SCREENING-LEVEL HAZARD CHARACTERIZATION

Gasoline Blending Streams Category (See Appendix)

The High Production Volume (HPV) Challenge Program[1] was conceived as a voluntary initiative aimed at developing and making publicly available screening-level health and environmental effects information on chemicals manufactured in or imported into the United States in quantities greater than one million pounds per year. In the Challenge Program, producers and importers of HPV chemicals voluntarily sponsored chemicals; sponsorship entailed the identification and initial assessment of the adequacy of existing toxicity data/information, conducting new testing if adequate data did not exist, and making both new and existing data and information available to the public. Each complete data submission contains data on 18 internationally agreed to "SIDS" (Screening Information Data Set[1,2]) endpoints that are screening-level indicators of potential hazards (toxicity) for humans or the environment.

The Environmental Protection Agency's Office of Pollution Prevention and Toxics (OPPT) is evaluating the data submitted in the HPV Challenge Program on approximately 1400 sponsored chemicals by developing hazard characterizations (HCs). These HCs consist of an evaluation of the quality and completeness of the data set provided in the Challenge Program submissions. They are not intended to be definitive statements regarding the possibility of unreasonable risk of injury to health or the environment.

The evaluation is performed according to established EPA guidance[2,3] and is based primarily on hazard data provided by sponsors; however, in preparing the hazard characterization, EPA considered its own comments and public comments on the original submission as well as the sponsor's responses to comments and revisions made to the submission. In order to determine whether any new hazard information was developed since the time of the HPV submission, a search of the following databases was made from one year prior to the date of the HPV Challenge submission to the present: (ChemID to locate available data sources including Medline/PubMed, Toxline, HSDB, IRIS, NTP, ATSDR, IARC, EXTOXNET, EPA SRS, etc.), STN/CAS online databases (Registry file for locators, ChemAbs for toxicology data, RTECS, Merck, etc.) and Science Direct. OPPT's focus on these specific sources is based on their being of high quality, highly relevant to hazard characterization, and publicly available.

OPPT does not develop HCs for those HPV chemicals which have already been assessed internationally through the HPV program of the Organization for Economic Cooperation and Development (OECD) and for which Screening Initial Data Set (SIDS) Initial Assessment Reports (SIAR) and SIDS Initial Assessment Profiles (SIAP) are available. These documents are presented in an international forum that involves review and endorsement by governmental authorities around the world. OPPT is an active participant in these meetings and accepts these documents as reliable screening-level hazard assessments.

[1] U.S. EPA. High Production Volume (HPV) Challenge Program; http://www.epa.gov/chemrtk/index.htm.
[2] U.S. EPA. HPV Challenge Program – Information Sources; http://www.epa.gov/chemrtk/pubs/general/guidocs.htm.
[3] U.S. EPA. Risk Assessment Guidelines; http://cfpub.epa.gov/ncea/raf/rafguid.cfm.

These hazard characterizations are technical documents intended to inform subsequent decisions and actions by OPPT. Accordingly, the documents are not written with the goal of informing the general public. However, they do provide a vehicle for public access to a concise assessment of the raw technical data on HPV chemicals and provide information previously not readily available to the public.

TABLE OF CONTENTS

LIST OF TABLES

Chemical Abstract Service Registry Number (CASRN)	**See the Appendix**
Chemical Abstract Index Name	**See the Appendix**
Structural Formula	**See the Appendix**

Summary

The Gasoline Blending Streams Category comprises 81 hydrocarbon stream members. The streams that comprise this category are complex mixtures containing primarily C4 to C12 aliphatic and aromatic hydrocarbons; all these streams are blended to make various grades of gasoline. The members of this category are liquids of moderate to high vapor pressure and low to high water solubility. The category members are expected to have moderate to high mobility in soil. Volatilization from water is expected to be moderate to high. The rate of hydrolysis is negligible. Overall the data support a conclusion that chemicals in this category are inherently biodegradable. The rate of atmospheric photooxidation is negligible to rapid. The members of the Gasoline Blending Streams category are expected to have low persistence (P1) and low to high bioaccumulation potential (B1-B3).

Human Health Hazard

The acute toxicity of gasoline blending streams (including paraffinic, olefinic, naphthenic and aromatic naphthas - PONA) and gasoline, a supporting chemical, is low for the oral route in rats and low for the dermal route in rabbits. The inhalation route is the most relevant route of human exposure. The acute inhalation toxicity in rats is moderate for representative paraffinic, olefinic, naphthenic and aromatic naphthas, but is high for the sponsored category member, naphtha (petroleum), hydrotreated heavy (CASRN 64742-48-9; PONA composition not specified).

For representative paraffinic naphthas, no adverse treatment-related effects were observed in repeated-dose toxicity studies by the inhalation route in rats; the lowest NOAEC for systemic toxicity is 24.3 mg/L/day. A representative olefinic naphtha (CASRN 68513-02-0) showed lymph node hyperplasia and decreased albumin/globulin ratios in rats following dermal exposure to 188 mg/kg-bw/day; the NOAEL for systemic toxicity is 38 mg/kg-bw/day. For representative olefinic naphthas, effects observed in several repeated-dose toxicity studies by the inhalation route in rats included signs of organ (liver and kidney) toxicity and decreased mean corpuscular hemoglobin levels at doses $\leq$ 9.5 mg/L/day; the NOAECs for systemic toxicity ranged from 2.3 mg/L/day to 5.5 mg/L/day. An olefinic naphtha (No CASRN) showed no treatment-related effects in repeated-dose toxicity studies by the inhalation route in rats or in mice; the NOAEC for systemic toxicity is 7.69 mg/L/day. A naphthenic naphtha (CASRN 64742-82-1) showed no treatment-related signs of toxicity in a repeated-dose toxicity study by the dermal route in rats; the NOAEL for systemic toxicity is 764 mg/kg-bw/day. A naphthenic naphtha (CASRN 64741-41-9) showed signs of thyroid and liver toxicity at 13.4 mg/L/day in a combined repeated-dose, reproductive/developmental toxicity study by the inhalation route in rats; the NOAEC for

systemic toxicity is 2.37 mg/L/day. An aromatic naphtha (CASRN 64741-68-0) showed no adverse treatment-related effects in a repeated-dose toxicity study by the dermal route in rats; the NOAEL for systemic toxicity is 797 mg/kg-bw/day. An aromatic naphtha (CASRN 64741-63-5) showed signs indicative of immunotoxicity in a repeated-dose toxicity study by the inhalation route in male rats at 27.8 mg/L/day; the NOAEC for systemic toxicity in males and females is 9.3 mg/L/day and 27.8 mg/L/day, respectively. An aromatic naphtha (CASRN 64742-95-6) showed signs of liver toxicity at 500 mg/kg-bw/day in a repeated-dose toxicity study by the oral route in rats; the NOAEL for systemic toxicity is 125 mg/kg-bw/day. Several representative studies in gasoline are available. In unleaded gasoline (no CASRN), a decrease in brain weight in males was observed at 1.57 mg/L/day, the lowest dose tested in a repeated-dose toxicity study by the inhalation route in rats; the NOAEC for systemic toxicity was not be established. Effects on pulmonary function were observed at 6.35 mg/L/day in a repeated-dose toxicity study by the inhalation route in monkeys; the NOAEC for systemic toxicity is 1.57 mg/L/day. In unleaded gasoline blend (no CASRN), signs of kidney toxicity in males were reported at 0.15 mg/L/day in a repeated-dose toxicity study by the inhalation route in rats; the NOAEC for systemic toxicity is 14.7 mg/L/day in females (highest dose tested). The NOAEC is not established in males. In leaded gasoline (no CASRN), signs of blood toxicity and effects on pulmonary function were reported at 1.53 mg/L/day in repeated-dose toxicity studies by the inhalation route in rats and monkeys; the NOAEC for systemic toxicity is 0.42 mg/L/day in rats and in male monkeys, and 1.53 mg/L/day in female monkeys (highest dose tested).

