FINAL REPORT

Study Title

In Vivo-In Vitro Rat Peripheral Lymphocyte Sister Chromatid Exchange Assay

Test Substance

Gasoline ETBE Vapor Condensate

Author

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Study Completion Date

August 28, 2008

Performing Laboratory

BioReliance
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Rockville, Maryland 20850

Laboratory Study Number

AA40NY.130.BTL

Subcontractor's Sponsor Project Number

00-6129

Subcontractor's Sponsor

Huntingdon Life Sciences
Princeton Research Center (PRC)
Mettlers Road
East Millstone, New Jersey 08875-2360

STATEMENT OF COMPLIANCE

The Sister Chromatid Exchange BioReliance Study No. AA40NY.130.BTL was conducted in compliance with 79.60, CFR Vol. 59, No. 122, 27 June 1994. This study was performed according to protocol and BioReliance's Standard Operating Procedure for Sister Chromatid Exchange Assay with the following exceptions:

The identity, strength, purity and composition or other characteristics to define the positive control article has 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.

Ramadevi Gudi 28 Aug 2008

Ramadevi Gudi, Ph.D. Date
Principal Investigator
BioReliance

220ct10

Gary M. Hoffman, B.A., D.A.B.T. Date
Study Director
Huntingdon Life Sciences

Quality Assurance Statement

Study Title: IN VIVO-IN VITRO RAT PERIPHERAL LYMPHOCYTE SISTER CHROMATID EXCHANGE ASSAY

Study Number: AA40NY.130.BTL

Principal Investigator: Ramadevi Gudi, Ph.D.

Study Director: Gary Hoffman

Quality Assurance performed the inspections listed below for this study. Verification of the study protocol was also performed and documented by QA. Procedures, documentation, equipment records, etc., were examined in order to assure that the study was performed in accordance with the U.S. EPA Good Laboratory Practice Regulations (79.60, CFR Vol. 59, No. 122, 27 June 1994), and to assure that the study was conducted according to the protocol and relevant Standard Operating Procedures.

The following are the inspection dates, phases inspected, and report dates of QA inspections of this study.

Inspect On:	21-Dec-01 - 21-Dec-01 To Study Dir 21-Dec-01 To Mgmt 26-Dec-01
Phase:	Preparation of cultures
Inspect On:	23-Apr-02 - 23-Apr-02 To Study Dir 23-Apr-02 To Mgmt 05-Jun-02
Phase:	Draft Report
Inspect On:	28-Aug-08 - 28-Aug-08 To Study Dir 28-Aug-08 To Mgmt 28-Aug-08
Phase:	Draft to Final Report

This report describes the methods and procedures used in the study and the reported results accurately reflect the raw data of the study.

Allison Schaefer 28 Aug 2008

Allison Schaefer, BS — DATE
QUALITY ASSURANCE

SPONSOR'S 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	8 Nov 00	11 Nov 00[a]
GLP Protocol Review	24, 29 Aug 01	29 Aug 01
Exposure (Charcoal Tube Sampling)	14 Dec 01	14 Dec 01
Positive Dose Control Preparation and Dose Administration	19 Dec 01	20 Dec 01
Genotoxicity Necropsy	20 Dec 01	20 Dec 01
Sister Chromatid Exchange (SCE) Assay Report	12, 13 Jun 02	18 Jun 02

Fran Jannone

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

20 Oct 10

Date

[a]Date reported to Testing Facility Management

SIGNATURE PAGE

SCIENTIST
The following Scientist was responsible for the overall conduct of this study:

Ramadevi Gudi

28 Aug 2008

Ramadevi Gudi, Ph.D.
Principal Investigator
BioReliance

Date

SCIENTIFIC REVIEW

The following Scientists have reviewed and approved this report:

Valentine O. Wagner III

28 Aug 2008

Study Management
BioReliance

Date

22 Oct 10

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

Date

In Vivo-In Vitro Rat Peripheral Lymphocyte Sister Chromatid Exchange Assay

FINAL REPORT

Subcontractor's Sponsor:	**Huntingdon Life Sciences** **Princeton Research Center (PRC)** **Mettlers Road** **East Millstone, New Jersey 08875-2360**
Study Director:	**Gary Hoffman, B.A., DABT**
Performing Laboratory:	**BioReliance** **9630 Medical Center Drive** **Rockville, Maryland 20850**
Test Substance I.D.:	**Gasoline ETBE Vapor Condensate**
Sponsor Project Number:	**00-6129**
BioReliance Study No.:	**AA40NY.130.BTL**
Experimental Start Date for SCE:	**December 20, 2001**
Experimental Completion Date for SCE:	**March 22, 2002**

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SUMMARY

The test substance, Gasoline ETBE Vapor Condensate, was tested in the rat peripheral lymphocyte sister chromatid exchange (SCE) assay following inhalation exposure of rats.

Information on test system, experimental design and methodology will be provided by Huntingdon Life Sciences. All in vivo portions of the study, including inhalation exposures were performed by Huntingdon Life Sciences.

Rats were exposed by inhalation to negative (air) control, 2,000, 10,000 and 20,000 mg/m^3 of Gasoline ETBE Vapor Condensate for 4 weeks (5 days exposure per week). One additional group of animals (5 males and 5 females) was dosed with 5 mg/kg of cyclophosphamide (CP, positive control) by intraperitoneal injection 24 hours prior to blood collection. BioReliance personnel collected rat blood samples at 24 hours after the end of a 4 week (5 days per week) exposure period. Rat blood samples were cultured and processed for the SCE assay at a BioReliance facility.

A minimum of 25 second division metaphases per animal were scored for SCEs. At least 100 consecutive metaphases per animal were scored for the number of cells in first-, second-, or third-division metaphase for each animal as an indictor of toxicity (cell cycle delay). At least 1000 cells were scored for mitotic index per animal. A one-tailed Dunnett's t test for multiple comparisons was performed to compare the SCE frequency of test exposure levels to the negative control frequency. A statistically significant ($p \leq 0.05$) increase in SCE frequency was observed at 10,000 mg/m^3 in the females only. Regression analysis (trend analysis) was negative for a dose response in both males and females.

Based on the findings of this study, the test substance, Gasoline ETBE Vapor Condensate, was concluded to be negative for the induction of sister chromatid exchanges in rat peripheral lymphocytes.

PURPOSE

The purpose of this study was to evaluate the potential of Gasoline ETBE Vapor Condensate to induce SCEs in rat peripheral lymphocytes following inhalation exposures.

CHARACTERIZATION OF TEST AND CONTROL SUBSTANCES

Information regarding test substance and negative control and their characterizations will be provided by Huntingdon Life Sciences.

Cyclophosphamide (CP, CAS # 6055-19-2, lot number 108H0568, expiration 30 June 2002, white powder, storage 2-8°C, purity 99.2%), was obtained from the Sigma Chemical Company St. Louis, MO (responsible for its characterization), CP was shipped from BioReliance on 18 December 2001, received at Huntingdon Life Sciences on 19 December 2001 and was dissolved and diluted in sterile distilled water at Huntingdon Life Sciences to stock concentrations of 0.5 mg/mL for use as the positive control for the SCE study.

MATERIALS AND METHODS

Test System

Information on the test system will be provided by Huntingdon Life Sciences.

Sister Chromatid Exchange Assay

Peripheral blood lymphocytes were obtained from Sprague-Dawley rats that were exposed with negative (air) control, 2000, 10,000 and 20,000 mg/m^3 of Gasoline ETBE Vapor Condensate or positive control (5 mg/kg of CP injected IP at 10 mL/kg, 24 hours prior to sacrifice). Animals were anesthetized with isoflurane by inhalation exposure. Blood samples were collected into sodium heparin tubes from the abdominal aorta by BioReliance personnel on site at Huntingdon Life Sciences. The blood samples were transported to BioReliance on the day of collection on ice packs.

Cell Culture and Collection of Metaphase Cells

Within 24 hours after blood collection, the whole blood samples were cultured in duplicates per animal in RPMI 1640 culture medium with 25 mM Hepes buffer supplemented, 10% fetal bovine serum, antibiotics (pencillin G, 100 u/ml and streptomycin sulfate, 0.1 mg/mL), 20 μg/mL phytohemagglutinin and an additional 2 mM L-glutamine. Cultures were initiated by inoculating 0.5 mL of whole blood per 5 mL of complete medium in T-25 sterile disposable tissue culture flasks and incubated at 37°C. Approximately 21 hours after initiation of the cultures, the cells were exposed to 5 μg/mL of bromodeoxyuridine (BrdU, Sigma Co., St. Louis, MO). At approximately 68 hours,

0.2 μg/mL of colcemid was added to each flask and incubated for approximately 4 hours. At approximately 72 hours, the cells were collected by centrifugation at approximately 1200 rpm for about 5 minutes. The cell pellet was resuspended in 5 mL 0.075 M KCl and incubated at 37±1°C for 20 minutes. At the end of the KCl treatment and immediately prior to centrifuging, the cells were gently mixed and approximately 0.5 mL of fixative (methanol:glacial acetic acid, 3:1 v/v) was added to each tube. The cells were collected by centrifugation, the supernatant aspirated, and the cells were fixed with two washes with approximately 3-5 mL of fixative and stored in fixative overnight or longer at approximately 2-6°C.

Slide Preparation

To prepare slides, the fixed cells were centrifuged at approximately 1200 rpm for 5 minutes, the supernatant was aspirated, and the cells were resuspended in 1 mL fresh fixative. The cells were collected by centrifugation and the supernatant aspirated, leaving 0.1 to 0.3 mL fixative above the cell pellet. One to two drops of the cell suspension was dropped onto a glass slide and allowed to air dry overnight. Slides were identified by the study number, animal number, replicate tube designation and date prepared. The dried slides were then stained.

Slide Staining

The slides were stained by using a modified flourescence-plus-Giemsa technique. Hoechst 33258 stain, 5 μg/mL, was prepared fresh by diluting 40 mL of Hoechst 33258 stock stain 50 μg/mL in distilled water, with 360 mL phosphate buffer, pH 6.8. The slides were stained in Hoechst, 5 μg/mL, for 10 minutes, rinsed in deionized water and dried between sheets of bibulous paper. Three drops of phosphate buffer was placed on each slide and the buffer covered with a coverslip. The slides were then placed on a slide warmer maintained at approximately 60±2°C and covered with a "Black Ray" lamp with 15 watt tubes for 4-6 minutes. The coverslips will then be removed, the slides rinsed in deionized water and counterstained with 5% Giemsa solution (freshly prepared by diluting 20 mL Giemsa in 380 mL deionized water) for 6-10 minutes. The slides were rinsed in deionized water and left to air dry.

