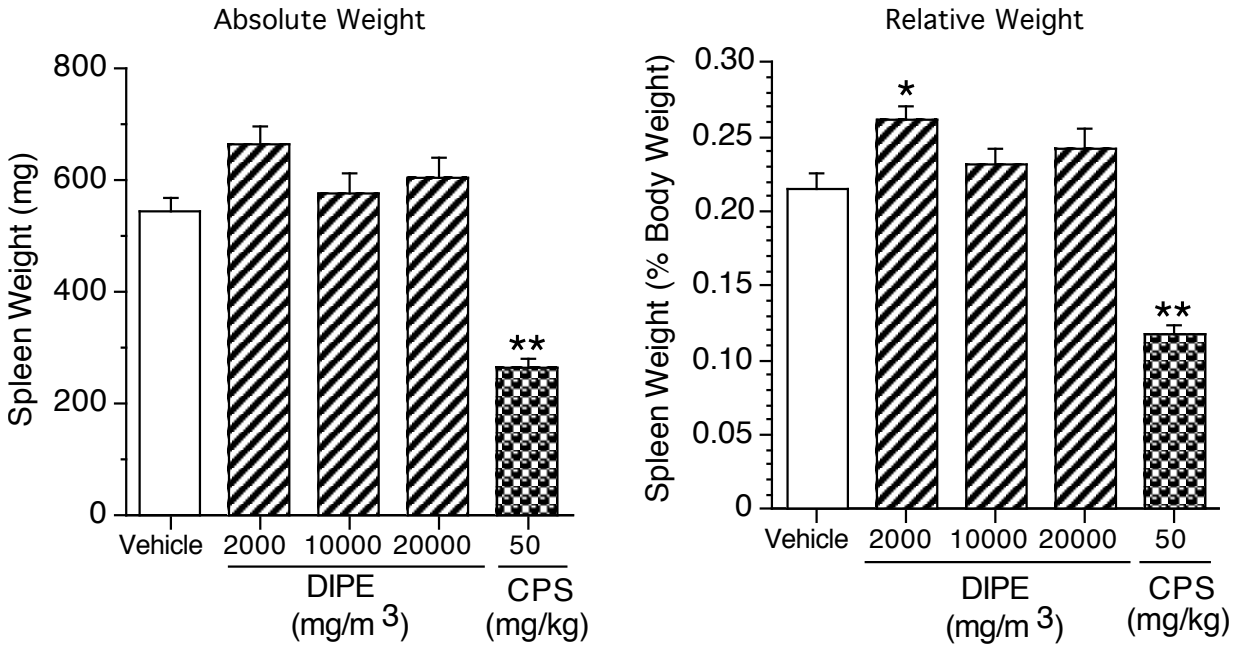
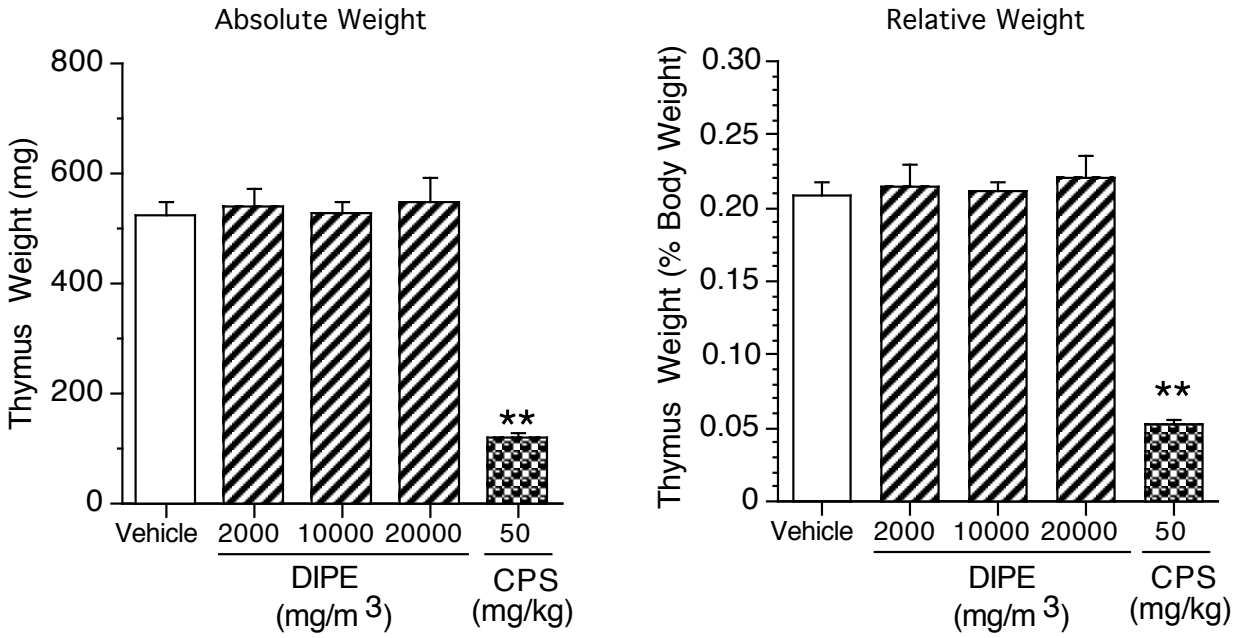


Figure 2

Absolute (mg) and Relative (%) Thymus Weight in Female Sprague Dawley Rats Exposed to Gasoline DIPE Vapor Condensate via Inhalation for 5 Days per Week for 4 Weeks



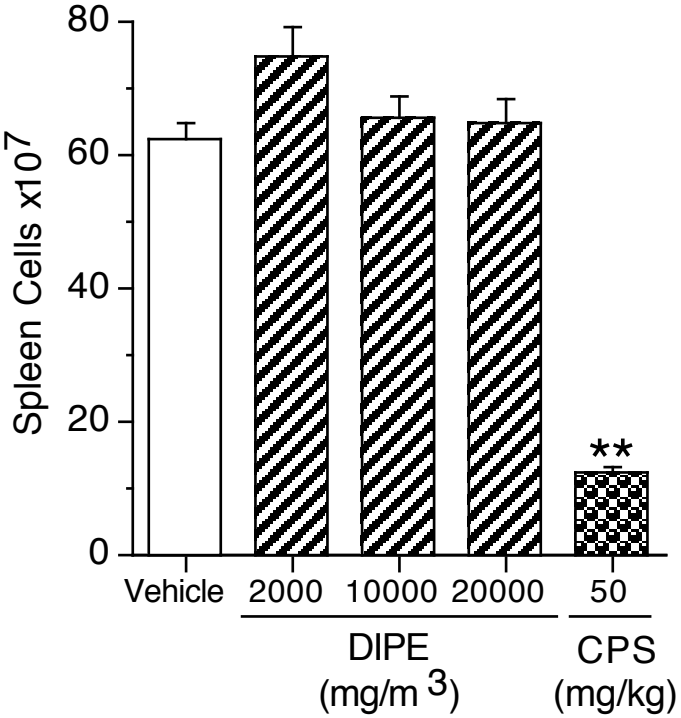

SPLEEN IGM ANTIBODY RESPONSE TO THE T-DEPENDENT ANTIGEN, SRBC. DAY 4 RESPONSE.

The spleen IgM antibody-forming cell response, i.e. plaque assay, was evaluated on spleens removed 1 day after the last exposure, which was Day 4 after antigen sensitization. Day 4 after antigen sensitization is the peak day for the sRBC IgM AFC response in rats. Viabilities were conducted on all cell suspensions using propidium iodide (PI) and the Coulter EPICS XL-MCL Flow Cytometer. The viabilities from all samples were greater than 72% with the exception of one sample, which had a viability of 69.8%.

The results of the AFC response are shown in Table 2 and in Figures 3 and 4. As indicated above, exposure to Gasoline DIPE Vapor Condensate did not result in spleen weights that were significantly different from the vehicle control group. Furthermore, as shown graphically in Figure 3, there were no significant differences in spleen cell number following exposure to Gasoline DIPE Vapor Condensate as compared to the vehicle control group. There was a slight, albeit not statistically significant increase in spleen cell number in the low dose group consistent with effects seen with spleen weights. As expected, the positive control, cyclophosphamide (CPS), produced an 80% decrease in spleen cell number when compared to the vehicle control group.

Figure 3

Spleen Cell Number in Female Sprague Dawley Rats Exposed to Gasoline DIPE Vapor Condensate via Inhalation for 5 Days per Week for 4 Weeks

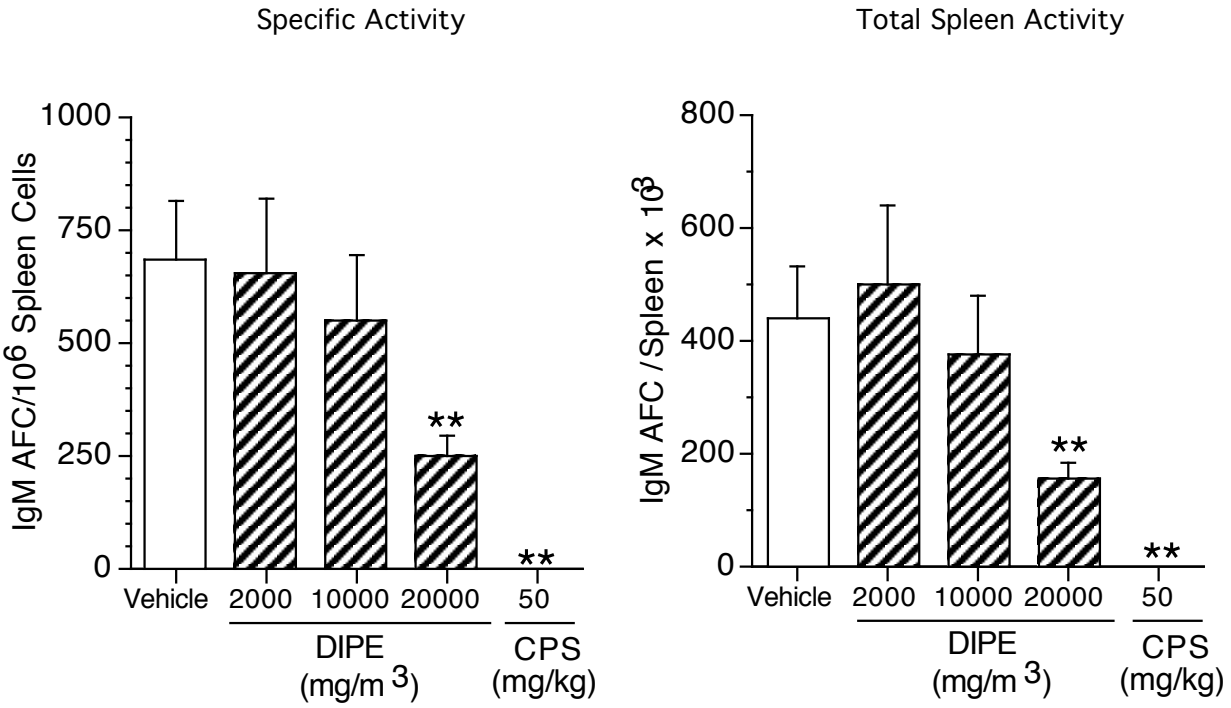



Shown in Table 2 and Figure 4 are the functional results from the IgM antibody-forming cell (AFC) assay. Shown in the left panel are the results when the data are expressed as specific activity and the results of the total spleen activity are shown in the right panel. While the overall response of the study was somewhat lower than had been observed in the past, the positive and negative control animal responses are consistent with the range of responses observed with the Sprague Dawley outbred strain of rats. As can be seen, a dose-related decrease in the IgM-antibody-forming cell response to the T-dependent antigen, sRBC, was observed when the data were evaluated as either specific activity (AFC/$10^6$ spleen) or as total spleen activity (AFC/spleen). For both parameters, exposure to Gasoline DIPE Vapor Condensate reached the level of statistical significance at the high exposure level. When evaluated as specific activity, the response was suppressed 63% for the high exposure level. When evaluated as total spleen activity, the response was suppressed 64% for the high exposure level.