Several combined repeated-dose/reproductive/developmental toxicity screening studies with paraffinic, olefinic, and aromatic naphthas by the inhalation route in rats showed no signs of reproductive or developmental toxicity at any dose level; the lowest NOAEC is 23.6 mg/L/day. A combined reproductive/developmental toxicity screening study by the inhalation route in rats with a naphthenic naphtha (CASRN 64741-41-9) showed signs of thyroid and liver toxicity, and reductions in body weight/body weight gain in females (but no reproductive or developmental effects) at 13.4 mg/L/day; the NOAEC for maternal and developmental/reproductive toxicity is 2.37 mg/L/day and 13.4 mg/L/day, respectively. In a two-generation reproductive toxicity study by the inhalation route in rats with unleaded gasoline (no CASRN), decreases in body weight gain in adults were reported at 20 mg/L/day; the NOAEC for systemic toxicity is 10.1 mg/L/day. No signs of reproductive/developmental toxicity were reported at any dose level; the NOAEC is 20 mg/L/day. A prenatal developmental toxicity study by the inhalation route in rats with an olefinic naphtha (CASRN 64741-55-5) showed no signs of maternal toxicity, but an increase in the number of resorptions was observed at 7.7 mg/L/day; the NOAEC for maternal and developmental toxicity are 7.7 mg/L/day and 2.2 mg/L/day, respectively. A prenatal developmental toxicity study by the inhalation route in rats with unleaded gasoline (PONA composition not specified) showed no signs of maternal toxicity, but increases in delayed ossification in offspring were observed at 6.2 mg/L/day; the NOAECs for maternal and developmental toxicity are 6.2 mg/L/day and 1.7 mg/L/day, respectively.

Aromatic naphthas induced gene mutation in mouse lymphoma cells, but not in bacterial cells. Paraffinic and naphthenic naphthas did not induce gene mutation in mouse lymphoma cells and gasoline did not induce gene mutation in either mouse lymphoma cells or bacterial cells. The mutagenicity results for olefinic naphthas were equivocal in mouse lymphoma cells. Aromatic naphthas induced chromosomal aberrations in human lymphocytes. Olefinic naphthas were

equivocal for induction of chromosomal aberrations in Chinese hamster ovary (CHO) cells. Paraffinic, naphthenic and aromatic naphthas did not induce chromosomal aberrations *in vivo* in rats, but olefinic naphthas and gasoline induced chromosomal aberrations *in vivo* in mice and rats, respectively.

Paraffinic, olefinic, naphthenic, and aromatic naphthas are irritating to rabbit and rat skin. Gasoline is irritating to rabbit skin. Paraffinic, olefinic and naphthenic naphthas and gasoline are not irritating to rabbit eyes, but aromatic naphthas are irritating to rabbit eyes. Paraffinic, olefinic and aromatic naphthas and gasoline are not dermal sensitizers in guinea pigs. Paraffinic and naphthenic naphthas were not carcinogenic in mice via the dermal route. Olefinic and aromatic naphthas and naphtha (petroleum), heavy thermal cracked (CASRN 64741-83-9; PONA composition not specified) were carcinogenic to mice via the dermal route. Gasoline was carcinogenic in rats and mice via the inhalation route, but not carcinogenic to mice via the dermal route. Aromatic naphthas were neurotoxic in rats via the inhalation route, whereas paraffinic and olefinic naphthas and gasoline were not neurotoxic in rats via the inhalation route. Unleaded and leaded gasolines are neurotoxic in humans.

No data gaps were identified under the HPV Challenge Program.

Hazard to the Environment

Based on the category member CASRN 64741-66-8, the 96-h LC_{50} for fish is 0.31 mg/L (lowest value) and the 48-h EC_{50} value to aquatic invertebrates is 0.56 mg/L (lowest value). Based on the category member CASRN 64741-46-4, the 96-h EC_{50} for algae is 0.26 mg/L (lowest value) for biomass. Based on the category member CASRN 64741-66-8, the lowest values for the chronic 21-d EC_{50} are 1.9 mg/L (based on survival), and 0.14 mg/L (based on reproduction), and the lowest 21-d chronic NOEC values are 0.23 mg/L (based on survival), and 0.03 mg/L (based on reproduction).

No data gaps were identified under the HPV Challenge Program.

The sponsor, the Petroleum HPV Testing Group of the American Petroleum Institute, submitted a Test Plan and Robust Summaries to EPA for the Gasoline Blending Streams category on December 20, 2001. EPA posted the submission on the ChemRTK HPV Challenge website on January 25, 2002 (http://www.epa.gov/oppt/chemrtk/pubs/summaries/gasnecat/c13409tc.htm). EPA comments on the original submission were posted to the website on October 18, 2002. Public comments were also received and posted to the website. The sponsor submitted updated/revised documents on September 5, 2003 and September 3, 2008, which were posted to the ChemRTK website on October 28, 2003 and September 10, 2008, respectively. The gasoline blending streams category and supporting chemicals can be seen in the Appendix.

Category Justification

The gasoline blending streams category consists of 81 petroleum refinery streams used in the blending of gasoline that are volatile liquids at standard temperature and pressure; these streams are referred to as naphthas. The category members are complex mixtures with variable composition, with carbon numbers approximately in the range of C4 – C12 and a boiling point range between -20 and 230 °C. The basic chemical classes generally present in all naphthas are: normal and branched-chain paraffinic hydrocarbons (P), olefinic hydrocarbons (O), naphthenic hydrocarbons (N; cycloparaffins) and aromatic hydrocarbons (A; mainly alkylbenzenes). The "PONA" composition of a stream is described by the percentage of each of these four classes of hydrocarbons.

The sponsor proposed the use of category members that are relatively high in each of the four classes (paraffins, olefins, naphthenes and aromatics) to characterize the physicochemical, environmental fate, human health and aquatic toxicity endpoints. Category members that contain a relatively high percentage of paraffinic, olefinic, naphthenic and aromatic hydrocarbons, as compared to the average composition of formulated gasoline, are referred to as paraffinic, olefinic, naphthenic and aromatic naphthas, respectively. Some of the sponsored streams may be a member of more than one naphtha class due to the variable nature of their composition. For example, the sponsor submitted data for two samples of naphtha (petroleum), sweetened (CASRN 64741-87-3); one sample is considered to be an olefinic naphtha (containing 43.5% olefins), while the other sample is classified as a naphthenic naphtha (containing 28.6% naphthenes).

The sponsor proposed estimating the boundaries of toxicity for the gasoline blending streams category by using data from each class of naphtha. To this end, the sponsor submitted data for the naphtha class for each required endpoint. The lowest (i.e., most conservative) toxicity value for each endpoint, regardless of naphtha class, would be read across to untested category members.

For ecotoxicity purposes, the sponsor originally proposed to create subgroups based on predominant PONA hydrocarbons for the gasoline blending streams category. However,

similarities in the aquatic toxicity of these streams allowed simplification of the category without using the PONA class subgroups. The hydrocarbon constituents in these substances elicit acute aquatic toxicity through non-polar narcosis (van Wezel and Opperhuizen, 1995). For this reason, gasoline blending streams share a common mode of action, and their acute toxicities would be expected to fall within a relatively narrow range that is independent of PONA distribution. Therefore, the proposal to read across from the lowest (i.e., most conservative) toxicity value from the tested member to the untested category members, regardless of naphtha class for the gasoline blending streams, is acceptable.

Justification for Supporting Chemicals

The sponsor proposed the use of the following supporting chemicals: light naphtha, n-hexane rich (F-186; CASRN not specified) and various samples of gasoline (CASRN 86290-81-5 or CASRN not specified), including unleaded gasoline, an unleaded gasoline blend and leaded gasoline. EPA accepted the use of these supporting chemicals for the characterization of human health endpoints based on their similarities in chemical compositions with those of the sponsored category members. Thus, the sponsor provided data on the toxicity of several gasoline samples, which have high concentrations of paraffinic and/or aromatic hydrocarbons with compositions mostly in the range C4 – C12. Additionally, the sponsor provided data on the toxicity of one sample of light naphtha, n-hexane rich (F-186), which is composed mostly of paraffins in the range of C5 – C7.

For ecotoxicity purposes, no supporting chemicals are used.

1. Chemical Identity

1.1 Identification and Purity

The following is taken in part from the 2008 Test Plan.

The 81 substances in the Gasoline Blending Streams Category are low boiling point naphthas. The four primary chemical classes found in naphthas are paraffins, olefins, naphthenes, and aromatics or "PONA". Gasoline blending streams are refined from petroleum, or crude oil, an extremely complex substance. At room temperature, hydrocarbons containing one to four carbon atoms are gases; those with five to 19 carbon atoms are usually liquids; and those with 40 or more carbon atoms are typically semi-solids.

The characteristic chemical composition of naphtha streams is described by the classes in the PONA classification. Within each class, the hydrocarbons also vary in size. Many of the 81 HPV streams cannot be classified as high P, O, N, or A; rather, these hydrocarbon classes are more evenly represented in the respective stream. The hydrocarbons that comprise the gasoline and the 81 naphtha blending streams in this category – P, O, N, and A – share some structural features but differ in the ratio of the hydrogen to carbon atoms and the way in which these atoms are arranged.