Evaluation of SCEs

Slides were coded using random numbers by an individual not involved with the scoring process. Metaphase cells were examined under oil immersion without prior knowledge of treatment groups. Whenever possible, a minimum of 25 second division metaphases per animal were scored for SCEs. At least 100 consecutive metaphase cells were scored for the number of cells in first-, second- or third-division metaphase for each animal as an indicator of toxicity (cell cycle delay) (BioReliance SOP# OPGT0442 and OPGT0336). At least 1000 cells were scored for mitotic index per animal.

Evaluation of Test Results

The number of SCEs per second-division metaphase cell were presented for each group along with the range of SCEs/metaphase for animals within a group. SCE frequencies as the

grand mean ± standard deviation were presented for each group. The Average Generation Time (AGT) is estimated as: = Number of hours in BrdU X 100/ (number M_1 cells x 1)+(number M_2 cells x 2)+(number M_3 cells x 3)]. A regression analysis (trend analysis) and a one-tailed Dunnett's t test for multiple comparisons was performed to compare the SCE frequency of test exposure levels to the negative control frequency, and if $p \leq 0.05$, that exposure level was considered significant. The conclusion of the study was based on the Principal Investigator's evaluation of all the data, including the biological as well as statistical significance. The following criteria were used as guidelines in evaluation of this study:

The test substance was considered positive if an exposure-level responsive and statistically significant increase is observed over a minimum of two exposure levels. A statistically significant increase at the high exposure level with an exposure-level responsive although not statistically significant increase at lower exposure levels was assessed as suspect. A statistically significant increase at one or more exposure levels with no evidence of an exposure level response was assessed as equivocal or as negative according to the magnitude of the response and the number of exposure levels affected.

Criteria for Determination of a Valid Test

The mean SCEs/cell/animal for the positive control animals must be statistically increased relative to the negative control.

Deviations

No known deviations from the protocol or assay-method SOPs occurred during the conduct of this study.

Archives

All raw data, the protocol and all reports generated at BioReliance will be maintained according to Standard Operating Procedure OPQP3040 by the BioReliance RAQA unit headquartered at: BioReliance, 14920 Broschart Road, Rockville, MD 20850. After submission of the final report, all of the above will be shipped to Huntingdon Life Sciences to be archived. All study materials returned to Huntingdon Life Sciences will first be copied and the copy will be retained in the BioReliance archives for a minimum of 10 years. All specimens, such as microscope slides, will be held in storage as long as the quality affords evaluation at BioReliance until the final report is issued in accordance with the relevant Good Laboratory Practice Regulations.

RESULTS AND DISCUSSION

Sister chromatid exchanges involve a symmetrical exchange at one locus, between sister chromatids of the chromosomes. Giemsa method for the differential staining of sister chromatids by Perry and Wolff (1974a) Wolff and Perry (1974) have made it possible to distinguish between sister chromatids. These techniques involve exposing cells to 5-bromodeoxyuridine (BrdU) for at least 2 rounds of replication so that M2 chromosomes consist of one chromatid unifilarly substituted with BrdU and the other bifilarly substituted. The chromatids of such chromosomes stain differentially with Giemsa stain. The observed

SCE represents a recombination between DNA helices in the replicating chromosomes and used as a sensitive cytological end point which correlates with DNA damage. The test substance, Gasoline ETBE Vapor Condensate, was tested in the rat peripheral lymphocyte sister chromatid exchange (SCE) assay following inhalation exposure of rats.

Information on test system, experimental design and methodology will be provided by Huntingdon Life Sciences. All in vivo portions of the study, including inhalation exposures, were performed by Huntingdon Life Sciences.

Rats were exposed by inhalation to negative (air) control, 2000, 10,000 and 20,000 mg/m^3 of Gasoline ETBE Vapor Condensate for 4 weeks (5 days exposure per week). One additional group of animals (5 males and 5 females) were dosed with 5 mg/kg cyclophosphamide (CP, positive control) by intraperitoneal injection 24 hours prior to blood collection. Animals dosed at 5 mg/kg of CP were used as the positive control group for the SCE assay. BioReliance personnel collected rat blood samples at 24 hours after the end of a 4 week (5 days per week) exposure period. Rat blood samples were cultured and processed for the SCE assay in a BioReliance facility.

A minimum of 25 second division metaphases per animal were scored for SCEs. At least 100 consecutive metaphases per animal were scored for the number of cells in first-, second-, or third-division metaphase for each animal as an indictor of toxicity (cell cycle delay). At least 1000 cells were scored for mitotic index per animal. The number of SCEs per second-division metaphase cell were presented for each animal (both males and females) in Tables 1 to 5. The number of M1, M2 and M3 cells out of 100 metaphases and the mitotic index out of 1000 cells per animal are also presented in Tables 1 to 5. The range and the average SCEs per animal and the SCE frequencies as the grand mean±standard deviation per group for males are presented in Table 6 and for females in Table 7. The Average Generation Time (AGT) and the mitotic index per group for males are presented in Table 6 and for females in Table 7. A one-tailed Dunnett's t test for multiple comparisons was performed to compare the average SCE frequency of test exposure levels to the negative control frequency. A statistically significant ($p \leq 0.05$) increase in SCE frequency was observed at 10,000 mg/m^3 in the females. No statistically significant increase in average SCE frequency was observed in any male groups exposed to Gasoline ETBE Vapor Condensate. The positive control group (5 mg/kg) induced statistically significant increases in SCE frequency in both males and females. Regression analysis (trend analysis) was negative for a dose response in both males and females. No appreciable difference was observed in AGT and in mitotic index in the test substance groups relative to the negative control group.

CONCLUSION

The positive control fulfilled the requirements for a valid test.

Under the conditions of the assay described in this report, based on the findings of this study, the test substance, Gasoline ETBE Vapor Condensate, was concluded to be negative for the induction of sister chromatid exchanges in rat peripheral lymphocytes.

REFERENCES

Evans, H.J. (1976) Cytological methods for detecting chemical mutagens, in: A. Hollaender (Ed.), Chemical Mutagens, Principles and Methods for their Detection, vol. 4. Plenum Press, New York, NY.

MINITAB User's guide 2: data Analysis and Quality Tools, Release 12 for Windows® 95 WndowsNT™ February 1998 Chapter 3: Analysis of Variance, 3-1 to3-7.

Perry P. and Wolff S. (1974a) New Giemsa method for the differential staining of sister chromatid, Nature (London) 251, 156-158

Wolff S. and Perry P. (1974) Differential Giemsa staining of sister chromatid and the study of sister chromatid exchanges without autoradiography. Chromosoma 48, 341-353

TABLE 1

Number of Sister Chromatid Exchanges per cell in Negative Air Control Group
Air only
Male and Female Rats

Number of SCE's Counted										
	Animal Number									
Cell No.	1081	1082	1083	1084	1085	1591	1592	1593	1594	1595
1	8	4	8	6	8	7	6	4	5	4
2	6	4	6	6	5	5	5	5	6	8
3	5	5	4	7	4	6	7	4	6	5
4	5	6	6	4	6	7	8	6	5	6
5	6	5	4	5	8	5	4	8	4	3
6	7	6	5	6	6	4	5	5	4	4
7	8	7	4	7	7	5	8	4	5	5
8	4	7	4	8	5	6	6	6	6	3
9	4	8	5	6	4	5	8	4	4	4
10	5	5	2	5	6	7	6	5	3	3
11	6	4	6	3	6	6	7	6	8	5
12	8	6	7	4	5	6	8	5	6	5
13	6	6	8	5	4	5	5	5	7	4
14	5	7	4	6	8	5	6	6	6	3
15	6	8	5	6	6	6	8	4	7	6
16	7	9	6	5	6	5	7	5	5	5
17	5	5	6	6	7	7	4	6	4	3
18	6	6	5	7	6	4	5	5	6	5
19	6	6	6	5	5	5	6	7	6	6
20	7	6	7	5	4	8	2	4	4	3
21	6	7	6	4	6	6	6	6	6	6
22	6	6	6	6	6	5	5	5	5	4
23	5	5	6	5	7	8	4	5	6	8
24	4	6	6	7	5	6	3	4	6	8
25	5	8	7	5	8	5	5	5	7	5
# M1 Cells	34	35	38	36	25	39	34	41	25	36
# M2 Cells	35	36	40	34	35	30	25	30	36	30
# M3 Cells	31	29	22	30	30	31	41	29	29	34
Mitotic Index	0.4	2.0	0.6	2.8	3.1	0.4	3.4	2.1	3.0	0.8

[1] Animal numbers 1081-1085 are males and 1591-1595 are females.

[2] Number of M1, M2 and M3 cells are obtained from 100 metaphases.

[3] MI = mitotic index; number mitotic figures x 100/1000 cells counted/animal.

TABLE 2

Number of Sister Chromatid Exchanges per cell at 2000 mg/m^3 of Gasoline ETBE Vapor Condensate Male and Female Rats

Number of SCE's Counted										
	Animal Number									
Cell No.	2071	2072	2073	2074	2075	2581	2582	2583	2584	2585
1	5	6	8	5	6	6	7	8	6	6
2	9	3	3	6	5	5	4	5	8	10
3	7	8	5	5	7	6	5	6	5	6
4	8	4	4	4	4	7	8	5	4	6
5	7	3	6	5	3	8	5	8	8	5
6	6	7	5	6	6	9	6	6	6	6
7	5	3	3	5	8	5	7	5	5	7
8	4	5	4	8	5	4	6	4	6	10
9	8	4	5	5	6	5	5	5	6	6
10	5	6	6	8	5	6	7	6	7	5
11	6	5	5	5	6	8	4	5	9	4
12	6	7	5	6	7	4	8	5	5	6
13	7	5	4	7	4	5	6	6	6	3
14	8	3	5	4	5	6	6	7	4	5
15	6	8	6	8	6	5	6	6	3	6
16	7	4	5	5	8	4	7	7	6	5
17	5	8	6	6	6	5	6	5	5	4
18	4	5	8	5	5	5	5	6	6	4
19	5	5	5	4	4	4	7	8	6	6
20	6	6	6	5	4	6	8	5	7	5
21	3	4	5	6	5	8	5	4	5	6
22	5	5	6	5	4	5	8	5	5	5
23	6	8	4	4	5	6	6	5	4	6
24	5	3	3	5	5	7	6	6	6	6
25	4	6	5	4	5	8	6	5	5	5
# M1 Cells	41	43	35	35	31	30	42	36	38	25
# M2 Cells	32	28	35	35	35	40	38	34	42	35
# M3 Cells	27	29	30	30	34	30	30	30	20	40
Mitotic Index	4.0	0.6	3.0	1.0	2.0	2.0	6.0	2.0	0.9	3.0

[1] Animal numbers 2071-2075 are males and 2581-2585 are females.