As anticipated, the positive control, CPS, produced a significant decrease in specific activity (100%) and total spleen cell activity (100%) when compared to the vehicle control animals.

Figure 4

IgM Antibody-Forming Cell Response to Sheep Erythrocytes in Female Sprague Dawley Rats Exposed to Gasoline DIPE Vapor Condensate via Inhalation for 5 Days per Week for 4 Weeks



## VIII. CONCLUSION

Exposure of female Sprague Dawley rats to Gasoline DIPE Vapor Condensate for a period of 5 days per week for 4 weeks resulted in a dose–related decrease in the humoral immune response to the T-dependent antigen, sheep erythrocytes. Although the functional ability of the animals was reduced, there was no statistically significant effect on body weight, absolute spleen weight, thymus weight, or spleen cell number. Based on the immunological parameters evaluated, under the experimental conditions of the study, exposure to Gasoline DIPE Vapor Condensate adversely affected the humoral immune response of female Sprague Dawley rats, with statistically significant effects at 20,000 mg/m$^3$, the highest dose level evaluated. Therefore, based on this study, the NOAEL was 10,000 mg/m$^3$.

# IX. REFERENCES

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Table 1

Body Weight (g) and Organ Weights (mg) in Female Sprague Dawley Rats Exposed to Gasoline DIPE Vapor Condensate via Inhalation for 5 Days per Week for 4 Weeks

HLS Study No. 00-6130

| Parameter | Vehicle (10) | Gasoline DIPE Vapor ($mg/m^3$) 2000 (10) | 10000 (10) | 20000 (10) | Cyclophosphamide 50 mg/kg (10) | H/NH | Trend Analysis |
|---|---|---|---|---|---|---|---|
| Body Wgt (g) | 251.6 ± 4.3 | 254.5 ± 4.9 | 249.8 ± 3.5 | 247.9 ± 5.4 | 228.7 ± 4.6** | H | NS |
| Spleen (mg) | 544 ± 24 | 667 ± 30 | 579 ± 33 | 604 ± 39 | 267 ± 14** | H | NS |
| % Body Wgt | 0.215 ± 0.010 | 0.261 ± 0.010* | 0.232 ± 0.010 | 0.242 ± 0.013 | 0.118 ± 0.005** | H | NS |
| Thymus (mg) | 526 ± 24 | 540 ± 33 | 528 ± 21 | 550 ± 45 | 122 ± 9** | H | NS |
| % Body Wgt | 0.209 ± 0.008 | 0.214 ± 0.015 | 0.211 ± 0.007 | 0.220 ± 0.016 | 0.052 ± 0.004** | NH | NS |

Female Sprague Dawley rats were administered vehicle control (air only) or gasoline DIPE vapor condensate by inhalation via whole-body exposure for 5 days per week for 4 weeks. The positive control, cyclophosphamide, was administered i.p. on the last 4 days of exposure. On the day of sacrifice, spleens were placed in tubes containing media and sent to Richmond, VA, on ice for next day cell preparation. The rats were necropsied and indicated organs weighed. Values represent the mean ± SE (standard error) derived from the number of animals indicated in parentheses. H = homogeneous data and NH = non-homogeneous data using the Bartlett's Test for homogeneity. Homogeneous data were evaluated using a parametric analysis of variance. When significant differences occurred, exposed groups were compared to the vehicle control group using the Dunnett's Test. Non-homogeneous data were evaluated using a non-parametric analysis of variance. When significant differences occurred, exposed groups were compared to the vehicle control group using the Wilcoxon Rank Test. The positive control was compared to the vehicle control using the Student's t Test. Values significantly different from vehicle control at $p \leq 0.05$ are indicated by an asterisk, while those significant at $p \leq 0.01$ are noted by a double asterisk. The Jonckheere's Test was used to test for dose-related trends among the vehicle and exposed groups.

Key:
mg = milligrams; $m^3$ = cubic meter of air; kg = kilograms; Wgt = weight; NS = not significant for p values greater than 0.05.

Table 2

Spleen Antibody-Forming Cell Response to T-dependent Antigen Sheep Erythrocytes in Female Sprague Dawley Rats Exposed to Gasoline DIPE Vapor Condensate via Inhalation for 5 Days per Week for 4 Weeks - Day 4 Response

HLS Study No. 00-6130

| Exposure | Body Wgt (g) | Spleen Wgt (mg) | Spleen Cells ($x10^7$) | IgM AFC/ $10^6$ Spleen Cells | IgM AFC/Spleen ($x 10^3$) |
|---|---|---|---|---|---|
| Vehicle | 251.6 ± 4.3 (10) | 544 ± 24 (10) | 62.65 ± 2.50 (10) | 688 ± 128 (10) | 440 ± 95 (10) |
| Gasoline DIPE Vapor Condensate | | | | | |
| 2000 $mg/m^3$ | 254.5 ± 4.9 (10) | 667 ± 30 (10) | 75.17 ± 4.34 (10) | 657 ± 166 (10) | 503 ± 137 (10) |
| 10000 $mg/m^3$ | 249.8 ± 3.5 (10) | 579 ± 33 (10) | 65.87 ± 3.29 (10) | 553 ± 143 (10) | 377 ± 106 (10) |
| 20000 $mg/m^3$ | 247.9 ± 5.4 (10) | 604 ± 39 (10) | 64.82 ± 3.92 (10) | 252 ± 44** (10) | 159 ± 26** (10) |
| Cyclophosphamide 50 mg/kg | 228.7 ± 4.6** (10) | 267 ± 14** (10) | 12.52 ± 0.73** (10) | 0 ± 0** (10) | 0 ± 0** (10) |
| H/NH | H | H | H | NH | NH |
| Trend Analysis | NS | NS | NS | $p \leq 0.01$ | $p \leq 0.01$ |

Female Sprague Dawley rats were administered vehicle control (air only) or gasoline DIPE vapor condensate by inhalation via whole-body exposure for 5 days per week for 4 weeks. The positive control, cyclophosphamide, was administered i.p. the last 4 days of exposure. Four days prior to sacrifice, the rats were immunized (iv) with $2x10^8$ sRBC. On the day of sacrifice, spleens were placed in tubes containing media and sent to Richmond, VA, on ice for next day cell preparation. Spleens were prepared into single cell suspensions and the number of IgM sRBC antibody-forming cells was determined. Values represent the mean ± SE (standard error) derived from the number of animals indicated in parentheses. H = homogeneous data and NH = non-homogeneous data using the Bartlett's Test for homogeneity. Homogeneous data were evaluated using a parametric analysis of variance. When significant differences occurred, exposed groups were compared to the vehicle control group using the Dunnett's Test. Non-homogeneous data were evaluated using a non-parametric analysis of variance. When significant differences occurred, exposed groups were compared to the vehicle control group using the Wilcoxon Rank Test. The positive control was compared to the vehicle control using the Student's t Test. Values significantly different from vehicle control at $p \leq 0.05$ are indicated by an asterisk, while those significant at $p \leq 0.01$ are noted by a double asterisk. The Jonckheere's Test was used to test for dose-related trends among the vehicle and exposed groups.

Key: g = grams; mg = milligrams; $m^3$ = cubic meter of air; kg = kilograms; Wgt = weight; NS = not significant for p values greater than 0.05.