The naphthas selected to represent the four extremes of hydrocarbon composition were:

Paraffinic: Light alkylate naphtha CASRN 64741-66-8 [approx. 100% paraffins]
Olefinic: Light catalytic cracked naphtha CASRN 64741-55-5 [approx. >40% olefins]
Naphthenic: Heavy straight run naphtha CASRN 64741-41-9 [approx. 30 % naphthenes]
Aromatic: Full range catalytic reformed naphtha CAS #68955-35-1 [approx. 60% aromatic]
Light catalytic reformed naphtha CAS #64741-63-5 [approx. 33% aromatic]

1.2 Physical-Chemical Properties

The physical-chemical properties of the sponsored substances and supporting chemicals in the Gasoline Blending Streams category are summarized in Table 1. A description of the complex mixtures used to describe this category and the chemical structures of representative compounds and supporting chemicals are provided in the Appendix.

The members of this category are liquids that have moderate to high vapor pressure and low to high water solubility. Each category member is made up of 100–250 individual hydrocarbons that are divided into four major classes of compounds: acyclic alkanes (paraffins); alkenes (olefins); cyclic alkanes (naphthenes); and aromatics. The carbon numbers of the individual components predominantly range from C4 to C12.

Table 1. Physical-Chemical Properties of Gasoline Blending Streams[1]

Property	SPONSORED CHEMICAL Naphtha (petroleum), heavy straight-run[2]	SPONSORED CHEMICAL Naphtha (petroleum), full-range straight-run[3]	SPONSORED CHEMICAL Naphtha (petroleum), light straight-run[2]	SPONSORED CHEMICAL Natural gas condensates (petroleum)[3]	SPONSORED CHEMICAL Natural gas (petroleum), raw liq. mix[3]	SPONSORED CHEMICAL Naphtha (petroleum), heavy catalytic cracked[3]
CASRN	64741-41-9	64741-42-0	64741-46-4	64741-47-5	64741-48-6	64741-54-4
Molecular Weight	Complex mixture					
Physical State	Liquid					
Melting Point	<25°C (liquid)					
Boiling Point	99 to 178°C (measured)	28 to 174°C (measured)[4]	49 to 177°C (measured)	28 to 254°C (measured)[4]	-42 to 126°C (measured)[4]	63 to 161°C (measured)[4]
Vapor Pressure	4.5–64 mm Hg at 25°C (measured)[4]	1.4–689 mm Hg at 25°C (measured)[4]	68–725 mm Hg at 25°C (measured)[4]	0.012–689 mm Hg at 25°C (measured)[4]	14–7,150 mm Hg at 25°C (measured)[4]	3.1–184 mm Hg at 25°C (measured/estimated)[4,5]
Water Solubility	0.22–36 mg/L (measured/estimated)[4,5]	0.52–161 mg/L (measured/estimated)[4,5]	3–2,000 mg/L (measured/estimated)[4,5]	0.0022–57 mg/L (measured)[4]	0.66–62 mg/L (measured)[4]	1.4–161 mg/L (measured/estimated)[4,5]
Dissociation Constant (pK_a)	Not applicable					
Henry's Law Constant	0.39–3.40 atm-m^3/mol (measured/estimated)[4,5]	0.0072–5.15 atm-m^3/mol (measured/estimated)[4,5]	0.43–5.15 atm-m^3/mol (estimated)[5]	0.0062–9.20 atm-m^3/mol (estimated)[5]	0.73–3.21 atm-m^3/mol (estimated)[5]	0.0072–1.31 atm-m^3/mol (estimated)[5]
Log K_{ow}	3.52–5.65 (measured/estimated)[4,5]	2.72–5.01 (measured/estimated)[4,5]	2.72–5.01 (measured/estimated)[4,5]	2.72–7.20 (measured/estimated)[4,5]	2.36–5.18 (measured/estimated)[4,5]	3.20–4.96 (measured/estimated)[4,5]

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.

[2] Data range based upon GC/MS compositional information provided by the submitter as a supplement to the test plan, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[3] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[4] SRC. The Physical Properties Database (PHYSPROP). Syracuse, NY: Syracuse Research Corporation. Available online at http://www.syrres.com/esc/physprop.htm as of October 27, 2010.

[5] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 1. Physical-Chemical Properties of Gasoline Blending Streams[1]						
Property	**SPONSORED CHEMICAL Naphtha (petroleum), light catalytic cracked[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), light catalytic reformed[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range alkylate[3]**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy alkylate[3]**	**SPONSORED CHEMICAL Naphtha (petroleum), light alkylate[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy catalytic reformed[2]**
CASRN	64741-55-5	64741-63-5	64741-64-6	64741-65-7	64741-66-8	64741-68-0
Molecular Weight	Complex mixture					
Physical State	Liquid					
Melting Point	<25°C (liquid)					
Boiling Point	38–182°C (measured)	49–136°C (measured)	90–167°C (measured)[4]	124–189°C (measured)[4]	37–175°C (measured)	31–212°C (measured)
Vapor Pressure	8.29–689 mm Hg at 25°C (measured)[4]	8.29–689 mm Hg at 25°C (measured)[4]	1.89–66 mm Hg at 25°C (measured)[4]	0.60–16.6 mm Hg at 25°C (measured)[4]	0.60–689 mm Hg at 25°C (measured)[4]	2.1–689 mm Hg at 25°C (measured)[4]
Water Solubility	4.6 mg/L (measured, freshwater) 4.3 mg/L (measured, saltwater)	14 mg/L (measured, saltwater)	0.97–2.54 mg/L (measured/estimated)[4,5]	0.32–1.15 mg/L (measured/estimated)[4,5]	1–30 mg/L (measured, freshwater) 0.9–1.6 mg/L (measured, saltwater)	48–526 mg/L (measured)[4]
Dissociation Constant (pK_a)	Not applicable					
Henry's Law Constant	0.00718–1.40 atm-m^3/mol (measured/estimated)[4,5]	0.0066–1.40 atm-m^3/mol (measured/estimated)[4,5]	2.44–5.30 atm-m^3/mol (estimated)[5]	2.44–7.04 atm-m^3/mol (estimated)[5]	1.40–7.04 atm-m^3/mol (measured/estimated)[4,5]	0.0062–1.40 atm-m^3/mol (measured/estimated)[4,5]
Log K_{ow}	2.67–4.11 (measured/estimated)[4,5]	2.13–4.54 (estimated)[5]	3.71–5.18 (estimated)[5]	4.58–5.67 (estimated)[5]	3.11–4.54 (estimated)	2.72–3.63 (measured/estimated)[4,5]

[1]American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.

[2] Data range based upon GC/MS compositional information provided by the submitter as a supplement to the test plan, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[3] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[4] SRC. The Physical Properties Database (PHYSPROP). Syracuse, NY: Syracuse Research Corporation. Available online at http://www.syrres.com/esc/physprop.htm as of October 27, 2010.

[5] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 1. Physical-Chemical Properties of Gasoline Blending Streams[1]						
Property	**SPONSORED CHEMICAL Naphtha (petroleum), light hydrocracked[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), isomerization[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), polymn.[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), light thermal cracked[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy hydrocracked[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy thermal cracked[2]**
CASRN	64741-69-1	64741-70-4	64741-72-6	64741-74-8	64741-78-2	64741-83-9
Molecular Weight	Complex mixture					
Physical State	Liquid					
Melting Point	<25°C (liquid)					
Boiling Point	27.8 to 174°C (measured)[3]	-11.7 to 63°C (measured)[3]	96 to 178°C (measured)	-6.2 to 17.8°C (measured)[3]	68.2 to 189°C (measured)[3]	44 to 179°C (measured)
Vapor Pressure	1.43–689 mm Hg at 25°C (measured)[3]	190–2,610 mm Hg at 25°C (measured)[3]	1.73–17.8 mm Hg at 25°C (measured/estimated)[3,4]	17.8–2,250 mm Hg at 25°C (measured)[3]	0.60–151 mm Hg at 25°C (measured)[3]	3.14–184 mm Hg at 25°C (measured/estimated)[3,4]
Water Solubility	0.52–48 mg/L (measured)[3]	14–49 mg/L (measured)[3]	0.15–9.6 mg/L (estimated)[4]	9.6–221 mg/L (measured/estimated)[3,4]	0.33–14 mg/L (measured/estimated)[3,4]	1.4–161 mg/L (measured/estimated)[3,4]
Dissociation Constant (pK_a)	Not applicable					
Henry's Law Constant	0.43–5.15 atm-m^3/mol (measured/estimated)[3,4]	1.19–1.71 atm-m^3/mol (estimated)[4]	0.81–2.32 atm-m^3/mol (estimated)[4]	0.23–0.88 atm-m^3/mol (measured/estimated)[3,4]	0.43–7.04 atm-m^3/mol (measured/estimated)[3,4]	0.0072–1.31 atm-m^3/mol (measured/estimated)[3,4]
Log K_{ow}	2.72–5.01 (measured/estimated)[3,4]	2.72–3.82 (measured/estimated)[3,4]	4.11–6.01 (estimated)[4]	2.40–4.11 (measured/estimated)[3,4]	3.61–5.67 (measured/estimated)[3,4]	3.20–4.96 (measured/estimated)[3,4]