[2] Number of M1, M2 and M3 cells are obtained from 100 metaphases.

[3] MI = mitotic index; number mitotic figures x 100/1000 cells counted/animal.

TABLE 3

Number of Sister Chromatid Exchanges per cell at 10,000 mg/m^3 of Gasoline ETBE Vapor Condensate Male and Female Rats

Number of SCE's Counted										
	Animal Number									
Cell No.	3071	3072	3073	3074	3075	3581	3582	3583	3584	3585
1	6	8	7	4	8	6	7	8	6	6
2	5	5	7	5	6	5	8	5	7	7
3	7	4	6	5	8	4	6	6	7	6
4	4	6	5	4	7	6	5	4	5	6
5	6	5	4	5	5	8	4	6	8	8
6	8	7	6	6	7	5	6	8	5	8
7	6	6	5	5	6	6	7	5	6	7
8	7	5	4	6	2	8	6	8	6	6
9	4	6	8	7	6	6	8	6	7	5
10	5	5	6	8	7	5	5	5	6	7
11	6	6	5	6	6	6	4	5	7	6
12	6	7	6	5	7	3	6	8	7	7
13	7	5	7	4	6	4	6	7	6	7
14	4	6	6	5	6	5	7	6	7	6
15	6	5	5	5	5	6	6	5	5	5
16	5	4	6	6	8	5	8	6	4	4
17	8	6	7	8	6	4	6	4	8	6
18	6	5	6	5	5	3	5	6	9	7
19	7	6	5	3	6	2	6	5	5	7
20	6	5	6	6	2	1	5	7	4	8
21	5	7	5	5	7	5	8	8	3	5
22	4	8	4	5	6	6	4	5	5	9
23	6	9	4	6	3	6	8	6	4	8
24	5	6	6	5	5	7	7	8	5	9
25	6	4	8	8	6	8	6	6	6	3
# M1 Cells	33	26	28	35	35	36	33	28	36	30
# M2 Cells	30	30	40	35	28	38	34	36	34	35
# M3 Cells	37	44	32	30	37	26	33	36	30	35
Mitotic Index	0.4	2.0	3.0	6.0	0.2	0.2	0.5	0.3	0.2	0.3

[1] Animal numbers 3071-3075 are males and 3581-3585 are females.

[2] Number of M1, M2 and M3 cells are obtained from 100 metaphases.

[3] MI = mitotic index; number mitotic figures x 100/1000 cells counted/animal.

TABLE 4

Number of Sister Chromatid Exchanges per cell at 20,000 mg/m^3 of Gasoline ETBE Vapor Condensate Male and Female Rats

Number of SCE's Counted										
	Animal Number									
Cell No.	4081	4082	4083	4084	4085	4591	4592	4593	4594	4595
1	6	6	5	8	6	6	6	5	4	8
2	6	7	4	6	2	7	5	5	5	5
3	7	8	6	7	5	8	6	4	4	8
4	6	6	7	7	6	6	7	6	6	6
5	7	5	4	8	7	6	8	5	6	7
6	6	4	8	5	5	5	9	4	5	6
7	7	8	6	6	5	4	4	5	6	7
8	8	6	7	7	4	6	5	6	5	7
9	6	7	4	8	8	5	4	5	5	5
10	7	8	5	5	5	4	4	7	4	4
11	6	9	7	6	6	5	5	5	6	7
12	6	4	6	7	7	6	6	5	8	6
13	7	5	7	6	8	4	5	6	4	7
14	8	6	6	7	5	4	6	6	8	6
15	8	7	8	6	5	5	5	7	6	7
16	5	8	7	6	4	6	4	6	7	7
17	6	4	5	6	4	5	6	6	7	8
18	7	5	4	6	5	4	5	5	6	5
19	6	8	6	7	6	6	5	6	7	6
20	6	4	7	8	2	5	4	6	8	6
21	7	8	5	6	5	5	6	7	6	5
22	4	6	6	7	4	6	5	6	4	6
23	8	7	8	6	5	5	5	6	5	7
24	5	4	5	8	4	5	4	7	8	5
25	4	8	4	5	6	4	5	6	5	3
# M1 Cells	38	35	30	28	30	40	40	35	30	37
# M2 Cells	39	35	30	25	40	33	35	35	35	30
# M3 Cells	23	30	40	47	30	27	35	40	35	33
Mitotic Index	0.1	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.2	2.3

[1] Animal numbers 4081-4085 are males and 4591-4595 are females.

[2] Number of M1, M2 and M3 cells are obtained from 100 metaphases.

[3] MI = mitotic index; number mitotic figures x 100/1000 cells counted/animal.

TABLE 5

Number of Sister Chromatid Exchanges per cell at 5 mg/kg Cyclophosphamide Male and Female Rats

Number of SCE's Counted										
	Animal Number									
Cell No.	5051	5052	5053	5054	5055	5561	5562	5563	5564	5565
1	16	12	20	20	12	22	17	20	20	24
2	20	26	22	21	20	20	18	20	18	20
3	24	20	23	20	21	19	19	16	21	20
4	16	21	26	24	23	23	20	15	20	21
5	17	20	21	20	20	24	19	18	17	19
6	18	22	20	20	21	20	18	21	18	18
7	16	19	24	19	22	21	20	20	20	21
8	16	20	20	16	23	22	21	16	21	17
9	19	21	20	23	20	20	19	16	22	20
10	21	20	22	20	21	21	20	20	20	21
11	20	26	24	21	20	20	21	18	17	22
12	22	24	25	22	22	22	16	17	19	20
13	20	23	26	28	21	23	18	16	20	21
14	21	28	26	20	22	21	19	20	21	20
15	20	24	23	20	21	22	20	19	22	21
16	19	20	20	16	20	20	21	21	20	21
17	16	26	21	19	22	21	20	20	21	18
18	16	21	20	28	21	22	19	18	22	16
19	18	28	21	20	22	20	19	17	20	17
20	16	23	20	20	22	24	22	16	21	16
21	23	20	20	20	24	25	19	18	19	17
22	20	21	24	21	20	24	18	20	18	18
23	21	22	20	20	21	20	16	21	17	20
24	22	25	20	21	22	21	15	20	18	21
25	20	23	20	20	23	22	18	20	17	15
# M1 Cells	36	40	42	41	41	41	44	35	25	48
# M2 Cells	33	25	30	30	35	35	30	36	40	30
# M3 Cells	31	35	28	29	24	24	26	29	35	22
Mitotic Index	3.1	2.3	2.4	1.9	2.4	3.0	0.8	0.6	0.4	0.6

[1] Animal numbers 5051-5055 are males and 5561-5565 are females.

[2] Number of M1, M2 and M3 cells are obtained from 100 metaphases.

[3] MI = mitotic index; number mitotic figures x 100/1000 cells counted/animal.

TABLE 6

Summary of Sister Chromatid Exchange Data – Gasoline ETBE Vapor Condensate Male Rats

	Sister Chromatid Exchange data												AGT	MI
Treatment	Animal #	# of Metaphases Scored	Total # of SCEs per Animal	Range of SCEs per Animal Min	Max	Mean SCEs per cell	Group Range Min	Max	Group Mean ± Std. Dev.			per Animal	per Group	per Group
Air	1081	25	146	4	8	5.8						26		
	1082	25	152	4	9	6.1						26		
	1083	25	139	2	8	5.6	2	to 9	5.8	±	1.3	28	27	1.8
	1084	25	139	3	8	5.6						26		
	1085	25	148	4	8	5.9						28		
Gasoline ETBE Vapor Condensate 2000 mg/m^3	2071	25	147	3	9	5.9						27		
	2072	25	131	3	8	5.2						27		
	2073	25	127	3	8	5.1	3	to 9	5.4	±	1.4	26	26	2.1
	2074	25	136	4	8	5.4						26		
	2075	25	134	3	8	5.4						25		
Gasoline ETBE Vapor Condensate 10,000 mg/m^3														
	3071	25	145	4	8	5.8						25		
	3072	25	146	4	9	5.8						23		
	3073	25	144	4	8	5.8	2	to 9	5.7	±	1.3	25	25	2.3
	3074	25	137	3	8	5.5						26		
	3075	25	146	2	8	5.8						25		
Gasoline ETBE Vapor Condensate 20,000 mg/m^3														
	4081	25	159	4	8	6.4						28		
	4082	25	158	4	9	6.3						26		
	4083	25	147	4	8	5.9	2	to 9	6.1	±	1.4	24	25	0.2
	4084	25	164	5	8	6.6						23		
	4085	25	129	2	8	5.2						26		
Cyclophosphamide 5 mg/kg														
	5051	25	477	16	24	19.1						26		
	5052	25	555	12	28	22.2						26		
	5053	25	548	20	26	21.9	12	to 28	21.0‡	±	2.8	27	27	2.4
	5054	25	519	16	28	20.8						27		
	5055	25	526	12	24	21.0						28		

* The standard deviation was calculated using the data of all 125 metaphases scored.

‡ = one-tailed Dunnett's t test ($p \leq 0.05$)

MI=Mitotic Index: (Number of cells in mitosis out of 1000 cells)

AGT=Average generation time: Number of hours in BrdU X 100/ (number M_1 cells x 1)+(number M_2 cells x 2)+(number M_3 cells x 3)

TABLE 7

Summary of Sister Chromatid Exchange Data – Gasoline ETBE Vapor Condensate Female Rats

		Sister Chromatid Exchange data									AGT		MI
Treatment	Animal #	# of Metaphases Scored	Total # of SCEs per Animal	Range of SCEs per Animal Min	Max	Mean SCEs per cell	Group Range Min	Max	Group Mean ± Std. Dev.		per Animal	per Group	per Group
Air	1591	25	144	4	8	5.8					27		
	1592	25	144	2	8	5.8					25		
	1593	25	129	4	8	5.2	2 to	8	5.4 ±	1.4	27	27	1.9
	1594	25	137	3	8	5.5					28		
	1595	25	121	3	8	4.8					26		
Gasoline ETBE Vapor Condensate 2000 mg/m^3	2581	25	147	4	9	5.9					26		
	2582	25	154	4	8	6.2					25		
	2583	25	143	4	8	5.7	3 to	10	5.8 ±	1.3	26	26	2.8
	2584	25	143	3	9	5.7					28		
	2585	25	143	3	10	5.7					24		
Gasoline ETBE Vapor Condensate 10,000 mg/m^3													
	3581	25	130	1	8	5.2					27		
	3582	25	154	4	8	6.2					26		
	3583	25	153	4	8	6.1	1 to	9	6.0‡ ±	1.5	25	26	0.3
	3584	25	148	3	9	5.9					26		
	3585	25	163	3	9	6.5					25		
Gasoline ETBE Vapor Condensate 20,000 mg/m^3													
	4591	25	132	4	8	5.3					27		
	4592	25	134	4	9	5.4					24		
	4593	25	142	4	7	5.7	3 to	9	5.7 ±	1.2	23	25	0.6
	4594	25	145	4	8	5.8					25		
	4595	25	154	3	8	6.2					26		
Cyclophosphamide 5 mg/kg													
	5561	25	539	19	25	21.6					28		
	5562	25	472	15	22	18.9					28		
	5563	25	463	15	20	18.5	15 to	25	19.6‡ ±	2.1	26	27	1.1
	5564	25	489	17	22	19.6					24		
	5565	25	484	15	24	19.4					29		

* The standard deviation was calculated using the data of all 125 metaphases scored.