# APPENDIX A

# INDIVIDUAL ANIMAL DATA

INDIVIDUAL ANIMAL DATA
ORGAN WEIGHTS
GASOLINE DIPE VAPOR CONDENSATE
00-6130

| ANIMAL NO | GROUP | DOSE | SEX | BODY WGT (G) | SPLEEN WGT (MG) | THYMUS WGT (MG) | SPLEEN WGT / % BODY WGT | THYMUS WGT / % BODY WGT |
|---|---|---|---|---|---|---|---|---|
| 1581 | GI | AIR ONLY | F | 281.3 | 564 | 534 | 0.200 | 0.190 |
| 1582 | GI | AIR ONLY | F | 248.9 | 636 | 475 | 0.260 | 0.190 |
| 1583 | GI | AIR ONLY | F | 232.5 | 451 | 467 | 0.190 | 0.200 |
| 1584 | GI | AIR ONLY | F | 255.4 | 669 | 540 | 0.260 | 0.210 |
| 1585 | GI | AIR ONLY | F | 260.3 | 524 | 523 | 0.200 | 0.200 |
| 1586 | GI | AIR ONLY | F | 246.8 | 617 | 464 | 0.250 | 0.190 |
| 1587 | GI | AIR ONLY | F | 256.5 | 495 | 703 | 0.190 | 0.270 |
| 1588 | GI | AIR ONLY | F | 242.7 | 522 | 528 | 0.210 | 0.220 |
| 1589 | GI | AIR ONLY | F | 237.9 | 507 | 452 | 0.210 | 0.190 |
| 1590 | GI | AIR ONLY | F | 253.6 | 453 | 577 | 0.180 | 0.230 |
| 2571 | GII | 2,000 MG/M$^3$ DIPE | F | 268.9 | 750 | 570 | 0.280 | 0.210 |
| 2572 | GII | 2,000 MG/M$^3$ DIPE | F | 223.2 | 573 | 467 | 0.260 | 0.210 |
| 2573 | GII | 2,000 MG/M$^3$ DIPE | F | 260.3 | 835 | 503 | 0.320 | 0.190 |
| 2574 | GII | 2,000 MG/M$^3$ DIPE | F | 245.4 | 592 | 559 | 0.240 | 0.230 |
| 2575 | GII | 2,000 MG/M$^3$ DIPE | F | 267.1 | 702 | 457 | 0.260 | 0.170 |
| 2576 | GII | 2,000 MG/M$^3$ DIPE | F | 270.7 | 609 | 504 | 0.220 | 0.190 |
| 2577 | GII | 2,000 MG/M$^3$ DIPE | F | 258.5 | 543 | 416 | 0.210 | 0.160 |
| 2578 | GII | 2,000 MG/M$^3$ DIPE | F | 248.1 | 628 | 540 | 0.250 | 0.220 |
| 2579 | GII | 2,000 MG/M$^3$ DIPE | F | 263.8 | 768 | 607 | 0.290 | 0.230 |
| 2580 | GII | 2,000 MG/M$^3$ DIPE | F | 238.6 | 672 | 784 | 0.280 | 0.330 |
| 3571 | GIII | 10,000 MG/M$^3$ DIPE | F | 253.5 | 571 | 577 | 0.230 | 0.230 |
| 3572 | GIII | 10,000 MG/M$^3$ DIPE | F | 252.8 | 575 | 501 | 0.230 | 0.200 |
| 3573 | GIII | 10,000 MG/M$^3$ DIPE | F | 237.6 | 519 | 513 | 0.220 | 0.220 |
| 3574 | GIII | 10,000 MG/M$^3$ DIPE | F | 238.1 | 472 | 483 | 0.200 | 0.200 |
| 3575 | GIII | 10,000 MG/M$^3$ DIPE | F | 245.9 | 535 | 551 | 0.220 | 0.220 |
| 3576 | GIII | 10,000 MG/M$^3$ DIPE | F | 271.1 | 858 | 538 | 0.320 | 0.200 |
| 3577 | GIII | 10,000 MG/M$^3$ DIPE | F | 239.7 | 576 | 461 | 0.240 | 0.190 |
| 3578 | GIII | 10,000 MG/M$^3$ DIPE | F | 248.6 | 543 | 509 | 0.220 | 0.200 |
| 3579 | GIII | 10,000 MG/M$^3$ DIPE | F | 246.3 | 574 | 459 | 0.230 | 0.190 |
| 3580 | GIII | 10,000 MG/M$^3$ DIPE | F | 264.8 | 569 | 685 | 0.210 | 0.260 |
| 4581 | GIV | 20,000 MG/M$^3$ DIPE | F | 272.1 | 813 | 765 | 0.300 | 0.280 |
| 4582 | GIV | 20,000 MG/M$^3$ DIPE | F | 249.1 | 731 | 356 | 0.290 | 0.140 |
| 4583 | GIV | 20,000 MG/M$^3$ DIPE | F | 223.3 | 523 | 444 | 0.230 | 0.200 |
| 4584 | GIV | 20,000 MG/M$^3$ DIPE | F | 256.5 | 521 | 389 | 0.200 | 0.150 |
| 4585 | GIV | 20,000 MG/M$^3$ DIPE | F | 227.7 | 445 | 556 | 0.200 | 0.240 |
| 4586 | GIV | 20,000 MG/M$^3$ DIPE | F | 240.8 | 510 | 443 | 0.210 | 0.180 |
| 4587 | GIV | 20,000 MG/M$^3$ DIPE | F | 231.0 | 654 | 623 | 0.280 | 0.270 |
| 4588 | GIV | 20,000 MG/M$^3$ DIPE | F | 254.2 | 583 | 538 | 0.230 | 0.210 |
| 4589 | GIV | 20,000 MG/M$^3$ DIPE | F | 253.4 | 518 | 637 | 0.200 | 0.250 |
| 4590 | GIV | 20,000 MG/M$^3$ DIPE | F | 270.4 | 745 | 750 | 0.280 | 0.280 |
| 5551 | GV | 50 MG/KG CYCLOPHOSPHAMIDE | F | 222.9 | 238 | 99 | 0.110 | 0.040 |
| 5552 | GV | 50 MG/KG CYCLOPHOSPHAMIDE | F | 221.9 | 235 | 87 | 0.110 | 0.040 |
| 5553 | GV | 50 MG/KG CYCLOPHOSPHAMIDE | F | 224.7 | 247 | 132 | 0.110 | 0.060 |
| 5554 | GV | 50 MG/KG CYCLOPHOSPHAMIDE | F | 221.0 | 242 | 95 | 0.110 | 0.040 |
| 5555 | GV | 50 MG/KG CYCLOPHOSPHAMIDE | F | 232.6 | 210 | 87 | 0.090 | 0.040 |
| 5556 | GV | 50 MG/KG CYCLOPHOSPHAMIDE | F | 221.3 | 255 | 143 | 0.120 | 0.060 |
| 5557 | GV | 50 MG/KG CYCLOPHOSPHAMIDE | F | 217.3 | 271 | 146 | 0.120 | 0.070 |
| 5558 | GV | 50 MG/KG CYCLOPHOSPHAMIDE | F | 258.2 | 355 | 167 | 0.140 | 0.060 |
| 5559 | GV | 50 MG/KG CYCLOPHOSPHAMIDE | F | 251.1 | 306 | 140 | 0.120 | 0.060 |
| 5560 | GV | 50 MG/KG CYCLOPHOSPHAMIDE | F | 215.9 | 316 | 117 | 0.150 | 0.050 |

INDIVIDUAL ANIMAL DATA
IGM AFC ASSAY
GASOLINE DIPE VAPOR CONDENSATE
00-6130

| ANIMAL NO | GROUP | DOSE | SEX | IGM AFC/$10^6$ SP.C. | IGM AFC/SPLEEN $10^3$ | CELLS/SPLEEN $10^7$ | SPLEEN WGT (MG) | BODY WGT (G) |
|---|---|---|---|---|---|---|---|---|
| 1581 | GI | AIR ONLY | F | 814 | 528 | 64.86 | 564 | 281.3 |
| 1582 | GI | AIR ONLY | F | 1694 | 1197 | 70.68 | 636 | 248.9 |
| 1583 | GI | AIR ONLY | F | 592 | 306 | 51.66 | 451 | 232.5 |
| 1584 | GI | AIR ONLY | F | 289 | 225 | 77.82 | 669 | 255.4 |
| 1585 | GI | AIR ONLY | F | 558 | 327 | 58.62 | 524 | 260.3 |
| 1586 | GI | AIR ONLY | F | 722 | 480 | 66.48 | 617 | 246.8 |
| 1587 | GI | AIR ONLY | F | 499 | 279 | 55.86 | 495 | 256.5 |
| 1588 | GI | AIR ONLY | F | 927 | 606 | 65.34 | 522 | 242.7 |
| 1589 | GI | AIR ONLY | F | 414 | 246 | 59.40 | 507 | 237.9 |
| 1590 | GI | AIR ONLY | F | 366 | 204 | 55.80 | 453 | 253.6 |
| 2571 | GII | 2,000 MG/$M^3$ DIPE | F | 1634 | 1368 | 83.70 | 750 | 268.9 |
| 2572 | GII | 2,000 MG/$M^3$ DIPE | F | 401 | 225 | 56.10 | 573 | 223.2 |
| 2573 | GII | 2,000 MG/$M^3$ DIPE | F | 448 | 312 | 69.60 | 835 | 260.3 |
| 2574 | GII | 2,000 MG/$M^3$ DIPE | F | 429 | 336 | 78.30 | 592 | 245.4 |
| 2575 | GII | 2,000 MG/$M^3$ DIPE | F | 669 | 435 | 65.04 | 702 | 267.1 |
| 2576 | GII | 2,000 MG/$M^3$ DIPE | F | 1624 | 1260 | 77.58 | 609 | 270.7 |
| 2577 | GII | 2,000 MG/$M^3$ DIPE | F | 337 | 201 | 59.58 | 543 | 258.5 |
| 2578 | GII | 2,000 MG/$M^3$ DIPE | F | 257 | 198 | 76.92 | 628 | 248.1 |
| 2579 | GII | 2,000 MG/$M^3$ DIPE | F | 338 | 351 | 103.98 | 768 | 263.8 |
| 2580 | GII | 2,000 MG/$M^3$ DIPE | F | 430 | 348 | 80.94 | 672 | 238.6 |
| 3571 | GIII | 10,000 MG/$M^3$ DIPE | F | 243 | 156 | 64.08 | 571 | 253.5 |
| 3572 | GIII | 10,000 MG/$M^3$ DIPE | F | 367 | 261 | 71.16 | 575 | 252.8 |
| 3573 | GIII | 10,000 MG/$M^3$ DIPE | F | 389 | 222 | 57.06 | 519 | 237.6 |
| 3574 | GIII | 10,000 MG/$M^3$ DIPE | F | 364 | 231 | 63.48 | 472 | 238.1 |
| 3575 | GIII | 10,000 MG/$M^3$ DIPE | F | 165 | 93 | 56.34 | 535 | 245.9 |
| 3576 | GIII | 10,000 MG/$M^3$ DIPE | F | 783 | 690 | 88.08 | 858 | 271.1 |
| 3577 | GIII | 10,000 MG/$M^3$ DIPE | F | 1584 | 1152 | 72.72 | 576 | 239.7 |
| 3578 | GIII | 10,000 MG/$M^3$ DIPE | F | 1057 | 588 | 55.62 | 543 | 248.6 |
| 3579 | GIII | 10,000 MG/$M^3$ DIPE | F | 288 | 165 | 57.30 | 574 | 246.3 |
| 3580 | GIII | 10,000 MG/$M^3$ DIPE | F | 292 | 213 | 72.90 | 569 | 264.8 |
| 4581 | GIV | 20,000 MG/$M^3$ DIPE | F | 98 | 60 | 61.50 | 813 | 272.1 |
| 4582 | GIV | 20,000 MG/$M^3$ DIPE | F | 127 | 111 | 87.54 | 731 | 249.1 |
| 4583 | GIV | 20,000 MG/$M^3$ DIPE | F | 396 | 222 | 56.04 | 523 | 223.3 |
| 4584 | GIV | 20,000 MG/$M^3$ DIPE | F | 418 | 225 | 53.82 | 521 | 256.5 |
| 4585 | GIV | 20,000 MG/$M^3$ DIPE | F | 123 | 63 | 51.42 | 445 | 227.7 |
| 4586 | GIV | 20,000 MG/$M^3$ DIPE | F | 169 | 123 | 72.66 | 510 | 240.8 |
| 4587 | GIV | 20,000 MG/$M^3$ DIPE | F | 337 | 276 | 81.96 | 654 | 231.0 |
| 4588 | GIV | 20,000 MG/$M^3$ DIPE | F | 405 | 219 | 54.06 | 583 | 254.2 |
| 4589 | GIV | 20,000 MG/$M^3$ DIPE | F | 345 | 228 | 66.18 | 518 | 253.4 |
| 4590 | GIV | 20,000 MG/$M^3$ DIPE | F | 100 | 63 | 63.06 | 745 | 270.4 |
| 5551 | GV | 50 MG/KG CYCLOPHOSPHAMIDE | F | 0 | 0 | 14.52 | 238 | 222.9 |
| 5552 | GV | 50 MG/KG CYCLOPHOSPHAMIDE | F | 0 | 0 | 13.44 | 235 | 221.9 |
| 5553 | GV | 50 MG/KG CYCLOPHOSPHAMIDE | F | 0 | 0 | 10.44 | 247 | 224.7 |
| 5554 | GV | 50 MG/KG CYCLOPHOSPHAMIDE | F | 0 | 0 | 12.18 | 242 | 221.0 |
| 5555 | GV | 50 MG/KG CYCLOPHOSPHAMIDE | F | 0 | 0 | 12.12 | 210 | 232.6 |
| 5556 | GV | 50 MG/KG CYCLOPHOSPHAMIDE | F | 0 | 0 | 9.72 | 255 | 221.3 |
| 5557 | GV | 50 MG/KG CYCLOPHOSPHAMIDE | F | 0 | 0 | 11.82 | 271 | 217.3 |
| 5558 | GV | 50 MG/KG CYCLOPHOSPHAMIDE | F | 0 | 0 | 17.58 | 355 | 258.2 |
| 5559 | GV | 50 MG/KG CYCLOPHOSPHAMIDE | F | 0 | 0 | 10.38 | 306 | 251.1 |
| 5560 | GV | 50 MG/KG CYCLOPHOSPHAMIDE | F | 0 | 0 | 12.96 | 316 | 215.9 |

# APPENDIX B

# CONTACTING SPONSOR'S EXPOSURE AND ANIMAL DATA

| | Animal Exposure and Animal Data<br>Preface | Appendix B |
|---|---|---|

**INTRODUCTION:** The following is data generated at Huntingdon Life Sciences, East Millstone, NJ. The separately issued main study report should be referenced for details of the procedures used for test atmosphere generation/characterization and animal evaluations.

| | | |
|---|---|---|
| **STUDY DATES:** | Date of Animal Receipt: | 24 January 2002 |
| | Experimental Initiation Date: | 14 February 2002 (in-life) |
| | Experimental Completion Date: | 14 March 2002 (in-life) |

**EXPOSURES AND IN-LIFE SUMMARY:** The actual measured results during the exposures were comparable to the targeted exposure levels. There were no exposure-related effects seen in the test animals with regards to body weights and feed consumption.