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.
[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.
[3] SRC. The Physical Properties Database (PHYSPROP). Syracuse, NY: Syracuse Research Corporation. Available online at http://www.syrres.com/esc/physprop.htm as of October 27, 2010.
[4] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 1. Physical-Chemical Properties of Gasoline Blending Streams[1]						
Property	**SPONSORED CHEMICAL Naphtha (petroleum), solvent-refined light[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), sweetened[3]**	**SPONSORED CHEMICAL Naphtha (petroleum), solvent-refined heavy[2]**	**SPONSORED CHEMICAL Extracts (petroleum), light naphtha solvent[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), chem. neutralized heavy[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), chem. neutralized light[2]**
CASRN	64741-84-0	64741-87-3	64741-92-0	64741-99-7	64742-22-9	64742-23-0
Molecular Weight	Complex mixture					
Physical State	Liquid					
Melting Point	<25°C (liquid)					
Boiling Point	27.8–174°C (measured)[4]	17–96°C (measured)	63–107°C (measured)[4]	80–139°C (measured)[4]	63–189°C (measured)[4]	28–174°C (measured)[4]
Vapor Pressure	1.43–48 mm Hg at 25°C (measured)[4]	151–689 mm Hg at 25°C (measured)[4]	1.89–184 mm Hg at 25°C (measured)[4]	8.3–95 mm Hg at 25°C (measured)[4]	0.602–184 mm Hg at 25°C (measured)[4]	1.4–689 mm Hg at 25°C (measured)[4]
Water Solubility	0.052–48 mg/L (measured/estimated)[4,5]	9.5–48 mg/L (measured)[4]	0.97–50 mg/L (measured/estimated)[4,5]	161–1,790 mg/L (measured)[4]	0.33–161 mg/L (measured/estimated)[4,5]	0.52–161 mg/L (measured/estimated)[4,5]
Dissociation Constant (pK_a)	Not applicable					
Henry's Law Constant	0.43–5.15 atm-m^3/mol (measured/estimated)[4,5]	0.41–1.80 atm-m^3/mol (measured/estimated)[4,5]	0.41–5.50 atm-m^3/mol (measured/estimated)[4,5]	0.00555–0.00718 atm-m^3/mol (measured)[4]	0.0072–7.04 atm-m^3/mol (measured/estimated)[4,5]	0.0072–5.15 atm-m^3/mol (measured/estimated)[4,5]
Log K_{ow}	2.72–5.01 (measured/estimated)[4,5]	2.72–3.90 (measured/estimated)[4,5]	3.39–5.18 (measured/estimated)[4,5]	2.13–3.20 (measured)[4]	3.20–5.67 (measured/estimated)[4,5]	2.72–5.01 (measured/estimated)[4,5]

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.

[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[3] Data range based upon GC/MS compositional information provided by the submitter as a supplement to the test plan, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[4] SRC. The Physical Properties Database (PHYSPROP). Syracuse, NY: Syracuse Research Corporation. Available online at http://www.syrres.com/esc/physprop.htm as of October 27, 2010.

[5] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 1. Physical-Chemical Properties of Gasoline Blending Streams [1]

Property	SPONSORED CHEMICAL Naphtha (petroleum), hydrotreated heavy[2]	SPONSORED CHEMICAL Naphtha (petroleum), hydrotreated light[2]	SPONSORED CHEMICAL Naphtha (petroleum), hydrodesulfurized light[2]	SPONSORED CHEMICAL Naphtha (petroleum), hydrodesulfurized heavy[3]	SPONSORED CHEMICAL Solvent naphtha (petroleum), light aliph.[2]	SPONSORED CHEMICAL Solvent naphtha (petroleum), light arom.[2]
CASRN	64742-48-9	64742-49-0	64742-73-0	64742-82-1	64742-89-8	64742-95-6
Molecular Weight	Complex mixture					
Physical State	Liquid					
Melting Point	<25°C (liquid)					
Boiling Point	63–189°C (measured)[4]	28–174°C (measured)[4]	28–174°C (measured)[4]	98.5–151°C (measured)[4]	27.8–174°C (measured)[4]	139–169°C (measured)[4]
Vapor Pressure	0.0602–184 mm Hg at 25°C (measured)[4]	1.4–689 mm Hg at 25°C (measured)[4]	1.4–689 mm Hg at 25°C (measured)[4]	4.5–46 mm Hg at 25°C (measured)[4]	1.43–689 mm Hg at 25°C (measured)[4]	2.1–8.29 mm Hg at 25°C (measured)[4]
Water Solubility	0.33–161 mg/L (measured/estimated)[4,5]	0.52–161 mg/L (measured/estimated)[4,5]	0.52–161 mg/L (measured/estimated)[4,5]	0.2–161 mg/L (measured)[4]	0.052–48 mg/L (measured)[4]	57–161 mg/L (measured)[4]
Dissociation Constant (pK_a)	Not applicable					
Henry's Law Constant	0.0072–7.04 atm-m^3/mol (measured/estimated)[4,5]	0.0072–5.15 atm-m^3/mol (measured/estimated)[4,5]	0.0072–5.15 atm-m^3/mol (measured/estimated)[4,5]	0.0072–3.4 atm-m^3/mol (measured/estimated)[4,5]	0.43–5.15 atm-m^3/mol (measured/estimated)[4,5]	0.0062–0.0072 atm-m^3/mol (measured)[4]
Log K_{ow}	3.20–5.67 (measured/estimated)[4,5]	2.72–5.01 (measured/estimated)[4,5]	2.72–5.01 (measured/estimated)[4,5]	3.20–5.65 (measured)[4]	2.72–5.01 (measured/estimated)[4,5]	3.20–3.63 (measured)[4]

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.

[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[3] Data range based upon GC/MS compositional information provided by the submitter as a supplement to the test plan, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[4] SRC. The Physical Properties Database (PHYSPROP). Syracuse, NY: Syracuse Research Corporation. Available online at http://www.syrres.com/esc/physprop.htm as of October 27, 2010.

[5] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 1. Physical-Chemical Properties of Gasoline Blending Streams [1]						
Property	**SPONSORED CHEMICAL Distillates (petroleum), heavy arom.[2]**	**SPONSORED CHEMICAL Distillates (petroleum), light arom.[2]**	**SPONSORED CHEMICAL Residues (petroleum), light naphtha solvent extracts[2]**	**SPONSORED CHEMICAL Distillates (petroleum), straight-run light[2]**	**SPONSORED CHEMICAL Raffinates (petroleum), catalytic reformer ethylene glycol-water countercurrent exts.[2]**	**SPONSORED CHEMICAL Distillates (petroleum), hydrotreated middle, intermediate boiling[2]**
CASRN	67891-79-6	67891-80-9	68333-29-9	68410-05-9	68410-71-9	68410-96-8
Molecular Weight	Complex mixture					
Physical State	Liquid					
Melting Point	<25°C (liquid)					
Boiling Point	38.5 to 111°C (measured)[3]	38.5 to 111°C (measured)[3]	169 to 178°C (measured)[3]	-42 to 111°C (measured)[3]	68.7 to 124°C (measured)[3]	28 to 174°C (measured)[3]
Vapor Pressure	28.4–468 mm Hg at 25°C (measured)[3]	28.4–468 mm Hg at 25°C (measured)[3]	1.47–2.1 mm Hg at 25°C (measured)[3]	468–7,150 mm Hg at 25°C (measured)[3]	16.6–151 mm Hg at 25°C (measured)[3]	1.4–689 mm Hg at 25°C (measured)[3]
Water Solubility	193–1,790 mg/L (measured)[3]	193–1,790 mg/L (measured)[3]	57–109 mg/L (measured)[3]	62.4–526 mg/L (measured)[3]	1.15–9.5 mg/L (measured)[3]	0.52–161 mg/L (measured/estimated)[3,4]
Dissociation Constant (pK_a)	Not applicable					
Henry's Law Constant	0.0055–0.22 atm-m^3/mol (measured/estimated)[3,4]	0.0055–0.22 atm-m^3/mol (measured/estimated)[3,4]	0.00021–0.0062 atm-m^3/mol (measured/estimated)[3,4]	0.0066–0.73 atm-m^3/mol (measured/estimated)[3,4]	1.80–2.44 atm-m^3/mol (estimated)[4]	0.0072–5.15 atm-m^3/mol (measured/estimated)[3,4]
Log K_{ow}	2.13–2.73 (measured)[3]	2.13–2.73 (measured)[3]	3.18–3.63 (measured)[3]	2.36–2.73 (measured)[3]	3.90–4.58 (measured/estimated)[3,4]	2.72–5.01 (measured/estimated)[3,4]

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.