‡ = one-tailed Dunnett's t test ($p \leq 0.05$)

MI=Mitotic Index: (Number of cells in mitosis out of 1000 cells)

AGT=Average generation time: Number of hours in BrdU X 100/ (number M_1 cells x 1)+(number M_2 cells x 2)+(number M_3 cells x 3)

Appendix A: Contracting Sponsor's Exposure Data and Animal Data

	Animal Exposure and Animal Data Preface	Appendix A

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:	12 November 2001
Experimental Initiation Date:	23 November 2001 (in-life)
Experimental Completion Date:	20 December 2001 (in-life)
Draft Report Date:	19 June 2002

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.

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Table A GASOLINE ETBE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY INHALATION TOXICITY STUDY IN RATS 00-6129

Chamber Monitoring Results
Cumulative Exposure Record
Group IA - 0 (air only) mg/m^3

Day	Date	Exposure Number	Analytical Chamber Concentration						Particle Size Determinations			Chamber Environment	
			Nominal	Mean	Individual				MMAD	GSD	TMC	Mean Temperature	Humidity
			(mg/m^3)	(mg/m^3)	(mg/m^3)				(µm)		(mg/m^3)	(°C)	(%)
31	23-Nov-01	1	0	0	0	0	0	0				25	52
32	24-Nov-01	2	0	0	0	0	0	0				25	53
34	26-Nov-01	3	0	0	0	0	0	0				25	48
35	27-Nov-01	4	0	0	0	0	0	0				24	49
36	28-Nov-01	5	0	0	0	0	0	0				24	50
37	29-Nov-01	6	0	0	0	0	0	0	1.046	1.964	1.94E-03	24	50
38	30-Nov-01	7	0	0	0	0	0	0				24	56
41	3-Dec-01	8	0	0	0	0	0	0				24	50
42	4-Dec-01	9	0	0	0	0	0	0				24	51
43	5-Dec-01	10	0	0	0	0	0	0				25	51
44	6-Dec-01	11	0	0	0	0	0	0	0.9233	1.647	2.32E-03	25	52
45	7-Dec-01	12	0	0	0	0	0	0				25	50
48	10-Dec-01	13	0	0	0	0	0	0				25	50
49	11-Dec-01	14	0	0	0	0	0	0				23	54
50	12-Dec-01	15	0	0	0	0	0	0				24	52
51	13-Dec-01	16	0	0	0	0	0	0	0.7808	1.691	2.30E-03	24	50
52	14-Dec-01	17	0	0	0	0	0	0				24	51
55	17-Dec-01	18	0	0	0	0	0	0				24	51
56	18-Dec-01	19	0	0	0	0	0	0				25	53
57	19-Dec-01	20	0	0	0	0	0	0				25	52
		Mean	**0**		**0**				**0.9167**	**1.767**	**2.19E-03**	**24.4**	**51.3**
		S.D.	**0**		**0**				**0.133**	**0.172**	**2.14E-04**	**0.6**	**1.8**

Table A GASOLINE ETBE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY INHALATION TOXICITY STUDY IN RATS 00-6129

Chamber Monitoring Results
Cumulative Exposure Record
Group IB - 0 (air only) mg/m^3

Day	Date	Exposure Number	Analytical Chamber Concentration						Particle Size Determinations			Chamber Environment	
			Nominal	Mean	Individual							Mean Temperature	Humidity
			(mg/m^3)	(mg/m^3)	(mg/m^3)				MMAD (µm)	GSD	TMC (mg/m^3)	(°C)	(%)
31	23-Nov-01	1	0	0	0	0	0	0				24	54
32	24-Nov-01	2	0	0	0	0	0	0				24	55
34	26-Nov-01	3	0	0	0	0	0	0				24	50
35	27-Nov-01	4	0	0	0	0	0	0				24	51
36	28-Nov-01	5	0	0	0	0	0	0				24	52
37	29-Nov-01	6	0	0	0	0	0	0	1.811	2.481	4.57E-03	24	52
38	30-Nov-01	7	0	0	0	0	0	0				24	57
41	3-Dec-01	8	0	0	0	0	0	0				25	51
42	4-Dec-01	9	0	0	0	0	0	0				24	53
43	5-Dec-01	10	0	0	0	0	0	0				24	54
44	6-Dec-01	11	0	0	0	0	0	0	6.742	3.378	9.03E-03	24	54
45	7-Dec-01	12	0	0	0	0	0	0				24	52
48	10-Dec-01	13	0	0	0	0	0	0				24	52
49	11-Dec-01	14	0	0	0	0	0	0				24	54
50	12-Dec-01	15	0	0	0	0	0	0				24	53
51	13-Dec-01	16	0	0	0	0	0	0	0.7426	1.477	1.85E-03	24	50
52	14-Dec-01	17	0	0	0	0	0	0				24	52
55	17-Dec-01	18	0	0	0	0	0	0				25	51
56	18-Dec-01	19	0	0	0	0	0	0				24	52
57	19-Dec-01	20	0	0	0	0	0	0				24	55
		Mean	**0**		**0**				**3.099**	**2.445**	**5.15E-03**	**24.1**	**52.7**
		S.D.	**0**		**0**				**3.200**	**0.951**	**3.62E-03**	**0.3**	**1.8**

Table A GASOLINE ETBE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY INHALATION TOXICITY STUDY IN RATS 00-6129

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

Day	Date	Exposure Number	Analytical Chamber Concentration						Particle Size Determinations			Chamber Environment	
			Nominal	Mean	Individual							Mean Temperature	Humidity
			(mg/m^3)	(mg/m^3)	(mg/m^3)				MMAD (µm)	GSD	TMC (mg/m^3)	(°C)	(%)
31	23-Nov-01	1	2270	2000	1910	2100	1840	2150				24	49
32	24-Nov-01	2	2210	2035	2210	2090	1940	1900				24	49
34	26-Nov-01	3	2260	1990	1910	1990	2000	2060				24	45
35	27-Nov-01	4	2250	2045	2090	1840	2300	1950				23	48
36	28-Nov-01	5	2240	2028	2310	2130	1940	1730				23	47
37	29-Nov-01	6	2150	2000	1890	1880	1980	2250	1.042	1.662	1.94E-03	23	48
38	30-Nov-01	7	2240	1975	2030	2080	1700	2090				23	54
41	3-Dec-01	8	2160	2013	2000	2110	1960	1980				23	48
42	4-Dec-01	9	2160	2000	2050	2030	1920	2000				24	47
43	5-Dec-01	10	2070	2145	2340	2260	2070	1910				24	48
44	6-Dec-01	11	2220	1923	2060	1980	1810	1840	0.9014	1.876	2.75E-03	24	48
45	7-Dec-01	12	2080	1968	2080	2040	1680	2070				24	47
48	10-Dec-01	13	1890	2015	2580	1420	1950	2110				24	47
49	11-Dec-01	14	2060	2003	1960	1510	2400	1410				23	49
50	12-Dec-01	15	2360	2220	2380	2000	2480	2020				23	49
51	13-Dec-01	16	2260	2155	2030	2400	2250	1940	0.9658	2.407	2.51E-03	23	47
52	14-Dec-01	17	2220	2130	2350	2050	2040	2080				23	48
55	17-Dec-01	18	2130	2050	2350	1840	1920	2090				24	48
56	18-Dec-01	19	2160	2130	1960	2120	2270	2170				24	47
57	19-Dec-01	20	2180	2063	2220	2080	1890	2060				24	49
		Mean	**2179**		**2035**				**0.9697**	**1.982**	**2.40E-03**	**23.6**	**48.1**
		S.D.	**101**		**210**				**0.070**	**0.384**	**4.16E-04**	**0.5**	**1.7**

Table A GASOLINE ETBE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY INHALATION TOXICITY STUDY IN RATS 00-6129

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

Day	Date	Exposure Number	Analytical Chamber Concentration						Particle Size Determinations			Chamber Environment	
			Nominal	Mean	Individual							Mean	
									MMAD	GSD	TMC	Temperature	Humidity
			(mg/m^3)	(mg/m^3)	(mg/m^3)				(µm)		(mg/m^3)	(°C)	(%)
31	23-Nov-01	1	2270	2103	2150	2100	2110	2050				23	51
32	24-Nov-01	2	2210	1988	1850	1840	2090	2170				23	51
34	26-Nov-01	3	2260	2068	2120	1870	2170	2110				23	47
35	27-Nov-01	4	2250	1938	1610	2070	2090	1980				23	48
36	28-Nov-01	5	2240	2108	1870	2080	2260	2220				23	48
37	29-Nov-01	6	2150	1973	2030	1870	2110	1880	1.046	1.589	1.83E-03	23	50
38	30-Nov-01	7	2240	2120	1840	1760	2340	2540				23	54
41	3-Dec-01	8	2160	2008	2240	1810	2030	1950				23	48
42	4-Dec-01	9	2160	2110	2210	2010	2250	1970				23	50
43	5-Dec-01	10	2070	2110	2150	2020	2100	2170				23	50
44	6-Dec-01	11	2220	1995	2120	2060	1980	1820	0.8575	1.532	2.71E-03	23	52
45	7-Dec-01	12	2080	2238	2290	2350	1670	2640				23	49
48	10-Dec-01	13	1890	2228	2770	1830	2350	1960				23	49
49	11-Dec-01	14	2060	2063	2350	1980	2350	1570				23	50
50	12-Dec-01	15	2360	2378	2770	2570	2100	2070				23	50
51	13-Dec-01	16	2260	2120	2400	1880	2220	1980	3.402	3.001	5.81E-03	23	48
52	14-Dec-01	17	2220	2040	1890	1870	2100	2300				23	49
55	17-Dec-01	18	2130	2115	2300	2010	2230	1920				24	49
56	18-Dec-01	19	2160	1963	2030	1840	1960	2020				23	51
57	19-Dec-01	20	2180	1993	2100	1860	1880	2130				23	51
		Mean	**2179**		**2083**				**1.769**	**2.041**	**3.45E-03**	**23.1**	**49.8**
		S.D.	**101**		**232**				**1.418**	**0.832**	**2.09E-03**	**0.2**	**1.7**