**TABLE OF CONTENTS**

**TABLES**

Table A

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK
WHOLE-BODY INHALATION TOXICITY STUDY IN RATS

00-6130

Chamber Monitoring Results
Cumulative Exposure Record
Group IA - 0 mg/m$^3$ (Air Control)

| Day | Date | Exposure Number | Nominal (mg/m$^3$) | Analytical Chamber Concentration: Mean (mg/m$^3$) | Individual (mg/m$^3$) | | | | Particle Size Determinations: MMAD (µm) | GSD | TMC (mg/m$^3$) | Chamber Environment: Mean Temperature (°C) | Mean Humidity (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 14-Feb-02 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 25 | 58 |
| 1 | 15-Feb-02 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1.209 | 1.495 | 1.94E-03 | 25 | 56 |
| 4 | 18-Feb-02 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 25 | 56 |
| 5 | 19-Feb-02 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 24 | 58 |
| 6 | 20-Feb-02 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 24 | 54 |
| 7 | 21-Feb-02 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 24 | 54 |
| 8 | 22-Feb-02 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 24 | 55 |
| 11 | 25-Feb-02 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 4.471 | 2.682 | 7.37E-03 | 24 | 51 |
| 12 | 26-Feb-02 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 26 | 58 |
| 13 | 27-Feb-02 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 25 | 53 |
| 14 | 28-Feb-02 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 25 | 57 |
| 15 | 01-Mar-02 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 25 | 58 |
| 18 | 04-Mar-02 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 2.303 | 2.369 | 3.03E-03 | 25 | 54 |
| 19 | 05-Mar-02 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 24 | 44 |
| 20 | 06-Mar-02 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 24 | 54 |
| 21 | 07-Mar-02 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 24 | 59 |
| 22 | 08-Mar-02 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 24 | 54 |
| 25 | 11-Mar-02 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 1.520 | 1.876 | 3.20E-03 | 24 | 55 |
| 26 | 12-Mar-02 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 25 | 52 |
| 27 | 13-Mar-02 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 21 | 53 |
| | | **Mean** | **0** | | | **0** | | | **2.376** | **2.106** | **3.89E-03** | **24.4** | **54.7** |
| | | **S.D.** | **0** | | | **0** | | | **1.471** | **0.525** | **2.39E-03** | **1.0** | **3.4** |

Table A

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK
WHOLE-BODY INHALATION TOXICITY STUDY IN RATS



Chamber Monitoring Results
Cumulative Exposure Record
Group IB - 0 mg/m$^3$ (Air Control)

| Day | Date | Exposure Number | Nominal (mg/m$^3$) | Analytical Chamber Concentration: Mean (mg/m$^3$) | Individual (mg/m$^3$) | | | | Particle Size Determinations: MMAD (µm) | GSD | TMC (mg/m$^3$) | Chamber Environment: Mean Temperature (°C) | Humidity (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 14-Feb-02 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 24 | 60 |
| 1 | 15-Feb-02 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1.230 | 1.627 | 1.72E-03 | 24 | 58 |
| 4 | 18-Feb-02 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 24 | 57 |
| 5 | 19-Feb-02 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 24 | 59 |
| 6 | 20-Feb-02 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 24 | 55 |
| 7 | 21-Feb-02 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 24 | 54 |
| 8 | 22-Feb-02 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 24 | 57 |
| 11 | 25-Feb-02 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 3.222 | 2.309 | 7.63E-03 | 24 | 54 |
| 12 | 26-Feb-02 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 25 | 59 |
| 13 | 27-Feb-02 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 24 | 56 |
| 14 | 28-Feb-02 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 23 | 69 |
| 15 | 01-Mar-02 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 24 | 58 |
| 18 | 04-Mar-02 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 2.090 | 1.807 | 3.69E-03 | 24 | 55 |
| 19 | 05-Mar-02 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 24 | 45 |
| 20 | 06-Mar-02 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 24 | 55 |
| 21 | 07-Mar-02 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 25 | 59 |
| 22 | 08-Mar-02 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 24 | 55 |
| 25 | 11-Mar-02 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 1.465 | 1.966 | 2.72E-03 | 24 | 55 |
| 26 | 12-Mar-02 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 23 | 55 |
| 27 | 13-Mar-02 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 22 | 56 |
| | | **Mean** | **0** | | | **0** | | | **2.002** | **1.927** | **3.94E-03** | **23.9** | **56.6** |
| | | **S.D.** | **0** | | | **0** | | | **0.891** | **0.290** | **2.59E-03** | **0.6** | **4.3** |

Table A

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK
WHOLE-BODY INHALATION TOXICITY STUDY IN RATS



Chamber Monitoring Results
Cumulative Exposure Record
Group IIA - 2,000 mg/m$^3$

| Day | Date | Exposure Number | Nominal (mg/m$^3$) | Analytical Chamber Concentration: Mean (mg/m$^3$) | Individual (mg/m$^3$) | | | | Particle Size Determinations: MMAD (µm) | GSD | TMC (mg/m$^3$) | Chamber Environment: Mean Temperature (°C) | Mean Humidity (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 14-Feb-02 | 1 | 1950 | 1953 | 2000 | 1990 | 2020 | 1800 | | | | 23 | 52 |
| 1 | 15-Feb-02 | 2 | 2150 | 2085 | 1900 | 2170 | 2150 | 2120 | 1.422 | 1.933 | 3.09E-03 | 24 | 50 |
| 4 | 18-Feb-02 | 3 | 2010 | 1995 | 1980 | 2000 | 1980 | 2020 | | | | 24 | 50 |
| 5 | 19-Feb-02 | 4 | 2090 | 2025 | 1920 | 2010 | 2070 | 2100 | | | | 24 | 52 |
| 6 | 20-Feb-02 | 5 | 2060 | 1985 | 1920 | 1980 | 2020 | 2020 | | | | 24 | 48 |
| 7 | 21-Feb-02 | 6 | 2130 | 1998 | 2000 | 1940 | 2030 | 2020 | | | | 24 | 48 |
| 8 | 22-Feb-02 | 7 | 2000 | 1950 | 2300 | 1610 | 1940 | 1950 | | | | 24 | 49 |
| 11 | 25-Feb-02 | 8 | 2090 | 1995 | 1920 | 1900 | 2050 | 2110 | 1.182 | 2.060 | 4.38E-03 | 24 | 48 |
| 12 | 26-Feb-02 | 9 | 1970 | 1998 | 2080 | 1910 | 2000 | 2000 | | | | 25 | 50 |
| 13 | 27-Feb-02 | 10 | 1990 | 1958 | 1920 | 1960 | 2010 | 1940 | | | | 24 | 48 |
| 14 | 28-Feb-02 | 11 | 2030 | 2010 | 2050 | 1980 | 1990 | 2020 | | | | 23 | 51 |
| 15 | 01-Mar-02 | 12 | 2030 | 2035 | 2040 | 2050 | 2050 | 2000 | | | | 23 | 52 |
| 18 | 04-Mar-02 | 13 | 2050 | 1998 | 2090 | 1980 | 2000 | 1920 | 1.832 | 2.321 | 2.65E-03 | 24 | 50 |
| 19 | 05-Mar-02 | 14 | 1900 | 1865 | 1940 | 1730 | 1800 | 1990 | | | | 23 | 42 |
| 20 | 06-Mar-02 | 15 | 2100 | 2000 | 2010 | 1990 | 2000 | 2000 | | | | 23 | 50 |
| 21 | 07-Mar-02 | 16 | 2090 | 1915 | 2020 | 1750 | 1970 | 1920 | | | | 24 | 55 |
| 22 | 08-Mar-02 | 17 | 2150 | 1983 | 1900 | 2030 | 2020 | 1980 | | | | 23 | 50 |
| 25 | 11-Mar-02 | 18 | 2020 | 1928 | 2020 | 1820 | 1970 | 1900 | 1.506 | 2.053 | 3.51E-03 | 24 | 52 |
| 26 | 12-Mar-02 | 19 | 2010 | 1883 | 1850 | 2130 | 1790 | 1760 | | | | 23 | 50 |
| 27 | 13-Mar-02 | 20 | 2010 | 1988 | 1950 | 2020 | 1980 | 2000 | | | | 22 | 49 |
| | | **Mean** | **2042** | | | **1977** | | | **1.486** | **2.092** | **3.41E-03** | **23.6** | **49.8** |
| | | **S.D.** | **66** | | | **102** | | | **0.269** | **0.164** | **7.37E-04** | **0.7** | **2.5** |

Table A

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK
WHOLE-BODY INHALATION TOXICITY STUDY IN RATS



Chamber Monitoring Results
Cumulative Exposure Record
Group IIB - 2,000 mg/m$^3$

| Day | Date | Exposure Number | Nominal (mg/m$^3$) | Analytical Chamber Concentration: Mean (mg/m$^3$) | Individual (mg/m$^3$) | | | | Particle Size Determinations: MMAD (µm) | GSD | TMC (mg/m$^3$) | Chamber Environment: Mean Temperature (°C) | Humidity (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 14-Feb-02 | 1 | 1950 | 1983 | 2020 | 1920 | 1880 | 2110 | | | | 23 | 56 |
| 1 | 15-Feb-02 | 2 | 2150 | 2178 | 2400 | 2030 | 2130 | 2150 | 1.589 | 2.321 | 3.46E-03 | 23 | 55 |
| 4 | 18-Feb-02 | 3 | 2010 | 2135 | 2010 | 2170 | 2210 | 2150 | | | | 24 | 54 |
| 5 | 19-Feb-02 | 4 | 2090 | 2063 | 2180 | 1990 | 2000 | 2080 | | | | 23 | 55 |
| 6 | 20-Feb-02 | 5 | 2060 | 1943 | 1980 | 1930 | 1920 | 1940 | | | | 23 | 51 |
| 7 | 21-Feb-02 | 6 | 2130 | 2035 | 2090 | 2120 | 1980 | 1950 | | | | 23 | 50 |
| 8 | 22-Feb-02 | 7 | 2000 | 1903 | 1910 | 1710 | 2000 | 1990 | | | | 23 | 51 |
| 11 | 25-Feb-02 | 8 | 2090 | 2070 | 2160 | 2170 | 1960 | 1990 | 1.378 | 2.273 | 5.03E-03 | 23 | 49 |
| 12 | 26-Feb-02 | 9 | 1970 | 1938 | 1730 | 1920 | 2000 | 2100 | | | | 24 | 54 |
| 13 | 27-Feb-02 | 10 | 1990 | 1993 | 1920 | 2000 | 2010 | 2040 | | | | 23 | 52 |
| 14 | 28-Feb-02 | 11 | 2030 | 1975 | 2060 | 2000 | 2000 | 1840 | | | | 23 | 55 |
| 15 | 01-Mar-02 | 12 | 2030 | 2050 | 1920 | 2150 | 2210 | 1920 | | | | 23 | 55 |
| 18 | 04-Mar-02 | 13 | 2050 | 2113 | 2210 | 2080 | 2040 | 2120 | 3.380 | 2.827 | 3.14E-03 | 23 | 52 |
| 19 | 05-Mar-02 | 14 | 1900 | 1918 | 2000 | 1860 | 1860 | 1950 | | | | 23 | 43 |
| 20 | 06-Mar-02 | 15 | 2100 | 1998 | 2010 | 1980 | 2000 | 2000 | | | | 22 | 52 |
| 21 | 07-Mar-02 | 16 | 2090 | 2028 | 2190 | 1890 | 2020 | 2010 | | | | 23 | 56 |
| 22 | 08-Mar-02 | 17 | 2150 | 1958 | 1910 | 2020 | 1950 | 1950 | | | | 22 | 51 |
| 25 | 11-Mar-02 | 18 | 2020 | 2023 | 1760 | 1960 | 2180 | 2190 | 1.174 | 1.633 | 2.54E-03 | 23 | 53 |
| 26 | 12-Mar-02 | 19 | 2010 | 1963 | 2080 | 2210 | 1850 | 1710 | | | | 23 | 52 |
| 27 | 13-Mar-02 | 20 | 2010 | 1973 | 2040 | 2000 | 1920 | 1930 | | | | 22 | 52 |
| | | **Mean** | **2042** | | | **2012** | | | **1.880** | **2.264** | **3.54E-03** | **23.0** | **52.4** |
| | | **S.D.** | **66** | | | **124** | | | **1.014** | **0.489** | **1.06E-03** | **0.5** | **3.0** |