[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[3] SRC. The Physical Properties Database (PHYSPROP). Syracuse, NY: Syracuse Research Corporation. Available online at http://www.syrres.com/esc/physprop.htm as of October 27, 2010.

[4] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 1. Physical-Chemical Properties of Gasoline Blending Streams [1]

Property	SPONSORED CHEMICAL Distillates (petroleum), light distillate hydrotreating process, low-boiling[2]	SPONSORED CHEMICAL Distillates (petroleum), hydrotreated heavy naphtha, deisohexanizer overheads[2]	SPONSORED CHEMICAL Gasoline, natural gas, natural[2]	SPONSORED CHEMICAL Distillates (petroleum), catalytic reformed depentanizer[2]	SPONSORED CHEMICAL Hydrocarbons, C4-6, C5-rich[2]	SPONSORED CHEMICAL Hydrocarbons, C3 - C11 catalytic cracker distillates[2]
CASRN	68410-97-9	68410-98-0	68425-31-0	68475-79-6	68476-43-7	68476-46-0
Molecular Weight	Complex mixture					
Physical State	Liquid					
Melting Point	<25°C (liquid)					
Boiling Point	68.7 to 169°C (measured)[3]	-42 to 101°C (measured)[3]	27.8 to 139°C (measured)[3]	-42 to 63.4°C (measured)[3]	29.9 to 38.5°C (measured)[3]	-42 to 189°C (measured)[3]
Vapor Pressure	2.1–151 mm Hg at 25°C (measured)[3]	46–7,150 mm Hg at 25°C (measured)[3]	8.29–689 mm Hg at 25°C (measured)[3]	183–7,150 mm Hg at 25°C (measured)[3]	468–635 mm Hg at 25°C (measured)[3]	0.60–7,150 mm Hg at 25°C (measured)[3]
Water Solubility	2.44–57 mg/L (measured)[3]	14–62 mg/L (measured)[3]	14–161 mg/L (measured)[3]	48–62.4 mg/L (measured)[3]	148–193 mg/L (measured)[3]	0.33–526 mg/L (measured/estimated)[3,4]
Dissociation Constant (pK_a)	Not applicable					
Henry's Law Constant	0.0062–3.04 atm-m^3/mol (measured/estimated)[3,4]	0.43–1.40 atm-m^3/mol (measured/estimated)[3,4]	0.0072–1.40 atm-m^3/mol (measured/estimated)[3,4]	0.41–1.40 atm-m^3/mol (estimated)[4]	0.22–0.39 atm-m^3/mol (estimated)[4]	0.0066–7.04 atm-m^3/mol (measured/estimated)[3,4]
Log K_{ow}	3.63–4.09 (measured/estimated)[3,4]	2.36–3.61 (measured/estimated)[3,4]	2.72–3.61 (measured/estimated)[3,4]	2.36–3.39 (measured/estimated)[3,4]	2.66–2.67 (measured/estimated)[3,4]	2.36–5.67 (measured/estimated)[3,4]

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.

[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[3] SRC. The Physical Properties Database (PHYSPROP). Syracuse, NY: Syracuse Research Corporation. Available online at http://www.syrres.com/esc/physprop.htm as of October 27, 2010.

[4] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 1. Physical-Chemical Properties of Gasoline Blending Streams [1]						
Property	**SPONSORED CHEMICAL Hydrocarbons, C5 and higher, C5-6-rich[2]**	**SPONSORED CHEMICAL Hydrocarbons, C5-rich[2]**	**SPONSORED CHEMICAL Hydrocarbons, cyclic C5 and C6[2]**	**SPONSORED CHEMICAL Distillates (petroleum), C3-C5, 2-methyl-2-butene-rich[2]**	**SPONSORED CHEMICAL Extracts (petroleum), reformer recycle[2]**	**SPONSORED CHEMICAL Distillates (petroleum), depentanizer overheads[2]**
CASRN	68476-50-6	68476-55-1	68476-56-2	68477-34-9	68477-63-4	68477-89-4
Molecular Weight	Complex mixture					
Physical State	Liquid					
Melting Point	<25°C (liquid)					
Boiling Point	27.8 to 80°C (measured)[3]	27.8 to 29.9°C (measured)[3]	44.2 to 80.7°C (measured)[3]	38.5°C (measured)[3]	80°C (measured)[3]	-11.7 to 63°C (measured)[3]
Vapor Pressure	95–689 mm Hg at 25°C (measured)[3]	635–689 mm Hg at 25°C (measured)[3]	97–380 mm Hg at 25°C (measured)[3]	468 mm Hg at 25°C (measured)[3]	94.8 mm Hg at 25°C (measured)[3]	184–2,610 mm Hg at 25°C (measured)[3]
Water Solubility	48–1,790 mg/L (measured)[3]	48–148 mg/L (measured)[3]	55–535 mg/L (measured)[3]	193 mg/L (measured)[3]	1,790 mg/L (measured)[3]	48.8–50 mg/L (measured)[3]
Dissociation Constant (pK_a)	Not applicable					
Henry's Law Constant	0.0056–1.40 atm-m^3/mol (measured/estimated)[3,4]	0.40–1.40 atm-m^3/mol (estimated)[4]	0.064–0.15 atm-m^3/mol (measured/estimated)[3,4]	0.0022 atm-m^3/mol (estimated)[4]	0.0056 atm-m^3/mol (measured)[3]	0.41–1.19 atm-m^3/mol (estimated)[4]
Log K_{ow}	2.13–3.39 (measured/estimated)[3,4]	2.66–2.72 (estimated)[4]	2.47–3.44 (measured/estimated)[3,4]	2.67 (measured)[3]	2.13 (measured)[3]	2.76–3.39 (measured)[3]

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.
[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.
[3] SRC. The Physical Properties Database (PHYSPROP). Syracuse, NY: Syracuse Research Corporation. Available online at http://www.syrres.com/esc/physprop.htm as of October 27, 2010.
[4] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 1. Physical-Chemical Properties of Gasoline Blending Streams [1]						
Property	**SPONSORED CHEMICAL Residues (petroleum), butane splitter bottoms[2]**	**SPONSORED CHEMICAL Residues (petroleum), C6-8, catalytic reformer[2]**	**SPONSORED CHEMICAL Residual oils (petroleum), deisobutanizer tower[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range coker[3]**	**SPONSORED CHEMICAL Naphtha (petroleum), light catalytic reformed, arom.-free[2]**	**SPONSORED CHEMICAL Distillates (petroleum), catalytic reformed straight-run naphtha overheads[2]**
CASRN	68478-12-6	68478-15-9	68478-16-0	68513-02-0	68513-03-1	68513-63-3
Molecular Weight	Complex mixture					
Physical State	Liquid					
Melting Point	<25°C (liquid)					
Boiling Point °C	-11.7 to 63°C (measured)[4]	-42 to 63°C (measured)[4]	-0.50 to 63°C (measured)[4]	62 to 189°C (measured)	60 to 123°C (measured)[4]	-42 to 60°C (measured)[4]
Vapor Pressure	184–2,610 mm Hg at 25°C (measured)[34]	184–7,150 mm Hg at 25°C (measured)[4]	184–1,820 mm Hg at 25°C (measured)[4]	1.43–46 mm Hg at 25°C (measured)[4]	17.8–211 mm Hg at 25°C (measured)[4]	211–7,150 mm Hg at 25°C (measured)[4]
Water Solubility	48.8–50 mg/L (measured)[4]	48–62 mg/L (measured)[4]	50–61 mg/L (measured)[4]	0.052–36 mg/L (measured/estimated)[4,5]	9.56–14 mg/L (measured/estimated)[4,5]	14–62 mg/L (measured)[4]
Dissociation Constant (pK_a)	Not applicable					
Henry's Law Constant	0.41–1.19 atm-m^3/mol (estimated)[5]	0.42–1.40 atm-m^3/mol (estimated)[5]	0.41–0.95 atm-m^3/mol (estimated)[5]	0.34–5.15 atm-m^3/mol (measured/estimated)[4,5]	0.88–1.71 atm-m^3/mol (estimated)[5]	0.73–1.71 atm-m^3/mol (estimated)[5]
Log K_{ow}	2.76–3.39 atm-m^3/mol (measured)[4]	2.36–3.39 atm-m^3/mol (measured/estimated)[4,5]	2.89–3.39 atm-m^3/mol (measured)[4]	3.52–5.65 atm-m^3/mol (measured/estimated)[4,5]	3.21–4.11 atm-m^3/mol (estimated)[5]	2.36–3.21 atm-m^3/mol (measured/estimated)[4,5]

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.