Table A GASOLINE ETBE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY INHALATION TOXICITY STUDY IN RATS 00-6129

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

Day	Date	Exposure Number	Nominal	Analytical Chamber Concentration						Particle Size Determinations			Chamber Environment Mean	
				Mean	Individual								Temperature	Humidity
			(mg/m^3)	(mg/m^3)	(mg/m^3)					MMAD (µm)	GSD	TMC (mg/m^3)	(°C)	(%)
31	23-Nov-01	1	11200	10040	9790	10700	9460	10200					24	48
32	24-Nov-01	2	10700	9300	10500	9360	8540	8800					24	50
34	26-Nov-01	3	10700	9005	8520	10500	9130	7870					24	46
35	27-Nov-01	4	10700	10420	9060	10500	11800	10300					23	48
36	28-Nov-01	5	10600	10180	10300	10800	9890	9720					23	48
37	29-Nov-01	6	11200	10250	9890	10500	10500	10100		1.460	2.555	3.01E-03	23	49
38	30-Nov-01	7	10400	9750	9090	9490	10800	9620					23	54
41	3-Dec-01	8	10400	9613	10300	8460	10200	9490					23	47
42	4-Dec-01	9	11200	10500	10500	10500	10500	10500					24	48
43	5-Dec-01	10	10700	10200	10500	9790	10000	10500					24	49
44	6-Dec-01	11	10500	9453	9460	8800	9790	9760		0.9809	1.829	2.97E-03	24	48
45	7-Dec-01	12	11100	10350	10400	10500	10400	10100					24	47
48	10-Dec-01	13	10400	10120	10100	10100	10500	9790					24	46
49	11-Dec-01	14	11200	10120	10100	10900	9390	10100					23	48
50	12-Dec-01	15	10200	9590	8540	9790	9230	10800					23	50
51	13-Dec-01	16	10800	10430	11900	11500	8770	9560		0.9910	2.266	3.35E-03	23	48
52	14-Dec-01	17	11000	10500	10100	10100	11000	10800					23	50
55	17-Dec-01	18	11000	10450	10800	10100	10800	10100					23	48
56	18-Dec-01	19	10600	9915	10000	9360	10100	10200					24	48
57	19-Dec-01	20	10300	10450	10400	10800	10500	10100					24	49
		Mean	**10745**		**10031**					**1.144**	**2.217**	**3.11E-03**	**23.5**	**48.5**
		S.D.	**328**		**747**					**0.274**	**0.366**	**2.09E-04**	**0.5**	**1.7**

Table A GASOLINE ETBE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY INHALATION TOXICITY STUDY IN RATS 00-6129

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

Day	Date	Exposure Number	Analytical Chamber Concentration						Particle Size Determinations			Chamber Environment Mean	
			Nominal	Mean	Individual				MMAD	GSD	TMC	Temperature	Humidity
			(mg/m^3)	(mg/m^3)	(mg/m^3)				(µm)		(mg/m^3)	(°C)	(%)
31	23-Nov-01	1	11200	10230	10100	11100	9620	10100				23	46
32	24-Nov-01	2	10700	10410	8930	10500	10800	11400				23	48
34	26-Nov-01	3	10700	9455	7670	9790	9860	10500				23	45
35	27-Nov-01	4	10700	9840	10300	9330	10400	9330				24	45
36	28-Nov-01	5	10600	10470	11000	11100	10300	9460				24	46
37	29-Nov-01	6	11200	10260	11100	10600	9890	9460	1.035	1.778	2.97E-03	24	45
38	30-Nov-01	7	10400	9853	9960	10100	9960	9390				24	50
41	3-Dec-01	8	10400	10090	10500	9960	10100	9790				24	45
42	4-Dec-01	9	11200	10500	10900	10100	10500	10500				23	46
43	5-Dec-01	10	10700	10630	11000	9820	10900	10800				23	47
44	6-Dec-01	11	10500	9828	10500	9330	9790	9690	0.8592	1.606	2.51E-03	24	46
45	7-Dec-01	12	11100	10430	10200	10100	10600	10800				23	45
48	10-Dec-01	13	10400	9603	8690	9460	9460	10800				23	45
49	11-Dec-01	14	11200	10850	11800	11300	9790	10500				24	45
50	12-Dec-01	15	10200	10190	8960	10800	9790	11200				24	46
51	13-Dec-01	16	10800	9518	9960	9560	8760	9790	0.7420	2.021	5.17E-03	24	45
52	14-Dec-01	17	11000	10230	10100	10200	10500	10100				24	45
55	17-Dec-01	18	11000	9960	9290	9960	10700	9890				24	44
56	18-Dec-01	19	10600	9848	9990	8900	10000	10500				23	45
57	19-Dec-01	20	10300	10160	9790	10300	9460	11100				24	46
		Mean	**10745**		**10117**				**0.8787**	**1.802**	**3.55E-03**	**23.6**	**45.8**
		S.D.	**328**		**708**				**0.1475**	**0.209**	**1.42E-03**	**0.5**	**1.3**

Table A GASOLINE ETBE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY INHALATION TOXICITY STUDY IN RATS 00-6129

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

Day	Date	Exposure Number	Nominal	Analytical Chamber Concentration						Particle Size Determinations			Chamber Environment	
				Mean	Individual								Mean Temperature	Humidity
			(mg/m^3)	(mg/m^3)	(mg/m^3)					MMAD (µm)	GSD	TMC (mg/m^3)	(°C)	(%)
31	23-Nov-01	1	20400	20480	19700	20900	21100	20200					25	50
32	24-Nov-01	2	20200	20330	20500	20200	20100	20500					25	51
34	26-Nov-01	3	19800	20080	20200	19700	20500	19900					26	48
35	27-Nov-01	4	19700	20380	19400	20800	20200	21100					24	48
36	28-Nov-01	5	19200	19750	19500	18800	20500	20200					24	49
37	29-Nov-01	6	19900	20150	20600	19900	19900	20200		0.9850	1.432	1.66E-03	24	50
38	30-Nov-01	7	19000	19480	18800	19700	19700	19700					24	55
41	3-Dec-01	8	18900	19400	19200	19800	18000	20600					25	48
42	4-Dec-01	9	19600	20250	18900	21200	21200	19700					26	49
43	5-Dec-01	10	20600	20430	20400	19900	20600	20800					26	49
44	6-Dec-01	11	19400	19980	21300	17700	20000	20900		0.9092	1.905	2.69E-03	26	50
45	7-Dec-01	12	20000	19900	20000	21200	19000	19400					26	47
48	10-Dec-01	13	20800	19550	18900	19400	18900	21000					26	47
49	11-Dec-01	14	18700	19730	19700	18300	21200	19700					24	48
50	12-Dec-01	15	20300	20630	20700	20900	20500	20400					25	49
51	13-Dec-01	16	20000	19880	20000	20400	19500	19600		0.7134	1.424	2.95E-03	24	48
52	14-Dec-01	17	19400	19150	18100	20100	19900	18500					24	50
55	17-Dec-01	18	18000	18880	18800	20800	19000	16900					25	48
56	18-Dec-01	19	20100	20030	19400	20100	20100	20500					26	47
57	19-Dec-01	20	19200	19880	19000	20000	20800	19700					26	48
		Mean	**19660**		**19914**					**0.8692**	**1.587**	**2.43E-03**	**25.1**	**49.0**
		S.D.	**695**		**881**					**0.1401**	**0.275**	**6.82E-04**	**0.9**	**1.8**

Table A GASOLINE ETBE VAPOR CONDENSATE: A 13-WEEK WHOLE-BODY INHALATION TOXICITY STUDY IN RATS 00-6129

Chamber Monitoring Results
Cumulative Exposure Record
Group IVB - 20,000 mg/m³

Day	Date	Exposure Number	Analytical Chamber Concentration						Particle Size Determinations			Chamber Environment	
			Nominal	Mean	Individual				MMAD	GSD	TMC	Mean Temperature	Humidity
			(mg/m³)	(mg/m³)	(mg/m³)				(µm)		(mg/m³)	(°C)	(%)
31	23-Nov-01	1	20400	21150	20600	21200	21600	21200				24	49
32	24-Nov-01	2	20200	19900	19400	20400	19600	20200				24	52
34	26-Nov-01	3	19800	20280	19800	21200	20200	19900				24	48
35	27-Nov-01	4	19700	19450	19200	19500	18600	20500				25	48
36	28-Nov-01	5	19200	20130	18600	21600	20600	19700				25	49
37	29-Nov-01	6	19900	19600	18600	20500	19900	19400	1.201	2.588	3.51E-03	25	49
38	30-Nov-01	7	19000	19130	19100	19400	19400	18600				25	54
41	3-Dec-01	8	18900	19600	19200	19800	18800	20600				25	48
42	4-Dec-01	9	19600	20400	19400	20500	21200	20500				24	49
43	5-Dec-01	10	20600	20780	20500	21200	20700	20700				24	49
44	6-Dec-01	11	19400	19800	21200	17300	19900	20800	1.784	3.162	7.82E-03	24	50
45	7-Dec-01	12	20000	19800	19400	19700	20100	20000				24	48
48	10-Dec-01	13	20800	19780	19700	19700	19400	20300				24	48
49	11-Dec-01	14	18700	19330	18600	17700	21300	19700				26	47
50	12-Dec-01	15	20300	19630	18500	20500	19400	20100				25	48
51	13-Dec-01	16	20000	19130	19300	19600	18900	18700	0.7145	1.806	6.92E-03	25	48
52	14-Dec-01	17	19400	19730	18600	19700	19800	20800				25	48
55	17-Dec-01	18	18000	19280	18800	18800	20100	19400				25	48
56	18-Dec-01	19	20100	19850	19700	19700	19400	20600				24	49
57	19-Dec-01	20	19200	20000	19200	20700	19700	20400				24	49
		Mean	**19660**		**19835**				**1.233**	**2.519**	**6.08E-03**	**24.6**	**48.9**
		S.D.	**695**		**883**				**0.535**	**0.681**	**2.27E-03**	**0.6**	**1.6**