Table A

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK
WHOLE-BODY INHALATION TOXICITY STUDY IN RATS



Chamber Monitoring Results
Cumulative Exposure Record
Group IIIA - 10,000 mg/m$^3$

| Day | Date | Exposure Number | Nominal (mg/m$^3$) | Analytical Chamber Concentration: Mean (mg/m$^3$) | Individual (mg/m$^3$) | | | | Particle Size Determinations: MMAD (µm) | GSD | TMC (mg/m$^3$) | Chamber Environment: Mean Temperature (°C) | Mean Humidity (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 14-Feb-02 | 1 | 9540 | 9295 | 9650 | 8630 | 9350 | 9550 | | | | 24 | 47 |
| 1 | 15-Feb-02 | 2 | 9890 | 10400 | 9910 | 11500 | 10200 | 10000 | 0.9889 | 1.852 | 3.59E-03 | 24 | 47 |
| 4 | 18-Feb-02 | 3 | 9830 | 10310 | 10600 | 10400 | 9940 | 10300 | | | | 24 | 47 |
| 5 | 19-Feb-02 | 4 | 9740 | 9925 | 10100 | 9650 | 9650 | 10300 | | | | 24 | 50 |
| 6 | 20-Feb-02 | 5 | 10800 | 9680 | 9910 | 9190 | 9420 | 10200 | | | | 24 | 49 |
| 7 | 21-Feb-02 | 6 | 9910 | 10380 | 9910 | 10600 | 10600 | 10400 | | | | 24 | 51 |
| 8 | 22-Feb-02 | 7 | 9950 | 9758 | 10200 | 7730 | 10200 | 10900 | | | | 24 | 50 |
| 11 | 25-Feb-02 | 8 | 9840 | 10480 | 11400 | 10200 | 9910 | 10400 | 1.043 | 2.151 | 5.74E-03 | 24 | 47 |
| 12 | 26-Feb-02 | 9 | 9990 | 9823 | 9940 | 10500 | 9910 | 8940 | | | | 25 | 49 |
| 13 | 27-Feb-02 | 10 | 9920 | 9943 | 10600 | 9420 | 9910 | 9840 | | | | 24 | 47 |
| 14 | 28-Feb-02 | 11 | 10100 | 10650 | 10700 | 10300 | 10700 | 10900 | | | | 24 | 47 |
| 15 | 01-Mar-02 | 12 | 10100 | 10700 | 11200 | 10500 | 10200 | 10900 | | | | 24 | 47 |
| 18 | 04-Mar-02 | 13 | 9200 | 9935 | 11200 | 8840 | 10600 | 9100 | 1.708 | 2.183 | 2.65E-03 | 24 | 46 |
| 19 | 05-Mar-02 | 14 | 9890 | 10200 | 9580 | 10600 | 10500 | 10100 | | | | 23 | 39 |
| 20 | 06-Mar-02 | 15 | 9730 | 10480 | 10200 | 10700 | 10700 | 10300 | | | | 23 | 47 |
| 21 | 07-Mar-02 | 16 | 9860 | 10420 | 10000 | 11100 | 10700 | 9870 | | | | 24 | 51 |
| 22 | 08-Mar-02 | 17 | 9960 | 10240 | 9650 | 10100 | 10800 | 10400 | | | | 23 | 50 |
| 25 | 11-Mar-02 | 18 | 9810 | 10480 | 10800 | 10200 | 10700 | 10200 | 2.245 | 2.622 | 4.77E-03 | 24 | 47 |
| 26 | 12-Mar-02 | 19 | 9890 | 10280 | 9910 | 10800 | 10200 | 10200 | | | | 23 | 47 |
| 27 | 13-Mar-02 | 20 | 9700 | 9968 | 10900 | 9580 | 9810 | 9580 | | | | 22 | 49 |
| | | **Mean** | **9883** | | | **10170** | | | **1.496** | **2.202** | **4.19E-03** | **23.8** | **47.7** |
| | | **S.D.** | **293** | | | **636** | | | **0.597** | **0.317** | **1.35E-03** | **0.6** | **2.6** |

Table A

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK
WHOLE-BODY INHALATION TOXICITY STUDY IN RATS



Chamber Monitoring Results
Cumulative Exposure Record
Group IIIB -10,000 mg/m$^3$

| Day | Date | Exposure Number | Nominal (mg/m$^3$) | Analytical Chamber Concentration: Mean (mg/m$^3$) | Individual (mg/m$^3$) | | | | Particle Size Determinations: MMAD (µm) | GSD | TMC (mg/m$^3$) | Chamber Environment: Mean Temperature (°C) | Mean Humidity (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 14-Feb-02 | 1 | 9540 | 10650 | 10500 | 10600 | 10800 | 10700 | | | | 24 | 47 |
| 1 | 15-Feb-02 | 2 | 9890 | 10270 | 10900 | 9160 | 10400 | 10600 | 1.351 | 2.364 | 4.54E-03 | 24 | 47 |
| 4 | 18-Feb-02 | 3 | 9830 | 9998 | 10400 | 9710 | 9580 | 10300 | | | | 24 | 46 |
| 5 | 19-Feb-02 | 4 | 9740 | 10010 | 10100 | 9740 | 9780 | 10400 | | | | 24 | 46 |
| 6 | 20-Feb-02 | 5 | 10800 | 10150 | 9780 | 10000 | 10000 | 10800 | | | | 24 | 46 |
| 7 | 21-Feb-02 | 6 | 9910 | 10150 | 10700 | 10000 | 9910 | 10000 | | | | 24 | 47 |
| 8 | 22-Feb-02 | 7 | 9950 | 10240 | 11000 | 8440 | 11300 | 10200 | | | | 24 | 45 |
| 11 | 25-Feb-02 | 8 | 9840 | 9480 | 8460 | 9580 | 9480 | 10400 | 1.013 | 2.207 | 6.20E-03 | 24 | 45 |
| 12 | 26-Feb-02 | 9 | 9990 | 10120 | 9480 | 9910 | 10500 | 10600 | | | | 25 | 49 |
| 13 | 27-Feb-02 | 10 | 9920 | 10740 | 9940 | 10300 | 11200 | 11500 | | | | 24 | 46 |
| 14 | 28-Feb-02 | 11 | 10100 | 10650 | 10800 | 10800 | 10700 | 10300 | | | | 24 | 47 |
| 15 | 01-Mar-02 | 12 | 10100 | 10010 | 10200 | 10100 | 9520 | 10200 | | | | 24 | 47 |
| 18 | 04-Mar-02 | 13 | 9200 | 9955 | 9580 | 9940 | 10000 | 10300 | 1.729 | 2.339 | 2.53E-03 | 24 | 46 |
| 19 | 05-Mar-02 | 14 | 9890 | 10140 | 10900 | 10300 | 10100 | 9260 | | | | 23 | 37 |
| 20 | 06-Mar-02 | 15 | 9730 | 9743 | 10100 | 10000 | 9520 | 9350 | | | | 23 | 44 |
| 21 | 07-Mar-02 | 16 | 9860 | 10170 | 9350 | 10800 | 10600 | 9910 | | | | 24 | 47 |
| 22 | 08-Mar-02 | 17 | 9960 | 9590 | 9100 | 9480 | 10200 | 9580 | | | | 23 | 46 |
| 25 | 11-Mar-02 | 18 | 9810 | 9655 | 10200 | 9580 | 9420 | 9420 | 1.443 | 1.826 | 3.34E-03 | 23 | 44 |
| 26 | 12-Mar-02 | 19 | 9890 | 9995 | 10000 | 10200 | 9910 | 9870 | | | | 24 | 45 |
| 27 | 13-Mar-02 | 20 | 9700 | 9168 | 8140 | 10400 | 9100 | 9030 | | | | 23 | 48 |
| | | **Mean** | **9883** | | | **10040** | | | **1.384** | **2.184** | **4.15E-03** | **23.8** | **45.8** |
| | | **S.D.** | **293** | | | **637** | | | **0.295** | **0.248** | **1.60E-03** | **0.5** | **2.4** |

Table A

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK
WHOLE-BODY INHALATION TOXICITY STUDY IN RATS



Chamber Monitoring Results
Cumulative Exposure Record
Group IVA - 20,000 mg/m$^3$