[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[3] Data range based upon GC/MS compositional information provided by the submitter as a supplement to the test plan, from which representative structures were derived; see Appendix for detailed information on structures and composition.

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[5] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 1. Physical-Chemical Properties of Gasoline Blending Streams [1]

Property	SPONSORED CHEMICAL Gasoline, vapour-recovery[2]	SPONSORED CHEMICAL Hydrocarbons, C4-10 unsatd.[2]	SPONSORED CHEMICAL Petroleum products, hydrofiner-powerformer reformates[2]	SPONSORED CHEMICAL Alkenes, C6[2]	SPONSORED CHEMICAL Alkenes, C8-10, C9-rich[2]	SPONSORED CHEMICAL Naphtha (petroleum), clay-treated full-range straight-run[2]
CASRN	68514-15-8	68514-38-5	168514-79-4	68526-52-3	68526-55-6	68527-21-9
Molecular Weight	Complex mixture					
Physical State	Liquid					
Melting Point	<25°C (liquid)					
Boiling Point	28–174°C (measured)[3]	38.5–161°C (measured)[3]	28–174°C (measured)[3]	63.4–67.3°C (measured)[3]	144–147°C (measured)[3]	28–174°C (measured)[3]
Vapor Pressure	1.4–689 mm Hg at 25°C (measured)[3]	3.14–468 mm Hg at 25°C (measured/estimated)[3,4]	1.4–689 mm Hg at 25°C (measured)[3]	158–184 mm Hg at 25°C (measured)[3]	5.4–6.5 mm Hg at 25°C (measured/estimated)[3,4]	1.4–689 mm Hg at 25°C (measured)[3]
Water Solubility	0.52–161 mg/L (measured/estimated)[3,4]	1.40–193 mg/L (measured/estimated)[3,4]	0.52–161 mg/L (measured/estimated)[3,4]	50–81 mg/L (measured/estimated)[3,4]	1.12–2.9 mg/L (measured/estimated)[3,4]	0.52–161 mg/L (measured/estimated)[3,4]
Dissociation Constant (pK_a)	Not applicable					
Henry's Law Constant	0.0072–5.15 atm-m^3/mol (measured/estimated)[3,4]	0.0072–1.31 atm-m^3/mol (measured/estimated)[3,4]	0.0072–5.15 atm-m^3/mol (measured/estimated)[3,4]	0.41–0.50 atm-m^3/mol (estimated)[4]	0.80–0.99 atm-m^3/mol (estimated)[4]	0.0072–5.15 atm-m^3/mol (measured/estimated)[3,4]
Log K_{ow}	2.72–5.01 (measured/estimated)[3,4]	2.67–4.96 (measured/estimated)[3,4]	2.72–5.01 (measured/estimated)[3,4]	3.13–3.39 (measured/estimated)[3,4]	4.68–5.15 (measured/estimated)[3,4]	2.72–5.01 (measured/estimated)[3,4]

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.

[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.

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[4] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 1. Physical-Chemical Properties of Gasoline Blending Streams [1]						
Property	**SPONSORED CHEMICAL Naphtha (petroleum), light steam-cracked, debenzenized[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range alkylate, butane-contg.[2]**	**SPONSORED CHEMICAL Distillates, (petroleum), benzene unit hydrotreater depentanizer overheads[2]**	**SPONSORED CHEMICAL Distillates (petroleum), thermal cracked naphtha and gas oil, C5-dimer-contg.[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), arom.-contg[2]**	**SPONSORED CHEMICAL Gasoline, straight-run, topping-plant[2]**
CASRN	68527-26-4	68527-27-5	68602-79-9	68603-01-0	68603-08-7	68606-11-1
Molecular Weight	Complex mixture					
Physical State	Liquid					
Melting Point	<25°C (liquid)					
Boiling Point	28 to 174°C (measured)[3]	-11.7 to 189°C (measured)[3]	28 to 174°C (measured)[3]	29.9 to 163°C (measured)[3]	80 to 169°C (measured)[3]	28 to 174°C (measured)[3]
Vapor Pressure	1.4–689 mm Hg at 25°C (measured)[3]	0.60–2610 mm Hg at 25°C (measured)[3]	1.4–689 mm Hg at 25°C (measured)[3]	2.87–635 mm Hg at 25°C (measured/estimated)[3,4]	2.1–94.8 mm Hg at 25°C (measured)[3]	1.4–689 mm Hg at 25°C (measured)[3]
Water Solubility	0.52–161 mg/L (measured/estimated)[3,4]	0.33–48.8 mg/L (measured/estimated)[3,4]	0.52–161 mg/L (measured/estimated)[3,4]	1.25–148 mg/L (measured/estimated)[3,4]	57–1,790 mg/L (measured)[3]	0.52–161 mg/L (measured/estimated)[3,4]
Dissociation Constant (pK_a)	Not applicable					
Henry's Law Constant	0.0072–5.15 atm-m^3/mol (measured/estimated)[3,4]	1.19–7.04 atm-m^3/mol (estimated)[4]	0.0072–5.15 atm-m^3/mol (measured/estimated)[3,4]	0.40–1.55 atm-m^3/mol (estimated)[4]	0.0056–0.0072 atm-m^3/mol (measured)[3]	0.0072–5.15 atm-m^3/mol (measured/estimated)[3,4]
Log K_{ow}	2.72–5.01 (measured/estimated)[3,4]	2.76–5.67 (measured/estimated)[3,4]	2.72–5.01 (measured/estimated)[3,4]	2.66–5.02 (estimated)[4]	2.13–3.63 (measured)[3]	2.72–5.01 (measured/estimated)[3,4]

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.

[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[3] SRC. The Physical Properties Database (PHYSPROP). Syracuse, NY: Syracuse Research Corporation. Available online at http://www.syrres.com/esc/physprop.htm as of October 27, 2010.

[4] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 1. Physical-Chemical Properties of Gasoline Blending Streams [1]						
Property	**SPONSORED CHEMICAL Naphtha (petroleum), light polymn.[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), unsweetened[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), light, sweetened[2]**	**SPONSORED CHEMICAL Hydrocarbons, C6-12, benzene-recovery[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range reformed[2]**	**SPONSORED CHEMICAL Natural gas condensate[2]**
CASRN	68783-11-9	68783-12-0	68783-66-4	68919-15-3	68919-37-9	68919-39-1
Molecular Weight	Complex mixture					
Physical State	Liquid					
Melting Point	<25°C (liquid)					
Boiling Point	67 to 123°C (measured/estimated)[3,4]	28 to 174°C (measured)[3]	-42 to 63°C (measured)[3]	63.4 to 189°C (measured)[3]	67 to 123°C (measured/estimated)[3,4]	-42 to 139°C (measured)[3]
Vapor Pressure	18–158 mm Hg at 25°C (measured/estimated)[3,4]	1.4–689 mm Hg at 25°C (measured)[3]	184–7,150 mm Hg at 25°C (measured)[3]	0.60–184 mm Hg at 25°C (measured)[3]	18–158 mm Hg at 25°C (measured/estimated)[3,4]	8.29–7,150 mm Hg at 25°C (measured)[3]
Water Solubility	3.4–81 mg/L (estimated)[4]	0.52–161 mg/L (measured/estimated)[3,4]	48–62 mg/L (measured)[3]	0.33–1,790 mg/L (measured/estimated)[3,4]	3.4–81 mg/L (estimated)[4]	62–193 mg/L (measured)[3]
Dissociation Constant (pK_a)	Not applicable					
Henry's Law Constant	0.50–0.99 atm-m^3/mol (estimated)[4]	0.0072–5.15 atm-m^3/mol (measured/estimated)[3,4]	0.42–1.40 atm-m^3/mol (estimated)[4]	0.0056–7.04 atm-m^3/mol (measured/estimated)[3,4]	0.50–0.99 atm-m^3/mol (estimated)[4]	0.0072–0.73 atm-m^3/mol (measured/estimated)[3,4]
Log K_{ow}	3.13–4.61 (estimated)[4]	2.72–5.01 (measured/estimated)[3,4]	2.36–3.39 (measured/estimated)[3,4]	2.13–5.67 (measured/estimated)[3,4]	3.13–4.61 (estimated)[4]	2.36–3.20 (measured)[3]

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.