TABLE B

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

MALES — SUMMARY OF CLINICAL OBSERVATIONS

	GROUP#	DAY OF STUDY -3	TOTAL
# OF ANIMALS EXAMINED	1	5	
	2	5	
	3	5	
	4	5	
	5	5	
NORMAL			
WITHIN NORMAL LIMITS	1	5	5
	2	5	5
	3	5	5
	4	5	5
	5	5	5

Huntingdon Life Sciences 00-6129G
Genotoxicity Sub-Group

TABLE B

GASOLINE ETBE 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 -3	TOTAL
# OF ANIMALS EXAMINED	1	5	
	2	5	
	3	5	
	4	5	
	5	5	
NORMAL			
WITHIN NORMAL LIMITS	1	5	5
	2	5	5
	3	5	5
	4	5	5
	5	5	5

TABLE C

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

MALES — MEAN BODY WEIGHTS (GRAMS)

DOSE GROUP:		I	II	III	IV	V
DOSE LEVEL (MG/M3):		0	2000	10000	20000	SCE+CONTROL
WEEK -1	MEAN	130	131	131	129	129
	S.D.	9.1	6.8	9.7	10.3	12.5
	N	5	5	5	5	5
WEEK 0	MEAN	172	171	171	170	171
	S.D.	11.7	11.0	10.1	11.1	14.6
	N	5	5	5	5	5
WEEK 1	MEAN	232	227	227	223	235
	S.D.	16.9	15.4	16.3	15.2	17.8
	N	5	5	5	5	5
WEEK 2	MEAN	287	277	278	271	290
	S.D.	20.1	21.0	17.0	16.3	21.6
	N	5	5	5	5	5
WEEK 3	MEAN	336	322	325	320	346
	S.D.	20.0	24.4	19.8	23.7	23.6
	N	5	5	5	5	5
WEEK 4	MEAN	375	359	365	356	385
	S.D.	23.9	28.0	23.6	24.3	27.5
	N	5	5	5	5	5

No statistically significant differences

TABLE C

GASOLINE ETBE 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:		I	II	III	IV	V
DOSE LEVEL (MG/M3):		0	2000	10000	20000	SCE+CONTROL
WEEK -1	MEAN	105	104	106	105	106
	S.D.	6.0	3.9	5.0	4.6	4.1
	N	5	5	5	5	5
WEEK 0	MEAN	136	136	137	136	137
	S.D.	5.0	3.8	5.0	3.7	5.5
	N	5	5	5	5	5
WEEK 1	MEAN	176	174	172	167	172
	S.D.	12.4	10.5	5.8	6.8	6.2
	N	5	5	5	5	5
WEEK 2	MEAN	207	199	199	191	202
	S.D.	17.3	13.7	9.0	6.9	8.3
	N	5	5	5	5	5
WEEK 3	MEAN	237	226	223	218	219
	S.D.	21.1	19.0	11.3	10.8	7.0
	N	5	5	5	5	5
WEEK 4	MEAN	259	246	245	236	239
	S.D.	18.8	20.0	15.8	12.5	21.8
	N	5	5	5	5	5

No statistically significant differences

TABLE D

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

MALES — MEAN BODY WEIGHT CHANGE FROM BASELINE (GRAMS)

	DOSE GROUP:	I	II	III	IV	V
	DOSE LEVEL (MG/M3):	0	2000	10000	20000	SCE+CONTROL
WEEK 0 TO 1	MEAN	60	56	55	53	64
	S.D.	6.2	7.2	7.6	6.1	5.8
	N	5	5	5	5	5
WEEK 0 TO 2	MEAN	115	106	107	101	119
	S.D.	11.3	12.8	9.3	8.9	11.1
	N	5	5	5	5	5
WEEK 0 TO 3	MEAN	165	151	154	150	175
	S.D.	12.0	17.7	12.0	14.4	13.3
	N	5	5	5	5	5
WEEK 0 TO 4	MEAN	203	187	193	186	214
	S.D.	15.5	21.7	15.6	14.9	22.5
	N	5	5	5	5	5

No statistically significant differences

TABLE D

GASOLINE ETBE 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:		I	II	III	IV	V
DOSE LEVEL (MG/M3):		0	2000	10000	20000	SCE+CONTROL
WEEK 0 TO 1	MEAN	40	38	35	31	35
	S.D.	9.2	8.9	5.8	3.8	5.5
	N	5	5	5	5	5
WEEK 0 TO 2	MEAN	70	63	62	55	65
	S.D.	13.9	10.4	8.4	3.8	4.5
	N	5	5	5	5	5
WEEK 0 TO 3	MEAN	101	89	86	82	82
	S.D.	17.7	15.8	8.8	7.9	4.9
	N	5	5	5	5	5
WEEK 0 TO 4	MEAN	123	110	107	100	101
	S.D.	15.9	16.5	15.3	9.4	17.3
	N	5	5	5	5	5

No statistically significant differences

TABLE E

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

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

	DOSE GROUP:	I	II	III	IV	V
	DOSE LEVEL (MG/M3):	0	2000	10000	20000	SCE+CONTROL
WEEK 0	MEAN	140	137	136	136	121
	S.D.	5.7	4.7	2.6	5.5	50.3
	N	5	5	5	5	5
WEEK 1	MEAN	117	116	115	113	123
	S.D.	4.2	4.4	4.0	5.4	5.8
	N	5	5	5	5	5
WEEK 2	MEAN	98	100	96	96	103
	S.D.	4.3	2.3	1.0	3.3	4.0
	N	5	4	5	5	4
WEEK 3	MEAN	88	90	87	88	94*
	S.D.	2.6	1.6	1.6	3.9	7.0
	N	5	5	5	5	5
WEEK 4	MEAN	79	80	79	80	81
	S.D.	2.0	1.4	2.1	2.1	4.4
	N	5	5	5	5	5

Statistical key: * = p<0.05

TABLE E

GASOLINE ETBE 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:	I	II	III	IV	V
	DOSE LEVEL (MG/M3):	0	2000	10000	20000	SCE+CONTROL
WEEK 0	MEAN	144	144	141	147	141
	S.D.	3.2	5.7	5.1	7.6	3.1
	N	5	4	5	5	5
WEEK 1	MEAN	121	119	120	118	120
	S.D.	3.4	5.8	5.8	3.5	5.9
	N	5	5	5	5	5
WEEK 2	MEAN	104	106	108	105	104
	S.D.	5.9	5.5	14.1	5.0	3.4
	N	5	5	5	4	5
WEEK 3	MEAN	96	98	96	94	94
	S.D.	5.0	7.6	4.9	5.7	1.9
	N	5	5	5	5	5
WEEK 4	MEAN	88	93	91	86	90
	S.D.	5.3	8.4	6.9	3.9	6.4
	N	5	5	5	5	5

No statistically significant differences

TABLE F

GASOLINE ETBE 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

MALES GROUP I 0 MG/M3

ANIMAL#	OBSERVATIONS	DAY OF STUDY - 3
1081	WITHIN NORMAL LIMITS	P
1082	WITHIN NORMAL LIMITS	P
1083	WITHIN NORMAL LIMITS	P
1084	WITHIN NORMAL LIMITS	P
1085	WITHIN NORMAL LIMITS	P

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

TABLE F

GASOLINE ETBE 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

MALES GROUP II 2000 MG/M3

ANIMAL#	OBSERVATIONS	DAY OF STUDY - 3
2071	WITHIN NORMAL LIMITS	P
2072	WITHIN NORMAL LIMITS	P
2073	WITHIN NORMAL LIMITS	P
2074	WITHIN NORMAL LIMITS	P
2075	WITHIN NORMAL LIMITS	P

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

TABLE F

GASOLINE ETBE 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

MALES GROUP III 10000 MG/M3

ANIMAL#	OBSERVATIONS	DAY OF STUDY - 3
3071	WITHIN NORMAL LIMITS	P
3072	WITHIN NORMAL LIMITS	P
3073	WITHIN NORMAL LIMITS	P
3074	WITHIN NORMAL LIMITS	P
3075	WITHIN NORMAL LIMITS	P

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

TABLE F

GASOLINE ETBE 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

MALES GROUP IV 20000 MG/M3

ANIMAL#	OBSERVATIONS	DAY OF STUDY - 3
4081	WITHIN NORMAL LIMITS	P
4082	WITHIN NORMAL LIMITS	P
4083	WITHIN NORMAL LIMITS	P
4084	WITHIN NORMAL LIMITS	P
4085	WITHIN NORMAL LIMITS	P

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

TABLE F

GASOLINE ETBE 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

MALES GROUP V SCE+CONTROL

ANIMAL#	OBSERVATIONS	DAY OF STUDY - 3
5051	WITHIN NORMAL LIMITS	P
5052	WITHIN NORMAL LIMITS	P
5053	WITHIN NORMAL LIMITS	P
5054	WITHIN NORMAL LIMITS	P
5055	WITHIN NORMAL LIMITS	P

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

TABLE F

GASOLINE ETBE 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 I 0 MG/M3

ANIMAL#	OBSERVATIONS	DAY OF STUDY - 3
1591	WITHIN NORMAL LIMITS	P
1592	WITHIN NORMAL LIMITS	P
1593	WITHIN NORMAL LIMITS	P
1594	WITHIN NORMAL LIMITS	P
1595	WITHIN NORMAL LIMITS	P

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

TABLE F

GASOLINE ETBE 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 II 2000 MG/M3

ANIMAL#	OBSERVATIONS	DAY OF STUDY - 3
2581	WITHIN NORMAL LIMITS	P
2582	WITHIN NORMAL LIMITS	P
2583	WITHIN NORMAL LIMITS	P
2584	WITHIN NORMAL LIMITS	P
2585	WITHIN NORMAL LIMITS	P

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

TABLE F

GASOLINE ETBE 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 III 10000 MG/M3

ANIMAL#	OBSERVATIONS	DAY OF STUDY - 3
3581	WITHIN NORMAL LIMITS	P
3582	WITHIN NORMAL LIMITS	P
3583	WITHIN NORMAL LIMITS	P
3584	WITHIN NORMAL LIMITS	P
3585	WITHIN NORMAL LIMITS	P

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

TABLE F

GASOLINE ETBE 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 IV 20000 MG/M3

ANIMAL#	OBSERVATIONS	DAY OF STUDY - 3
4591	WITHIN NORMAL LIMITS	P
4592	WITHIN NORMAL LIMITS	P
4593	WITHIN NORMAL LIMITS	P
4594	WITHIN NORMAL LIMITS	P
4595	WITHIN NORMAL LIMITS	P

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

TABLE F

GASOLINE ETBE 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 V SCE+CONTROL