| Day | Date | Exposure Number | Nominal (mg/m$^3$) | Analytical Chamber Concentration: Mean (mg/m$^3$) | Individual (mg/m$^3$) | | | | Particle Size Determinations: MMAD (µm) | GSD | TMC (mg/m$^3$) | Chamber Environment: Mean Temperature (°C) | Mean Humidity (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 14-Feb-02 | 1 | 18400 | 19480 | 20100 | 18700 | 19200 | 19900 | | | | 25 | 50 |
| 1 | 15-Feb-02 | 2 | 20500 | 20430 | 20300 | 20300 | 20700 | 20400 | 1.779 | 2.630 | 4.97E-03 | 25 | 51 |
| 4 | 18-Feb-02 | 3 | 20000 | 20600 | 19700 | 22200 | 20500 | 20000 | | | | 25 | 49 |
| 5 | 19-Feb-02 | 4 | 19600 | 20130 | 19800 | 20300 | 19300 | 21100 | | | | 25 | 50 |
| 6 | 20-Feb-02 | 5 | 20000 | 20650 | 20900 | 20900 | 20700 | 20100 | | | | 24 | 50 |
| 7 | 21-Feb-02 | 6 | 19700 | 20550 | 20300 | 20300 | 20500 | 21100 | | | | 24 | 53 |
| 8 | 22-Feb-02 | 7 | 19600 | 21400 | 21200 | 22300 | 21000 | 21100 | | | | 24 | 51 |
| 11 | 25-Feb-02 | 8 | 19600 | 20480 | 21600 | 20400 | 20400 | 19500 | 3.198 | 3.812 | 1.15E-02 | 24 | 50 |
| 12 | 26-Feb-02 | 9 | 19900 | 20500 | 20000 | 20800 | 20400 | 20800 | | | | 26 | 53 |
| 13 | 27-Feb-02 | 10 | 19400 | 20600 | 19700 | 20700 | 20900 | 21100 | | | | 25 | 50 |
| 14 | 28-Feb-02 | 11 | 19100 | 20030 | 20700 | 20600 | 20700 | 18100 | | | | 25 | 50 |
| 15 | 01-Mar-02 | 12 | 18900 | 20300 | 20400 | 20400 | 20100 | 20300 | | | | 25 | 51 |
| 18 | 04-Mar-02 | 13 | 20000 | 20750 | 20800 | 20900 | 20800 | 20500 | 1.192 | 1.779 | 1.83E-03 | 25 | 49 |
| 19 | 05-Mar-02 | 14 | 19600 | 20950 | 20900 | 21300 | 20800 | 20800 | | | | 24 | 40 |
| 20 | 06-Mar-02 | 15 | 18500 | 20500 | 21100 | 20100 | 20400 | 20400 | | | | 24 | 49 |
| 21 | 07-Mar-02 | 16 | 19200 | 19900 | 19500 | 20100 | 20100 | 19900 | | | | 25 | 52 |
| 22 | 08-Mar-02 | 17 | 19000 | 20050 | 19800 | 20500 | 19900 | 20000 | | | | 24 | 52 |
| 25 | 11-Mar-02 | 18 | 18800 | 19680 | 18900 | 18100 | 21000 | 20700 | 1.358 | 2.17 | 4.54E-03 | 25 | 48 |
| 26 | 12-Mar-02 | 19 | 19500 | 20130 | 20300 | 20100 | 20100 | 20000 | | | | 25 | 49 |
| 27 | 13-Mar-02 | 20 | 19300 | 20950 | 21200 | 21300 | 20900 | 20400 | | | | 22 | 51 |
| | | **Mean** | **19430** | | | **20400** | | | **1.882** | **2.598** | **5.71E-03** | **24.6** | **49.9** |
| | | **S.D.** | **538** | | | **723** | | | **0.912** | **0.881** | **4.10E-03** | **0.8** | **2.7** |

Table A

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK
WHOLE-BODY INHALATION TOXICITY STUDY IN RATS



Chamber Monitoring Results
Cumulative Exposure Record
Group IVB - 20,000 mg/m$^3$

| Day | Date | Exposure Number | Nominal (mg/m$^3$) | Analytical Chamber Concentration: Mean (mg/m$^3$) | Individual (mg/m$^3$) | | | | Particle Size Determinations: MMAD (µm) | GSD | TMC (mg/m$^3$) | Chamber Environment: Mean Temperature (°C) | Humidity (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 14-Feb-02 | 1 | 18400 | 19900 | 19800 | 21100 | 17900 | 20800 | | | | 24 | 51 |
| 1 | 15-Feb-02 | 2 | 20500 | 22680 | 23300 | 22600 | 22600 | 22200 | 1.134 | 1.917 | 4.00E-03 | 24 | 52 |
| 4 | 18-Feb-02 | 3 | 20000 | 21680 | 22500 | 20900 | 22500 | 20800 | | | | 24 | 50 |
| 5 | 19-Feb-02 | 4 | 19600 | 21300 | 19200 | 22000 | 21400 | 22600 | | | | 25 | 49 |
| 6 | 20-Feb-02 | 5 | 20000 | 20400 | 20000 | 20700 | 20200 | 20700 | | | | 25 | 50 |
| 7 | 21-Feb-02 | 6 | 19700 | 20030 | 19600 | 19600 | 20100 | 20800 | | | | 25 | 52 |
| 8 | 22-Feb-02 | 7 | 19600 | 20530 | 20400 | 21400 | 20200 | 20100 | | | | 25 | 53 |
| 11 | 25-Feb-02 | 8 | 19600 | 21200 | 20500 | 21300 | 21500 | 21500 | 1.041 | 2.111 | 7.73E-03 | 25 | 50 |
| 12 | 26-Feb-02 | 9 | 19900 | 21380 | 21700 | 22600 | 21700 | 19500 | | | | 25 | 53 |
| 13 | 27-Feb-02 | 10 | 19400 | 20530 | 20900 | 19900 | 20500 | 20800 | | | | 24 | 51 |
| 14 | 28-Feb-02 | 11 | 19100 | 20450 | 20700 | 20500 | 20200 | 20400 | | | | 24 | 51 |
| 15 | 01-Mar-02 | 12 | 18900 | 20900 | 21300 | 21700 | 20200 | 20400 | | | | 24 | 50 |
| 18 | 04-Mar-02 | 13 | 20000 | 21100 | 20700 | 21200 | 21100 | 21400 | 1.147 | 1.782 | 1.69E-03 | 24 | 50 |
| 19 | 05-Mar-02 | 14 | 19600 | 21450 | 21400 | 21700 | 22000 | 20700 | | | | 25 | 40 |
| 20 | 06-Mar-02 | 15 | 18500 | 19950 | 20000 | 19700 | 20000 | 20100 | | | | 25 | 48 |
| 21 | 07-Mar-02 | 16 | 19200 | 21000 | 21700 | 20700 | 20900 | 20700 | | | | 25 | 51 |
| 22 | 08-Mar-02 | 17 | 19000 | 19650 | 19400 | 19900 | 19500 | 19800 | | | | 25 | 51 |
| 25 | 11-Mar-02 | 18 | 18800 | 19350 | 19300 | 17400 | 20700 | 20000 | 1.182 | 2.056 | 4.70E-03 | 25 | 47 |
| 26 | 12-Mar-02 | 19 | 19500 | 20350 | 20700 | 20500 | 20000 | 20200 | | | | 24 | 48 |
| 27 | 13-Mar-02 | 20 | 19300 | 19400 | 19400 | 19500 | 19200 | 19500 | | | | 23 | 51 |
| | | **Mean** | **19430** | | | **20660** | | | **1.126** | **1.967** | **4.53E-03** | **24.5** | **49.9** |
| | | **S.D.** | **538** | | | **1060** | | | **0.060** | **0.148** | **2.49E-03** | **0.6** | **2.8** |

TABLE B

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

FEMALES — SUMMARY OF CLINICAL OBSERVATIONS

| | GROUP# | DAY OF STUDY -13 | 28 | TOTAL |
|---|---|---|---|---|
| # OF ANIMALS EXAMINED | 1 | 10 | 10 | |
| | 2 | 10 | 10 | |
| | 3 | 10 | 10 | |
| | 4 | 10 | 10 | |
| | 5 | 10 | 10 | |
| NORMAL | | | | |
| WITHIN NORMAL LIMITS | 1 | 10 | 0 | 10 |
| | 2 | 10 | 0 | 10 |
| | 3 | 10 | 0 | 10 |
| | 4 | 10 | 0 | 10 |
| | 5 | 10 | 0 | 10 |
| DEAD | | | | |
| TERMINAL SACRIFICE | 1 | 0 | 10 | 10 |
| | 2 | 0 | 10 | 10 |
| | 3 | 0 | 10 | 10 |
| | 4 | 0 | 10 | 10 |
| | 5 | 0 | 10 | 10 |

TABLE C

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

FEMALES — MEAN BODY WEIGHTS (GRAMS)

| DOSE GROUP: | | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| DOSE LEVEL (MG/M3): | | 0 | 2000 | 10000 | 20000 | POSITIVE CONTROL |
| WEEK -1 | MEAN | 134 | 134 | 134 | 134 | 134 |
| | S.D. | 5.4 | 6.1 | 5.8 | 5.1 | 5.5 |
| | N | 10 | 10 | 10 | 10 | 10 |
| WEEK 0 | MEAN | 183 | 181 | 182 | 183 | 180 |
| | S.D. | 8.6 | 10.1 | 10.0 | 8.8 | 10.6 |
| | N | 10 | 10 | 10 | 10 | 10 |
| WEEK 1 | MEAN | 204 | 208 | 204 | 201 | 203 |
| | S.D. | 9.7 | 12.9 | 9.9 | 12.0 | 10.0 |
| | N | 10 | 10 | 10 | 10 | 10 |
| WEEK 2 | MEAN | 222 | 226 | 220 | 218 | 221 |
| | S.D. | 9.8 | 17.2 | 10.5 | 12.6 | 12.2 |
| | N | 10 | 10 | 10 | 10 | 10 |
| WEEK 3 | MEAN | 236 | 241 | 235 | 231 | 234 |
| | S.D. | 10.9 | 14.9 | 12.7 | 15.5 | 15.3 |
| | N | 10 | 10 | 10 | 10 | 10 |
| WEEK 4 | MEAN | 249 | 250 | 247 | 245 | 236 |
| | S.D. | 13.4 | 16.3 | 12.4 | 15.8 | 15.3 |
| | N | 10 | 10 | 10 | 10 | 10 |

No statistically significant differences

TABLE D

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

FEMALES — MEAN BODY WEIGHT CHANGE FROM BASELINE (GRAMS)

| DOSE GROUP: | | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| DOSE LEVEL (MG/M3): | | 0 | 2000 | 10000 | 20000 | POSITIVE CONTROL |
| WEEK 0 TO 1 | MEAN | 22 | 27 | 22 | 18 | 23 |
| | S.D. | 2.7 | 5.5 | 8.2 | 6.9 | 3.4 |
| | N | 10 | 10 | 10 | 10 | 10 |
| WEEK 0 TO 2 | MEAN | 40 | 45 | 39 | 34 | 41 |
| | S.D. | 5.3 | 11.3 | 7.8 | 5.9 | 5.3 |
| | N | 10 | 10 | 10 | 10 | 10 |
| WEEK 0 TO 3 | MEAN | 54 | 60 | 53 | 48 | 54 |
| | S.D. | 6.0 | 9.0 | 7.9 | 10.4 | 6.0 |
| | N | 10 | 10 | 10 | 10 | 10 |
| WEEK 0 TO 4 | MEAN | 66 | 68 | 65 | 61 | 56* |
| | S.D. | 6.8 | 9.7 | 8.0 | 10.0 | 6.6 |
| | N | 10 | 10 | 10 | 10 | 10 |

Statistical key: * = $p<0.05$

TABLE E

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

FEMALES — MEAN FEED CONSUMPTION VALUES (GRAMS/KG/DAY)

| DOSE GROUP: | | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| DOSE LEVEL (MG/M3): | | 0 | 2000 | 10000 | 20000 | POSITIVE CONTROL |
| WEEK 0 | MEAN | 121 | 116 | 118 | 117 | 116 |
| | S.D. | 6.7 | 7.1 | 7.6 | 7.6 | 14.8 |
| | N | 9 | 10 | 10 | 10 | 10 |
| WEEK 1 | MEAN | 96 | 93 | 93 | 92 | 95 |
| | S.D. | 9.4 | 5.8 | 4.5 | 4.9 | 5.1 |
| | N | 10 | 10 | 10 | 10 | 10 |
| WEEK 2 | MEAN | 90 | 86 | 87 | 89 | 90 |
| | S.D. | 5.2 | 6.4 | 2.6 | 4.7 | 6.1 |
| | N | 10 | 10 | 10 | 10 | 10 |
| WEEK 3 | MEAN | 85 | 82 | 83 | 87 | 87 |
| | S.D. | 6.5 | 5.7 | 4.1 | 5.9 | 10.7 |
| | N | 10 | 10 | 10 | 10 | 9 |
| WEEK 4 | MEAN | 77 | 76 | 79 | 81 | 75 |
| | S.D. | 6.0 | 6.3 | 6.2 | 4.5 | 5.1 |
| | N | 10 | 10 | 10 | 9 | 8 |