[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[3] SRC. The Physical Properties Database (PHYSPROP). Syracuse, NY: Syracuse Research Corporation. Available online at http://www.syrres.com/esc/physprop.htm as of October 27, 2010.

[4] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 1. Physical-Chemical Properties of Gasoline Blending Streams [1]						
Property	**SPONSORED CHEMICAL Hydrocarbons, C7-9[2]**	**SPONSORED CHEMICAL Distillates (petroleum), light straight-run gasoline fractionation stabilizer overheads[2]**	**SPONSORED CHEMICAL Distillates (petroleum), naphtha unifiner stripper[2]**	**SPONSORED CHEMICAL Distillates (petroleum), light thermal cracked, debutanized arom.[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), catalytic reformed[3]**	**SPONSORED CHEMICAL Alkanes, C4-6[2]**
CASRN	68920-06-9	68921-08-4	68921-09-5	68955-29-3	68955-35-1	70955-08-7
Molecular Weight	Complex mixture					
Physical State	Liquid					
Melting Point	<25°C (liquid)					
Boiling Point	110 to 144°C (measured)[4]	-42 to 101°C (measured)[4]	-42 to 101°C (measured)[4]	102°C (measured)[4]	58 to 200°C (measured)	-11.7 to 68.7°C (measured)[4]
Vapor Pressure	6.5–28.4 mm Hg at 25°C (measured/estimated)[4,5]	46–7,150 mm Hg at 25°C (measured)[4]	46–7,150 mm Hg at 25°C (measured)[4]	94.8 mm Hg at 25°C (measured)[4]	2.1–689 mm Hg at 25°C (measured)[4]	151–2,610 mm Hg at 25°C (measured)[4]
Water Solubility	0.66–526 mg/L (measured/estimated)[4,5]	14–62 mg/L (measured)[4]	14–62 mg/L (measured)[4]	1,790 mg/L (measured)[4]	3–2,000 mg/L (measured)	9.5–48.8 mg/L (measured)[4]
Dissociation Constant (pK_a)	Not applicable					

Table 1. Physical-Chemical Properties of Gasoline Blending Streams [1]

Property	SPONSORED CHEMICAL Hydrocarbons, C7-9[2]	SPONSORED CHEMICAL Distillates (petroleum), light straight-run gasoline fractionation stabilizer overheads[2]	SPONSORED CHEMICAL Distillates (petroleum), naphtha unifiner stripper[2]	SPONSORED CHEMICAL Distillates (petroleum), light thermal cracked, debutanized arom.[2]	SPONSORED CHEMICAL Naphtha (petroleum), catalytic reformed[3]	SPONSORED CHEMICAL Alkanes, C4-6[2]
Henry's Law Constant	0.0066–3.21 atm-m^3/mol (measured/estimated)[4,5]	0.43–1.40 atm-m^3/mol (measured/estimated)[4,5]	0.43–1.40 atm-m^3/mol (measured/estimated)[4,5]	0.0056 atm-m^3/mol (measured)[4]	0.0062–3.43 atm-m^3/mol (measured/estimated)[4,5]	1.19–1.80 atm-m^3/mol (estimated)[5]
Log K_{ow}	2.73–5.18 (measured/estimated)[4,5]	2.36–3.61 (measured/estimated)[4,5]	2.36–3.61 (measured/estimated)[4,5]	2.13 (measured)[4]	2.72–3.71 (measured/estimated)[4,5]	2.72–3.90 (measured/estimated)[4,5]

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.

[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[3] Data range based upon GC/MS compositional information provided by the submitter as a supplement to the test plan, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[4] SRC. The Physical Properties Database (PHYSPROP). Syracuse, NY: Syracuse Research Corporation. Available online at http://www.syrres.com/esc/physprop.htm as of October 27, 2010.

[5] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 1. Physical-Chemical Properties of Gasoline Blending Streams [1]				
Property	**SPONSORED CHEMICAL Gasoline, natural[2]**	**SPONSORED CHEMICAL Naphtha[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), isomerization, C6-fraction[2]**	**SUPPORTING CHEMICAL Light naphtha n-hexane rich [2]**
CASRN	8006-61-9	8030-30-6	92045-58-4	–
Molecular Weight	Complex mixture			
Physical State	Liquid			
Melting Point	<25°C (liquid)			
Boiling Point	-11.7 to 126°C (measured)[4]	27.8 to 80°C (measured)[4]	60 to 69°C (measured)[4]	69°C (measured)[4]
Vapor Pressure	14–2610 mm Hg at 25°C (measured)[4]	95–689 mm Hg at 25°C (measured)[4]	151–211 mm Hg at 25°C (measured)[4]	151 mm Hg at 25°C (measured)[4]
Water Solubility	0.66–49 mg/L (measured)[4]	48–1790 mg/L (measured)[4]	9.5–14 mg/L (measured)[4]	9.5 mg/L (measured)[4]
Dissociation Constant (pK_a)	Not applicable			
Henry's Law Constant	0.43–3.21 atm-m^3/mol (measured/estimated)[4,5]	0.0056–1.40 atm-m^3/mol (measured/estimated)[4,5]	1.71–1.80 atm-m^3/mol (estimated)[5]	1.80 atm-m^3/mol (estimated)[5]
Log K_{ow}	2.76–5.18 (measured)[4]	2.13–3.39 (measured/estimated)[4,5]	3.21–3.90 (measured/estimated)[4,5]	3.90 (measured)[4]

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.
[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.
[3] Data range based upon GC/MS compositional information provided by the submitter as a supplement to the test plan, from which representative structures were derived; see Appendix for detailed information on structures and composition.
[4] SRC. The Physical Properties Database (PHYSPROP). Syracuse, NY: Syracuse Research Corporation. Available online at http://www.syrres.com/esc/physprop.htm as of October 27, 2010.
[5] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 1. Physical-Chemical Properties of Gasoline Blending Streams [1]				
Property	**SUPPORTING CHEMICAL Gasoline** [3]	**SUPPORTING CHEMICAL Unleaded gasoline** [3]	**SUPPORTING CHEMICAL Unleaded gasoline blend** [3]	**SUPPORTING CHEMICAL Leaded gasoline** [3]
CASRN	86290-81-5	–	–	–
Molecular Weight	Complex mixture			
Physical State	Liquid			
Melting Point	<25°C (liquid)			
Boiling Point	37–217 (measured)	37–217 (measured)	37–217 (measured)	37–217 (measured)
Vapor Pressure	0.62–689 (measured)[4]	0.62–689 (measured)[4]	0.62–689 (measured)[4]	0.62–689 (measured)[4]
Water Solubility	0.33–161 (measured)[4]	0.33–161 (measured)[4]	0.33–161 (measured)[4]	0.33–161 (measured)[4]
Dissociation Constant (pK_a)	Not applicable			
Henry's Law Constant	0.0062–7.04 (measured/estimated)[4,5]	0.0062–7.04 (measured/estimated)[4,5]	0.0062–7.04 (measured/estimated)[4,5]	0.0062–7.04 (measured/estimated)[4,5]
Log K_{ow}	2.72–5.67 (measured/estimated)[4,5]	2.72–5.67 (measured/estimated)[4,5]	2.72–5.67 (measured/estimated)[4,5]	2.72–5.67 (measured/estimated)[4,5]

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.
[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.
[3] Data range based upon GC/MS compositional information provided by the submitter as a supplement to the test plan, from which representative structures were derived; see Appendix for detailed information on structures and composition.
[4] SRC. The Physical Properties Database (PHYSPROP). Syracuse, NY: Syracuse Research Corporation. Available online at http://www.syrres.com/esc/physprop.htm as of October 27, 2010.
[5] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

2. General Information on Exposure

2.1 Production Volume and Use Pattern

The C Gasoline Blending Streams category chemicals had an aggregated production and/or import volume in the United States greater than 61 billion 660 million pounds in calendar year 2005.