ANIMAL#	OBSERVATIONS	DAY OF STUDY	- 3
5561	WITHIN NORMAL LIMITS		P
5562	WITHIN NORMAL LIMITS		P
5563	WITHIN NORMAL LIMITS		P
5564	WITHIN NORMAL LIMITS		P
5565	WITHIN NORMAL LIMITS		P

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

Huntingdon Life Sciences 00-6129G
Genotoxicity Sub-Group

TABLE G

GASOLINE ETBE 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)

MALES GROUP I 0 MG/M3

	WEEK OF STUDY					
ANIMAL#	-1	0	1	2	3	4
1081	123	164	223	275	325	359
1082	130	170	234	288	339	371
1083	121	158	208	260	309	348
1084	144	188	251	301	348	390
1085	133	178	243	310	361	407
MEAN	130	172	232	287	336	375
S.D.	9.1	11.7	16.9	20.1	20.0	23.9
N	5	5	5	5	5	5

TABLE G

GASOLINE ETBE 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)

MALES GROUP II 2000 MG/M3

	WEEK OF STUDY					
ANIMAL#	-1	0	1	2	3	4
2071	127	170	233	279	332	366
2072	122	154	202	245	285	319
2073	132	172	228	289	338	380
2074	134	179	227	273	312	342
2075	140	183	244	301	345	386
MEAN	131	171	227	277	322	359
S.D.	6.8	11.0	15.4	21.0	24.4	28.0
N	5	5	5	5	5	5

TABLE G

GASOLINE ETBE 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)

MALES GROUP III 10000 MG/M3

	WEEK OF STUDY					
ANIMAL#	-1	0	1	2	3	4
3071	119	157	199	249	293	329
3072	141	183	241	292	344	391
3073	124	167	226	278	323	359
3074	140	179	235	284	329	365
3075	130	171	232	288	338	380
MEAN	131	171	227	278	325	365
S.D.	9.7	10.1	16.3	17.0	19.8	23.6
N	5	5	5	5	5	5

TABLE G

GASOLINE ETBE 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)

MALES GROUP IV 20000 MG/M3

	WEEK OF STUDY					
ANIMAL#	-1	0	1	2	3	4
4081	114	153	201	250	286	320
4082	129	167	214	261	305	342
4083	136	176	230	273	334	375
4084	126	172	234	287	339	373
4085	141	182	238	287	337	370
MEAN	129	170	223	271	320	356
S.D.	10.3	11.1	15.2	16.3	23.7	24.3
N	5	5	5	5	5	5

TABLE G

GASOLINE ETBE 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)

MALES GROUP V SCE+CONTROL

	WEEK OF STUDY					
ANIMAL#	-1	0	1	2	3	4
5051	109	149	213	269	323	375
5052	135	178	237	294	340	361
5053	126	167	228	279	333	368
5054	132	175	237	285	352	392
5055	143	188	262	326	384	430
MEAN	129	171	235	290	346	385
S.D.	12.5	14.6	17.8	21.6	23.6	27.5
N	5	5	5	5	5	5

TABLE G

GASOLINE ETBE 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 I 0 MG/M3

	WEEK OF STUDY					
ANIMAL#	-1	0	1	2	3	4
1591	97	132	173	200	234	262
1592	109	138	190	227	259	279
1593	106	136	173	204	236	252
1594	102	132	158	183	205	231
1595	113	144	186	220	254	273
MEAN	105	136	176	207	237	259
S.D.	6.0	5.0	12.4	17.3	21.1	18.8
N	5	5	5	5	5	5

TABLE G

GASOLINE ETBE 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 II 2000 MG/M3

	WEEK OF STUDY					
ANIMAL#	-1	0	1	2	3	4
2581	101	138	173	203	239	260
2582	108	137	170	198	218	251
2583	108	141	186	218	249	266
2584	100	133	182	197	222	240
2585	102	131	159	180	200	215
MEAN	104	136	174	199	226	246
S.D.	3.9	3.8	10.5	13.7	19.0	20.0
N	5	5	5	5	5	5

TABLE G

GASOLINE ETBE 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 III 10000 MG/M3

	WEEK OF STUDY					
ANIMAL#	-1	0	1	2	3	4
3581	104	135	167	189	208	223
3582	107	139	171	198	223	239
3583	101	132	176	207	226	260
3584	103	136	167	193	219	241
3585	114	145	180	210	239	261
MEAN	106	137	172	199	223	245
S.D.	5.0	5.0	5.8	9.0	11.3	15.8
N	5	5	5	5	5	5

TABLE G

GASOLINE ETBE 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 IV 20000 MG/M3

	WEEK OF STUDY					
ANIMAL#	-1	0	1	2	3	4
4591	105	140	169	199	229	245
4592	109	136	170	190	208	227
4593	109	139	174	196	230	253
4594	104	134	163	183	213	233
4595	98	131	157	185	211	223
MEAN	105	136	167	191	218	236
S.D.	4.6	3.7	6.8	6.9	10.8	12.5
N	5	5	5	5	5	5

TABLE G

GASOLINE ETBE 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 V SCE+CONTROL

	WEEK OF STUDY					
ANIMAL#	-1	0	1	2	3	4
5561	106	135	169	196	212	217
5562	103	136	163	194	214	223
5563	102	131	174	199	220	232
5564	109	139	175	205	220	252
5565	111	146	179	215	230	270
MEAN	106	137	172	202	219	239
S.D.	4.1	5.5	6.2	8.3	7.0	21.8
N	5	5	5	5	5	5

TABLE H

GASOLINE ETBE 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)

MALES GROUP I 0 MG/M3

	WEEK OF STUDY			
ANIMAL#	0-1	0-2	0-3	0-4
1081	59	110	161	195
1082	63	118	169	201
1083	50	102	151	190
1084	63	113	160	202
1085	66	132	183	230
MEAN	60	115	165	203
S.D.	6.2	11.3	12.0	15.5
N	5	5	5	5

TABLE H

GASOLINE ETBE 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)

MALES GROUP II 2000 MG/M3

	WEEK OF STUDY			
ANIMAL#	0-1	0-2	0-3	0-4
2071	64	110	162	196
2072	48	90	131	164
2073	57	117	167	209
2074	48	94	133	163
2075	61	118	162	203
MEAN	56	106	151	187
S.D.	7.2	12.8	17.7	21.7
N	5	5	5	5

TABLE H

GASOLINE ETBE 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)

MALES GROUP III 10000 MG/M3

	WEEK OF STUDY			
ANIMAL#	0-1	0-2	0-3	0-4
3071	42	92	136	172
3072	58	109	161	208
3073	59	111	156	192
3074	56	106	150	186
3075	61	117	167	209
MEAN	55	107	154	193
S.D.	7.6	9.3	12.0	15.6
N	5	5	5	5

TABLE H

GASOLINE ETBE 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)

MALES GROUP IV 20000 MG/M3

	WEEK OF STUDY			
ANIMAL#	0-1	0-2	0-3	0-4
4081	49	97	133	167
4082	47	94	137	175
4083	54	96	158	199
4084	62	116	168	201
4085	55	104	155	188
MEAN	53	101	150	186
S.D.	6.1	8.9	14.4	14.9
N	5	5	5	5

TABLE H

GASOLINE ETBE 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)

MALES GROUP V SCE+CONTROL

	WEEK OF STUDY			
ANIMAL#	0-1	0-2	0-3	0-4
5051	64	120	174	226
5052	59	116	162	183
5053	62	113	166	202
5054	62	110	177	217
5055	74	138	196	242
MEAN	64	119	175	214
S.D.	5.8	11.1	13.3	22.5
N	5	5	5	5

TABLE H

GASOLINE ETBE 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 I 0 MG/M3

	WEEK OF STUDY			
ANIMAL#	0-1	0-2	0-3	0-4
1591	41	68	102	130
1592	52	89	121	141
1593	38	68	100	116
1594	26	51	73	99
1595	42	76	110	129
MEAN	40	70	101	123
S.D.	9.2	13.9	17.7	15.9
N	5	5	5	5

Huntingdon Life Sciences 00-6129G
Genotoxicity Sub-Group

TABLE H

GASOLINE ETBE 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 II 2000 MG/M3

	WEEK OF STUDY			
ANIMAL#	0-1	0-2	0-3	0-4
2581	34	64	100	122
2582	33	61	81	114
2583	46	78	109	125
2584	49	64	89	107
2585	28	49	68	84
MEAN	38	63	89	110
S.D.	8.9	10.4	15.8	16.5
N	5	5	5	5

TABLE H

GASOLINE ETBE 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 III 10000 MG/M3

	WEEK OF STUDY			
ANIMAL#	0-1	0-2	0-3	0-4
3581	32	54	73	88
3582	32	58	84	99
3583	45	75	94	128
3584	31	57	83	106
3585	35	65	94	116
MEAN	35	62	86	107
S.D.	5.8	8.4	8.8	15.3
N	5	5	5	5

TABLE H

GASOLINE ETBE 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 IV 20000 MG/M3

	WEEK OF STUDY			
ANIMAL#	0-1	0-2	0-3	0-4
4591	30	60	89	105
4592	35	54	72	91
4593	35	56	91	113
4594	29	49	79	99
4595	26	54	80	92
MEAN	31	55	82	100
S.D.	3.8	3.8	7.9	9.4
N	5	5	5	5

TABLE H

GASOLINE ETBE 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 V SCE+CONTROL

	WEEK OF STUDY			
ANIMAL#	0-1	0-2	0-3	0-4
5561	34	62	77	82
5562	28	59	78	87
5563	43	68	89	100
5564	35	66	81	113
5565	34	69	84	124
MEAN	35	65	82	101
S.D.	5.5	4.5	4.9	17.3
N	5	5	5	5

TABLE I

GASOLINE ETBE 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)

MALES GROUP I 0 MG/M3

	WEEK OF STUDY				
ANIMAL#	0	1	2	3	4
1081	142	115	94	85	76
1082	139	120	102	91	79
1083	142	114	100	90	80
1084	131	113	93	85	77
1085	147	123	102	88	81
MEAN	140	117	98	88	79
S.D.	5.7	4.2	4.3	2.6	2.0
N	5	5	5	5	5

TABLE I

GASOLINE ETBE 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)

MALES GROUP II 2000 MG/M3

	WEEK OF STUDY				
ANIMAL#	0	1	2	3	4
2071	142	123	SF	92	81
2072	130	112	102	90	82
2073	134	112	102	90	80
2074	139	114	98	88	78
2075	139	116	98	88	80
MEAN	137	116	100	90	80
S.D.	4.7	4.4	2.3	1.6	1.4
N	5	5	4	5	5

SF=Spilled Feeder

TABLE I

GASOLINE ETBE 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)