No statistically significant differences

TABLE F

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

INDIVIDUAL CLINICAL OBSERVATIONS

FEMALES GROUP 1 0 MG/M3

| ANIMAL# | OBSERVATIONS | DAY OF STUDY 13 | DAY OF STUDY 28 |
|---|---|---|---|
| 1581 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 1582 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 1583 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 1584 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 1585 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 1586 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 1587 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 1588 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 1589 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 1590 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |

CODE: 1-SLIGHT 2-MODERATE 3-MARKED P-PRESENT

TABLE F

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

INDIVIDUAL CLINICAL OBSERVATIONS

FEMALES GROUP 2 2000 MG/M3

| ANIMAL# | OBSERVATIONS | DAY OF STUDY 1 3 | 2 8 |
|---|---|---|---|
| 2571 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 2572 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 2573 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 2574 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 2575 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 2576 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 2577 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 2578 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 2579 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 2580 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |

CODE: 1-SLIGHT 2-MODERATE 3-MARKED P-PRESENT

TABLE F

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

INDIVIDUAL CLINICAL OBSERVATIONS

FEMALES GROUP 3 10000 MG/M3

| ANIMAL# | OBSERVATIONS | DAY OF STUDY 1 3 | 2 8 |
|---|---|---|---|
| 3571 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 3572 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 3573 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 3574 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 3575 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 3576 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 3577 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 3578 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 3579 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 3580 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |

CODE: 1-SLIGHT 2-MODERATE 3-MARKED P-PRESENT

TABLE F

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

INDIVIDUAL CLINICAL OBSERVATIONS

FEMALES GROUP 4 20000 MG/M3

| ANIMAL# | OBSERVATIONS | DAY OF STUDY 13 | DAY OF STUDY 28 |
|---|---|---|---|
| 4581 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 4582 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 4583 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 4584 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 4585 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 4586 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 4587 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 4588 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 4589 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 4590 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |

CODE: 1-SLIGHT 2-MODERATE 3-MARKED P-PRESENT

TABLE F

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

INDIVIDUAL CLINICAL OBSERVATIONS

FEMALES GROUP 5 POSITIVE CONTROL

| ANIMAL# | OBSERVATIONS | DAY OF STUDY 13 | DAY OF STUDY 28 |
|---|---|---|---|
| 5551 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 5552 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 5553 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 5554 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 5555 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 5556 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 5557 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 5558 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 5559 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |
| 5560 | WITHIN NORMAL LIMITS | P | |
| | TERMINAL SACRIFICE | | P |

CODE: 1-SLIGHT 2-MODERATE 3-MARKED P-PRESENT

TABLE G

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

INDIVIDUAL BODY WEIGHTS (GRAMS)

FEMALES GROUP 1 0 MG/M3

| ANIMAL# | WEEK OF STUDY -1 | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| 1581 | 142 | 201 | 225 | 242 | 253 | 278 |
| 1582 | 133 | 183 | 205 | 222 | 235 | 245 |
| 1583 | 132 | 176 | 192 | 213 | 218 | 236 |
| 1584 | 137 | 179 | 205 | 229 | 243 | 249 |
| 1585 | 137 | 187 | 208 | 227 | 243 | 260 |
| 1586 | 128 | 181 | 200 | 214 | 232 | 241 |
| 1587 | 140 | 190 | 212 | 228 | 247 | 256 |
| 1588 | 124 | 172 | 195 | 217 | 228 | 242 |
| 1589 | 131 | 176 | 196 | 209 | 225 | 231 |
| 1590 | 135 | 184 | 205 | 223 | 243 | 251 |
| MEAN | 134 | 183 | 204 | 222 | 236 | 249 |
| S.D. | 5.4 | 8.6 | 9.7 | 9.8 | 10.9 | 13.4 |
| N | 10 | 10 | 10 | 10 | 10 | 10 |

TABLE G

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

INDIVIDUAL BODY WEIGHTS (GRAMS)

FEMALES GROUP 2 2000 MG/M3

| | WEEK OF STUDY | | | | | |
|---|---|---|---|---|---|---|
| ANIMAL# | -1 | 0 | 1 | 2 | 3 | 4 |
| 2571 | 136 | 186 | 221 | 257 | 254 | 254 |
| 2572 | 128 | 171 | 190 | 200 | 212 | 220 |
| 2573 | 140 | 189 | 221 | 243 | 252 | 270 |
| 2574 | 132 | 169 | 196 | 213 | 227 | 235 |
| 2575 | 141 | 185 | 219 | 230 | 255 | 258 |
| 2576 | 137 | 199 | 222 | 236 | 250 | 266 |
| 2577 | 138 | 184 | 204 | 221 | 239 | 243 |
| 2578 | 135 | 183 | 207 | 231 | 250 | 252 |
| 2579 | 131 | 182 | 211 | 227 | 247 | 264 |
| 2580 | 121 | 165 | 189 | 206 | 225 | 234 |
| MEAN | 134 | 181 | 208 | 226 | 241 | 250 |
| S.D. | 6.1 | 10.1 | 12.9 | 17.2 | 14.9 | 16.3 |
| N | 10 | 10 | 10 | 10 | 10 | 10 |

TABLE G

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

INDIVIDUAL BODY WEIGHTS (GRAMS)

FEMALES GROUP 3 10000 MG/M3

| | WEEK OF STUDY | | | | | |
|---|---|---|---|---|---|---|
| ANIMAL# | -1 | 0 | 1 | 2 | 3 | 4 |
| 3571 | 129 | 192 | 213 | 219 | 243 | 258 |
| 3572 | 137 | 185 | 208 | 224 | 230 | 244 |
| 3573 | 128 | 171 | 199 | 210 | 234 | 234 |
| 3574 | 135 | 182 | 193 | 220 | 223 | 247 |
| 3575 | 140 | 172 | 202 | 221 | 232 | 236 |
| 3576 | 135 | 204 | 220 | 241 | 267 | 266 |
| 3577 | 124 | 174 | 192 | 203 | 223 | 229 |
| 3578 | 138 | 179 | 201 | 217 | 233 | 248 |
| 3579 | 132 | 182 | 199 | 219 | 229 | 247 |
| 3580 | 143 | 179 | 218 | 232 | 238 | 265 |
| MEAN | 134 | 182 | 204 | 220 | 235 | 247 |
| S.D. | 5.8 | 10.0 | 9.9 | 10.5 | 12.7 | 12.4 |
| N | 10 | 10 | 10 | 10 | 10 | 10 |

TABLE G

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

INDIVIDUAL BODY WEIGHTS (GRAMS)

FEMALES GROUP 4 20000 MG/M3

| | WEEK OF STUDY | | | | | |
|---|---|---|---|---|---|---|
| ANIMAL# | -1 | 0 | 1 | 2 | 3 | 4 |
| 4581 | 137 | 190 | 213 | 236 | 258 | 271 |
| 4582 | 137 | 181 | 206 | 219 | 227 | 247 |
| 4583 | 129 | 168 | 183 | 199 | 209 | 221 |
| 4584 | 132 | 184 | 214 | 222 | 247 | 250 |
| 4585 | 126 | 173 | 181 | 203 | 213 | 225 |
| 4586 | 134 | 186 | 199 | 214 | 224 | 235 |
| 4587 | 129 | 175 | 195 | 204 | 224 | 238 |
| 4588 | 139 | 191 | 211 | 231 | 237 | 256 |
| 4589 | 141 | 191 | 201 | 221 | 229 | 243 |
| 4590 | 139 | 194 | 212 | 228 | 246 | 261 |
| MEAN | 134 | 183 | 201 | 218 | 231 | 245 |
| S.D. | 5.1 | 8.8 | 12.0 | 12.6 | 15.5 | 15.8 |
| N | 10 | 10 | 10 | 10 | 10 | 10 |

TABLE G

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

INDIVIDUAL BODY WEIGHTS (GRAMS)

FEMALES GROUP 5 POSITIVE CONTROL

| | WEEK OF STUDY | | | | | |
|---|---|---|---|---|---|---|
| ANIMAL# | -1 | 0 | 1 | 2 | 3 | 4 |
| 5551 | 126 | 171 | 192 | 212 | 216 | 229 |
| 5552 | 131 | 176 | 199 | 218 | 231 | 227 |
| 5553 | 138 | 186 | 208 | 226 | 240 | 235 |
| 5554 | 131 | 168 | 193 | 209 | 218 | 221 |
| 5555 | 137 | 174 | 204 | 226 | 236 | 233 |
| 5556 | 133 | 176 | 194 | 208 | 226 | 233 |
| 5557 | 128 | 177 | 200 | 218 | 226 | 232 |
| 5558 | 140 | 200 | 222 | 241 | 263 | 262 |
| 5559 | 143 | 197 | 217 | 242 | 257 | 266 |
| 5560 | 137 | 178 | 203 | 212 | 232 | 225 |
| MEAN | 134 | 180 | 203 | 221 | 234 | 236 |
| S.D. | 5.5 | 10.6 | 10.0 | 12.2 | 15.3 | 15.3 |
| N | 10 | 10 | 10 | 10 | 10 | 10 |

TABLE H

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

INDIVIDUAL BODY WEIGHT CHANGE FROM BASELINE (GRAMS)

FEMALES GROUP 1 0 MG/M3

| ANIMAL# | WEEK OF STUDY 0-1 | 0-2 | 0-3 | 0-4 |
|---|---|---|---|---|
| 1581 | 24 | 41 | 51 | 76 |
| 1582 | 22 | 38 | 51 | 61 |
| 1583 | 17 | 37 | 42 | 61 |
| 1584 | 27 | 51 | 64 | 71 |
| 1585 | 22 | 41 | 56 | 74 |
| 1586 | 19 | 33 | 50 | 59 |
| 1587 | 22 | 38 | 57 | 66 |
| 1588 | 23 | 46 | 56 | 71 |
| 1589 | 20 | 33 | 49 | 55 |
| 1590 | 21 | 39 | 59 | 67 |
| MEAN | 22 | 40 | 54 | 66 |
| S.D. | 2.7 | 5.3 | 6.0 | 6.8 |
| N | 10 | 10 | 10 | 10 |

TABLE H

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

INDIVIDUAL BODY WEIGHT CHANGE FROM BASELINE (GRAMS)

FEMALES GROUP 2 2000 MG/M3

| ANIMAL# | WEEK OF STUDY 0-1 | 0-2 | 0-3 | 0-4 |
|---|---|---|---|---|
| 2571 | 35 | 71 | 68 | 68 |
| 2572 | 19 | 29 | 40 | 49 |
| 2573 | 32 | 54 | 63 | 81 |
| 2574 | 27 | 44 | 58 | 66 |
| 2575 | 34 | 45 | 70 | 73 |
| 2576 | 23 | 37 | 51 | 67 |
| 2577 | 21 | 37 | 55 | 60 |
| 2578 | 24 | 48 | 67 | 69 |
| 2579 | 29 | 45 | 65 | 82 |
| 2580 | 24 | 41 | 59 | 69 |
| MEAN | 27 | 45 | 60 | 68 |
| S.D. | 5.5 | 11.3 | 9.0 | 9.7 |
| N | 10 | 10 | 10 | 10 |

TABLE H

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

INDIVIDUAL BODY WEIGHT CHANGE FROM BASELINE (GRAMS)

FEMALES GROUP 3 10000 MG/M3

| ANIMAL# | WEEK OF STUDY 0-1 | 0-2 | 0-3 | 0-4 |
|---|---|---|---|---|
| 3571 | 21 | 27 | 51 | 66 |
| 3572 | 22 | 39 | 45 | 59 |
| 3573 | 29 | 39 | 64 | 63 |
| 3574 | 10 | 37 | 41 | 64 |
| 3575 | 30 | 49 | 60 | 64 |
| 3576 | 16 | 37 | 63 | 62 |
| 3577 | 17 | 28 | 48 | 55 |
| 3578 | 22 | 39 | 54 | 70 |
| 3579 | 17 | 37 | 47 | 65 |
| 3580 | 39 | 53 | 59 | 85 |
| MEAN | 22 | 39 | 53 | 65 |
| S.D. | 8.2 | 7.8 | 7.9 | 8.0 |
| N | 10 | 10 | 10 | 10 |

TABLE H

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

INDIVIDUAL BODY WEIGHT CHANGE FROM BASELINE (GRAMS)

FEMALES GROUP 4 20000 MG/M3

| ANIMAL# | WEEK OF STUDY 0-1 | 0-2 | 0-3 | 0-4 |
|---|---|---|---|---|
| 4581 | 23 | 46 | 68 | 81 |
| 4582 | 24 | 37 | 46 | 66 |
| 4583 | 15 | 31 | 41 | 53 |
| 4584 | 30 | 38 | 63 | 66 |
| 4585 | 8 | 29 | 40 | 51 |
| 4586 | 14 | 28 | 38 | 49 |
| 4587 | 20 | 29 | 49 | 63 |
| 4588 | 20 | 40 | 47 | 65 |
| 4589 | 10 | 30 | 38 | 52 |
| 4590 | 18 | 35 | 52 | 67 |
| MEAN | 18 | 34 | 48 | 61 |
| S.D. | 6.9 | 5.9 | 10.4 | 10.0 |
| N | 10 | 10 | 10 | 10 |

TABLE H

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

INDIVIDUAL BODY WEIGHT CHANGE FROM BASELINE (GRAMS)

FEMALES GROUP 5 POSITIVE CONTROL

| ANIMAL# | WEEK OF STUDY 0-1 | 0-2 | 0-3 | 0-4 |
|---|---|---|---|---|
| 5551 | 21 | 41 | 45 | 58 |
| 5552 | 23 | 43 | 55 | 52 |
| 5553 | 22 | 40 | 54 | 49 |
| 5554 | 24 | 40 | 49 | 53 |
| 5555 | 31 | 52 | 62 | 59 |
| 5556 | 19 | 33 | 50 | 57 |
| 5557 | 22 | 41 | 48 | 55 |
| 5558 | 22 | 41 | 63 | 62 |
| 5559 | 20 | 45 | 60 | 69 |
| 5560 | 25 | 34 | 54 | 46 |
| MEAN | 23 | 41 | 54 | 56 |
| S.D. | 3.4 | 5.3 | 6.0 | 6.6 |
| N | 10 | 10 | 10 | 10 |

TABLE I

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

INDIVIDUAL FEED CONSUMPTION VALUES (GRAMS/KG/DAY)

FEMALES GROUP 1 0 MG/M3

| ANIMAL# | WEEK OF STUDY 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| 1581 | SF | 92 | 95 | 93 | 90 |
| 1582 | 129 | 92 | 85 | 80 | 75 |
| 1583 | 111 | 86 | 88 | 79 | 73 |
| 1584 | 119 | 111 | 95 | 86 | 77 |
| 1585 | 119 | 99 | 94 | 95 | 83 |
| 1586 | 127 | 95 | 98 | 92 | 81 |
| 1587 | 110 | 87 | 84 | 79 | 73 |
| 1588 | 126 | 93 | 85 | 76 | 70 |
| 1589 | 119 | 114 | 84 | 84 | 73 |
| 1590 | 125 | 92 | 89 | 86 | 77 |
| MEAN | 121 | 96 | 90 | 85 | 77 |
| S.D. | 6.7 | 9.4 | 5.2 | 6.5 | 6.0 |
| N | 9 | 10 | 10 | 10 | 10 |

SF=Spilled Feeder

TABLE I

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

INDIVIDUAL FEED CONSUMPTION VALUES (GRAMS/KG/DAY)

FEMALES GROUP 2 2000 MG/M3

| ANIMAL# | WEEK OF STUDY 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| 2571 | 115 | 92 | 88 | 73 | 68 |
| 2572 | 120 | 93 | 89 | 83 | 80 |
| 2573 | 130 | 105 | 96 | 89 | 84 |
| 2574 | 120 | 99 | 94 | 88 | 87 |
| 2575 | 107 | 93 | 80 | 82 | 75 |
| 2576 | 121 | 88 | 79 | 79 | 76 |
| 2577 | 113 | 91 | 89 | 86 | 75 |
| 2578 | 115 | 91 | 85 | 88 | 70 |
| 2579 | 107 | 83 | 76 | 75 | 70 |
| 2580 | 112 | 91 | 85 | 79 | 72 |
| MEAN | 116 | 93 | 86 | 82 | 76 |
| S.D. | 7.1 | 5.8 | 6.4 | 5.7 | 6.3 |
| N | 10 | 10 | 10 | 10 | 10 |

TABLE I

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

INDIVIDUAL FEED CONSUMPTION VALUES (GRAMS/KG/DAY)

FEMALES GROUP 3 10000 MG/M3

| | WEEK OF STUDY | | | | |
|---|---|---|---|---|---|
| ANIMAL# | 0 | 1 | 2 | 3 | 4 |
| 3571 | 138 | 89 | 85 | 87 | 76 |
| 3572 | 117 | 93 | 85 | 79 | 81 |
| 3573 | 118 | 97 | 86 | 77 | 73 |
| 3574 | 113 | 88 | 87 | 80 | 93 |
| 3575 | 111 | 99 | 90 | 80 | 77 |
| 3576 | 115 | 86 | 83 | 83 | 71 |
| 3577 | 120 | 97 | 92 | 92 | 83 |
| 3578 | 112 | 93 | 87 | 82 | 79 |
| 3579 | 115 | 90 | 86 | 82 | 79 |
| 3580 | 117 | 96 | 86 | 82 | 83 |
| MEAN | 118 | 93 | 87 | 83 | 79 |
| S.D. | 7.6 | 4.5 | 2.6 | 4.1 | 6.2 |
| N | 10 | 10 | 10 | 10 | 10 |

TABLE I

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

INDIVIDUAL FEED CONSUMPTION VALUES (GRAMS/KG/DAY)

FEMALES GROUP 4 20000 MG/M3

| | WEEK OF STUDY | | | | |
|---|---|---|---|---|---|
| ANIMAL# | 0 | 1 | 2 | 3 | 4 |
| 4581 | 136 | 101 | 99 | 100 | 89 |
| 4582 | 108 | 89 | 85 | 84 | 80 |
| 4583 | 110 | 88 | 85 | 82 | 80 |
| 4584 | 118 | 99 | 82 | 90 | 76 |
| 4585 | 114 | 90 | 91 | 86 | 82 |
| 4586 | 118 | 87 | 87 | 87 | 75 |
| 4587 | 120 | 93 | 91 | 92 | 85 |
| 4588 | 116 | 88 | 86 | 80 | SF |
| 4589 | 116 | 89 | 91 | 83 | 78 |
| 4590 | 117 | 92 | 90 | 88 | 86 |
| MEAN | 117 | 92 | 89 | 87 | 81 |
| S.D. | 7.6 | 4.9 | 4.7 | 5.9 | 4.5 |
| N | 10 | 10 | 10 | 10 | 9 |

SF=Spilled Feeder

TABLE I

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

INDIVIDUAL FEED CONSUMPTION VALUES (GRAMS/KG/DAY)

FEMALES GROUP 5 POSITIVE CONTROL

| ANIMAL# | WEEK OF STUDY 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| 5551 | 115 | 95 | 91 | 88 | 79 |
| 5552 | 111 | 96 | 92 | 83 | 74 |
| 5553 | 116 | 97 | 94 | 87 | 78 |
| 5554 | 107 | 94 | 86 | 111 | SF |
| 5555 | 107 | 91 | 82 | 75 | 70 |
| 5556 | 155 | 101 | 100 | 95 | 84 |
| 5557 | 124 | 104 | 98 | SF | SF |
| 5558 | 116 | 98 | 86 | 85 | 70 |
| 5559 | 108 | 89 | 88 | 80 | 73 |
| 5560 | 104 | 90 | 84 | 81 | 70 |
| MEAN | 116 | 95 | 90 | 87 | 75 |
| S.D. | 14.8 | 5.1 | 6.1 | 10.7 | 5.1 |
| N | 10 | 10 | 10 | 9 | 8 |

SF=Spilled Feeder

TABLE J

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

ANIMAL TERMINATION HISTORY

FEMALES GROUP 1 0 MG/M3

| ANIMAL# | TYPE OF DEATH | DATE OF DEATH | WEEK OF STUDY | STUDY DAY |
|---|---|---|---|---|
| 1581 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 1582 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 1583 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 1584 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 1585 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 1586 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 1587 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 1588 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 1589 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 1590 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |

TABLE J

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

ANIMAL TERMINATION HISTORY

FEMALES GROUP 2 2000 MG/M3

| ANIMAL# | TYPE OF DEATH | DATE OF DEATH | WEEK OF STUDY | STUDY DAY |
|---|---|---|---|---|
| 2571 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 2572 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 2573 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 2574 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 2575 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 2576 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 2577 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 2578 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 2579 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 2580 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |

TABLE J

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

ANIMAL TERMINATION HISTORY

FEMALES GROUP 3 10000 MG/M3

| ANIMAL# | TYPE OF DEATH | DATE OF DEATH | WEEK OF STUDY | STUDY DAY |
|---|---|---|---|---|
| 3571 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 3572 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 3573 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 3574 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 3575 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 3576 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 3577 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 3578 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 3579 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 3580 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |

TABLE J

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

ANIMAL TERMINATION HISTORY

FEMALES GROUP 4 20000 MG/M3

| ANIMAL# | TYPE OF DEATH | DATE OF DEATH | WEEK OF STUDY | STUDY DAY |
|---|---|---|---|---|
| 4581 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 4582 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 4583 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 4584 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 4585 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 4586 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 4587 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 4588 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 4589 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 4590 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |

TABLE J

GASOLINE DIPE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY
INHALATION TOXICITY STUDY IN RATS WITH NEUROTOXICITY ASSESSMENTS
AND 4-WEEK IN VIVO GENOTOXICITY AND IMMUNOTOXICITY ASSESSMENTS

ANIMAL TERMINATION HISTORY

FEMALES GROUP 5 POSITIVE CONTROL

| ANIMAL# | TYPE OF DEATH | DATE OF DEATH | WEEK OF STUDY | STUDY DAY |
|---|---|---|---|---|
| 5551 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 5552 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 5553 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 5554 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 5555 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 5556 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 5557 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 5558 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 5559 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |
| 5560 | TERMINAL SACRIFICE | 14-MAR-02 | 4 | 28 |

Appendix AA

# GFAP Levels in Specific Rat Brain Areas Following A 13-Week Whole-Body Inhalation Exposure to Gasoline DIPE Vapor Condensate

**HLS Study No.:** **00-6130**
Sponsor Study No.: 211-DIPE-S
Date: 12 December 2012