MALES GROUP III 10000 MG/M3

	WEEK OF STUDY				
ANIMAL#	0	1	2	3	4
3071	134	110	96	87	81
3072	134	118	97	89	81
3073	139	120	95	85	77
3074	137	113	98	86	77
3075	139	117	97	86	79
MEAN	136	115	96	87	79
S.D.	2.6	4.0	1.0	1.6	2.1
N	5	5	5	5	5

TABLE I

GASOLINE ETBE 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)

MALES GROUP IV 20000 MG/M3

	WEEK OF STUDY				
ANIMAL#	0	1	2	3	4
4081	138	115	97	89	81
4082	134	115	94	88	80
4083	138	112	94	93	82
4084	142	120	101	89	79
4085	127	105	93	83	76
MEAN	136	113	96	88	80
S.D.	5.5	5.4	3.3	3.9	2.1
N	5	5	5	5	5

Huntingdon Life Sciences 00-6129G
Genotoxicity Sub-Group

TABLE I

GASOLINE ETBE 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)

MALES GROUP V SCE+CONTROL

	WEEK OF STUDY				
ANIMAL#	0	1	2	3	4
5051	139	125	107	93	84
5052	144	122	106	94	78
5053	137	118	98	90	76
5054	152	132	EF	106	87
5055	31	119	101	89	79
MEAN	121	123	103	94	81
S.D.	50.3	5.8	4.0	7.0	4.4
N	5	5	4	5	5

EF=Empty Feeder

TABLE I

GASOLINE ETBE 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 I 0 MG/M3

	WEEK OF STUDY				
ANIMAL#	0	1	2	3	4
1591	146	122	108	101	91
1592	142	123	99	93	82
1593	149	125	110	101	94
1594	143	116	96	89	84
1595	142	120	106	96	87
MEAN	144	121	104	96	88
S.D.	3.2	3.4	5.9	5.0	5.3
N	5	5	5	5	5

TABLE I

GASOLINE ETBE 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 II 2000 MG/M3

	WEEK OF STUDY				
ANIMAL#	0	1	2	3	4
2581	148	123	114	109	97
2582	138	111	105	102	102
2583	149	125	106	94	90
2584	139	121	98	89	80
2585	SF	115	107	98	96
MEAN	144	119	106	98	93
S.D.	5.7	5.8	5.5	7.6	8.4
N	4	5	5	5	5

SF=Spilled Feeder

TABLE I

GASOLINE ETBE 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 III 10000 MG/M3

	WEEK OF STUDY				
ANIMAL#	0	1	2	3	4
3581	136	118	94	91	86
3582	138	114	102	91	85
3583	137	121	102	96	94
3584	144	117	109	98	91
3585	148	129	131	103	102
MEAN	141	120	108	96	91
S.D.	5.1	5.8	14.1	4.9	6.9
N	5	5	5	5	5

TABLE I

GASOLINE ETBE 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 IV 20000 MG/M3

	WEEK OF STUDY				
ANIMAL#	0	1	2	3	4
4591	150	117	104	94	83
4592	147	117	SF	88	87
4593	142	115	101	98	89
4594	139	117	102	101	89
4595	158	124	112	89	81
MEAN	147	118	105	94	86
S.D.	7.6	3.5	5.0	5.7	3.9
N	5	5	4	5	5

SF=Spilled Feeder

TABLE I

GASOLINE ETBE 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 V SCE+CONTROL

	WEEK OF STUDY				
ANIMAL#	0	1	2	3	4
5561	146	127	107	95	88
5562	141	121	106	91	81
5563	138	124	103	95	88
5564	140	111	99	96	95
5565	141	120	107	93	97
MEAN	141	120	104	94	90
S.D.	3.1	5.9	3.4	1.9	6.4
N	5	5	5	5	5

TABLE J

GASOLINE ETBE 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

MALES GROUP I 0 MG/M3

ANIMAL#	TYPE OF DEATH	DATE OF DEATH	WEEK OF STUDY	STUDY DAY
1081	TERMINAL SACRIFICE	20-DEC-01	3	27
1082	TERMINAL SACRIFICE	20-DEC-01	3	27
1083	TERMINAL SACRIFICE	20-DEC-01	3	27
1084	TERMINAL SACRIFICE	20-DEC-01	3	27
1085	TERMINAL SACRIFICE	20-DEC-01	3	27

TABLE J

GASOLINE ETBE 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

MALES GROUP II 2000 MG/M3

ANIMAL#	TYPE OF DEATH	DATE OF DEATH	WEEK OF STUDY	STUDY DAY
2071	TERMINAL SACRIFICE	20-DEC-01	3	27
2072	TERMINAL SACRIFICE	20-DEC-01	3	27
2073	TERMINAL SACRIFICE	20-DEC-01	3	27
2074	TERMINAL SACRIFICE	20-DEC-01	3	27
2075	TERMINAL SACRIFICE	20-DEC-01	3	27

TABLE J

GASOLINE ETBE 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

MALES GROUP III 10000 MG/M3

ANIMAL#	TYPE OF DEATH	DATE OF DEATH	WEEK OF STUDY	STUDY DAY
3071	TERMINAL SACRIFICE	20-DEC-01	3	27
3072	TERMINAL SACRIFICE	20-DEC-01	3	27
3073	TERMINAL SACRIFICE	20-DEC-01	3	27
3074	TERMINAL SACRIFICE	20-DEC-01	3	27
3075	TERMINAL SACRIFICE	20-DEC-01	3	27

TABLE J

GASOLINE ETBE 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

MALES GROUP IV 20000 MG/M3

ANIMAL#	TYPE OF DEATH	DATE OF DEATH	WEEK OF STUDY	STUDY DAY
4081	TERMINAL SACRIFICE	20-DEC-01	3	27
4082	TERMINAL SACRIFICE	20-DEC-01	3	27
4083	TERMINAL SACRIFICE	20-DEC-01	3	27
4084	TERMINAL SACRIFICE	20-DEC-01	3	27
4085	TERMINAL SACRIFICE	20-DEC-01	3	27

Huntingdon Life Sciences 00-6129G
Genotoxicity Sub-Group

TABLE J

GASOLINE ETBE 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

MALES GROUP V SCE+CONTROL

ANIMAL#	TYPE OF DEATH	DATE OF DEATH	WEEK OF STUDY	STUDY DAY
5051	TERMINAL SACRIFICE	20-DEC-01	3	27
5052	TERMINAL SACRIFICE	20-DEC-01	3	27
5053	TERMINAL SACRIFICE	20-DEC-01	3	27
5054	TERMINAL SACRIFICE	20-DEC-01	3	27
5055	TERMINAL SACRIFICE	20-DEC-01	3	27

TABLE J

GASOLINE ETBE 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 I 0 MG/M3

ANIMAL#	TYPE OF DEATH	DATE OF DEATH	WEEK OF STUDY	STUDY DAY
1591	TERMINAL SACRIFICE	20-DEC-01	3	27
1592	TERMINAL SACRIFICE	20-DEC-01	3	27
1593	TERMINAL SACRIFICE	20-DEC-01	3	27
1594	TERMINAL SACRIFICE	20-DEC-01	3	27
1595	TERMINAL SACRIFICE	20-DEC-01	3	27

TABLE J

GASOLINE ETBE 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 II 2000 MG/M3

ANIMAL#	TYPE OF DEATH	DATE OF DEATH	WEEK OF STUDY	STUDY DAY
2581	TERMINAL SACRIFICE	20-DEC-01	3	27
2582	TERMINAL SACRIFICE	20-DEC-01	3	27
2583	TERMINAL SACRIFICE	20-DEC-01	3	27
2584	TERMINAL SACRIFICE	20-DEC-01	3	27
2585	TERMINAL SACRIFICE	20-DEC-01	3	27

TABLE J

GASOLINE ETBE 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 III 10000 MG/M3

ANIMAL#	TYPE OF DEATH	DATE OF DEATH	WEEK OF STUDY	STUDY DAY
3581	TERMINAL SACRIFICE	20-DEC-01	3	27
3582	TERMINAL SACRIFICE	20-DEC-01	3	27
3583	TERMINAL SACRIFICE	20-DEC-01	3	27
3584	TERMINAL SACRIFICE	20-DEC-01	3	27
3585	TERMINAL SACRIFICE	20-DEC-01	3	27

TABLE J

GASOLINE ETBE 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 IV 20000 MG/M3

ANIMAL#	TYPE OF DEATH	DATE OF DEATH	WEEK OF STUDY	STUDY DAY
4591	TERMINAL SACRIFICE	20-DEC-01	3	27
4592	TERMINAL SACRIFICE	20-DEC-01	3	27
4593	TERMINAL SACRIFICE	20-DEC-01	3	27
4594	TERMINAL SACRIFICE	20-DEC-01	3	27
4595	TERMINAL SACRIFICE	20-DEC-01	3	27

TABLE J

GASOLINE ETBE 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 V SCE+CONTROL

ANIMAL#	TYPE OF DEATH	DATE OF DEATH	WEEK OF STUDY	STUDY DAY
5561	TERMINAL SACRIFICE	20-DEC-01	3	27
5562	TERMINAL SACRIFICE	20-DEC-01	3	27
5563	TERMINAL SACRIFICE	20-DEC-01	3	27
5564	TERMINAL SACRIFICE	20-DEC-01	3	27
5565	TERMINAL SACRIFICE	20-DEC-01	3	27

FINAL REPORT

Immunological Evaluation of Gasoline ETBE Vapor Condensate in Female Sprague Dawley Rats Using the Plaque Forming Cell Assay

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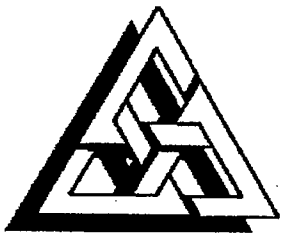
Test Substance:	Gasoline ETBE Vapor Condensate
Protocol No:	HLS 00-6129
Subcontractor's Sponsor:	Huntingdon Life Sciences Mettlers Road East Millstone, NJ 08875 (732) 873-2550 *Phone* (732) 873-3992 *Fax*
Contractor's Study Director:	Gary M. Hoffman, B.A., DABT
Sponsor:	American Petroleum Institute 1200 L Street, NW Washington, DC 20005
Sponsor's Representative:	Thomas Gray, M.S., DABT
Project Number:	ITI 901
Date:	13 August 2010
Principal Investigator:	Kimber L. White, Jr., Ph.D.
Studies Conducted at:	**ImmunoTox®, Inc.** Virginia Bio•Technology Research Park 800 East Leigh Street, Suite 209 Richmond, VA 23219-1534 (804) 828-6880 *Phone* (804) 828-6881 *Fax*



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