- CASRN 64741-41-9: 1 billion pounds and greater;
- CASRN 64741-42-0: 1 billion pounds and greater;
- CASRN 64741-46-4: 1 billion pounds and greater;
- CASRN 64741-47-5: 1 billion pounds and greater;
- CASRN 64741-48-6: 1 billion pounds and greater;
- CASRN 64741-54-4: 1 billion pounds and greater;
- CASRN 64741-55-5: 1 billion pounds and greater;
- CASRN 64741-63-5: 1 billion pounds and greater;
- CASRN 64741-64-6: 1 billion pounds and greater;
- CASRN 64741-65-7: 500 million to <1 billion pounds;
- CASRN 64741-66-8: 1 billion pounds and greater;
- CASRN 64741-68-0: 1 billion pounds and greater;
- CASRN 64741-69-1: 1 billion pounds and greater;
- CASRN 64741-70-4: 1 billion pounds and greater;
- CASRN 64741-72-6: 500 million to <1 billion pounds;
- CASRN 64741-74-8: 1 billion pounds and greater;
- CASRN 64741-78-2: 1 billion pounds and greater;
- CASRN 64741-83-9: 1 billion pounds and greater;
- CASRN 64741-84-0: 1 billion pounds and greater;
- CASRN 64741-87-3: 1 billion pounds and greater;
- CASRN 64741-92-0: 1 billion pounds and greater;
- CASRN 64741-99-7: 1 billion pounds and greater;
- CASRN 64742-22-9: 1 billion pounds and greater;
- CASRN 64742-23-0: 1 billion pounds and greater;
- CASRN 64742-48-9: 1 billion pounds and greater;
- CASRN 64742-49-0: 1 billion pounds and greater;
- CASRN 64742-73-0: 1 billion pounds and greater;
- CASRN 64742-82-1: 1 billion pounds and greater;
- CASRN 64742-89-8: 500 million to <1 billion pounds;
- CASRN 64742-95-6: 1 billion pounds and greater;
- CASRN 67891-79-6: 100 to <500 million pounds;
- CASRN 67891-80-9: 1 billion pounds and greater;
- CASRN 68333-29-9: 100 to <500 million pounds;
- CASRN 68410-05-9: 1 billion pounds and greater;
- CASRN 68410-71-9: 1 billion pounds and greater;

- CASRN 68410-96-8: 1 billion pounds and greater;
- CASRN 68410-97-9: 1 billion pounds and greater;
- CASRN 68410-98-0: 1 billion pounds and greater;
- CASRN 68425-31-0: 1 billion pounds and greater;
- CASRN 68475-79-6: 500 million to <1 billion pounds;
- CASRN 68476-43-7: 1 billion pounds and greater;
- CASRN 68476-46-0: 1 billion pounds and greater;
- CASRN 68476-50-6: 1 billion pounds and greater;
- CASRN 68476-55-1: 1 billion pounds and greater;
- CASRN 68476-56-2: 1 billion pounds and greater;
- CASRN 68477-89-4: 1 billion pounds and greater;
- CASRN 68478-12-6: 1 billion pounds and greater;
- CASRN 68513-02-0: 1 billion pounds and greater;
- CASRN 68513-63-3: 500 million to <1 billion pounds;
- CASRN 68514-15-8: 1 billion pounds and greater;
- CASRN 68514-79-4: 1 billion pounds and greater;
- CASRN 68526-52-3: 10 to <50 million pounds;
- CASRN 68526-55-6: 500 million to <1 billion pounds;
- CASRN 68527-26-4: 50 million to 100 million pounds;
- CASRN 68527-27-5: 1 billion pounds and greater;
- CASRN 68603-01-0: 1 billion pounds and greater;
- CASRN 68603-08-7: 1 billion pounds and greater;
- CASRN 68606-11-1: 1 billion pounds and greater;
- CASRN 68783-11-9: 1 billion pounds and greater;
- CASRN 68783-12-0: 1 billion pounds and greater;
- CASRN 68783-66-4: 1 billion pounds and greater;
- CASRN 68919-15-3: 1 billion pounds and greater;
- CASRN 68919-37-9: 1 billion pounds and greater;
- CASRN 68920-06-9: 1 billion pounds and greater;
- CASRN 68921-08-4: 100 to <500 million pounds;
- CASRN 68921-09-5: 100 to <500 million pounds;
- CASRN 68955-29-3: 100 to <500 million pounds;
- CASRN 68955-35-1: 1 billion pounds and greater;
- CASRN 70955-08-7: 1 billion pounds and greater;
- CASRN 8006-61-9: 1 billion pounds and greater;
- CASRN 8030-30-6: 1 billion pounds and greater;
- CASRN 92045-58-4: 100 to <500 million pounds;

CASRN 68477-34-9, 68477-63-4, 68478-15-9, 68478-16-0, 68513-03-1, 68514-38-5, 68527-21-9, 68602-79-9 and 38919-39-1 were not reported in the 2006 IUR.

CASRN 64741-41-9, 64741-42-0, 64741-46-4, 64741-63-5, 64741-64-6, 64741-65-7, 64741-66-8, 64741-68-0, 64741-69-1, 64741-70-4, 64741-74-8, 64741-78-2, 64741-83-9, 64741-

84-0, 64741-87-3, 64741-92-0, 64741-99-7, 64742-22-9, 64742-23-0, 64742-73-0, 64742-82-1, 64742-89-8, 67891-79-6, 67891-80-9, 68333-29-9, 68410-05-9, 68410-71-9, 68410-96-8, 68410-97-9, 68410-98-0, 68475-79-6, 68476-43-7, 68476-46-0, 68476-50-6, 68476-55-1, 68476-56-2, 68477-89-4, 68478-12-6, 68513-02-0, 68513-63-3, 68514-15-8, 68526-52-3, 68527-26-4, 68603-01-0, 68603-08-7, 68606-11-1, 68783-12-0, 68919-15-3, 68919-37-9, 68920-06-9, 68921-08-4, 68921-09-5, 68955-35-1, 70955-08-7, 8030-30-6, and 92045-58-4:
No industrial processing and uses, and commercial and consumer uses were reported for these chemicals.

CASRN 64741-47-5:
Non-confidential information in the IUR indicated that the industrial processing and uses for the chemical include natural gas distribution as fuel. Non-confidential commercial and consumer uses of this chemical include "other."

CASRN 64741-48-6:
Non-confidential information in the IUR indicated that the industrial processing and uses for the chemical include oil and gas extraction, and natural gas distribution as fuel. Non-confidential commercial and consumer uses of this chemical include "other."

CASRN 64741-54-4:
Non-confidential information in the IUR indicated that the industrial processing and uses for the chemical include petroleum bulk stations and terminals, and petroleum refineries as fuel. Non-confidential commercial and consumer uses of this chemical include "other."

CASRN 64741-55-5, 64742-48-9, 64742-49-0 and 68514-79-4: 68527-27-5: 68783-11-9:
Non-confidential information in the IUR indicated that the industrial processing and uses for the chemicals include petroleum refineries as fuel. Non-confidential commercial and consumer uses of these chemicals include "other."

CASRN 64741-72-6:
Non-confidential information in the IUR indicated that the industrial processing and uses for the chemical include petroleum refineries as intermediates. Non-confidential commercial and consumer uses of this chemical include "other."

CASRN 64742-95-6:
Industrial processing and uses, and commercial and consumer uses are claimed confidential.

CASRN 68425-31-0:
Non-confidential information in the IUR indicated that the industrial processing and uses for the chemical include petroleum refineries as intermediates. Non-confidential commercial and consumer uses of this chemical include transportation products.

CASRN 68526-55-6:
Non-confidential information in the IUR indicated that the industrial processing and uses for the chemical include other basic organic chemical manufacturing as "other." Commercial and consumer uses are claimed confidential.

CASRN 68783-66-4:
Industrial processing and uses are claimed confidential. No commercial and consumer uses were reported for this chemical.

CASRN 68955-29-3:
Non-confidential information in the IUR indicated that the industrial processing and uses for the chemicals include petrochemical manufacturing and resin and synthetic rubber manufacturing as "other." Non-confidential commercial and consumer uses of these chemicals include not readily obtainable (NRO).

CASRN 8006-61-9:
Non-confidential information in the IUR indicated that the industrial processing and uses for the chemical include oil and gas extraction, petroleum bulk stations and terminals, petroleum refineries as fuels; and petrochemical manufacturing as "other." Non-confidential commercial and consumer uses of this chemical include transportation products.

2.2 Environmental Exposure and Fate

The environmental fate properties are provided in Table 2. The representative hydrocarbon components present in gasoline blending streams members and supporting chemicals are expected to have moderate to high mobility in soil. Biodegradation test results on several category members were provided, as well as tests on the supporting substance gasoline. For naphtha (petroleum), heavy straight-run [CASRN 64741-41-9] which contains mostly alkanes and cycloalkanes, 77% degradation was achieved in a manometric respirometry test (OECD 301F) over 28 days. For naphtha (petroleum), light catalytic cracked [CASRN 64741-55-5] which contains a wide range of all four hydrocarbon classes, 74% degradation over 28 days was observed in an inherent test (CONCAWE 1996/1997 aerobic test guideline) by CO_2 evolution, using mixed soil/sewage sludge inocula and a two-week acclimation period. Naphtha (petroleum), light catalytic reformed [CASRN 64741-63-5], containing mainly alkanes and aromatics, demonstrated 96% degradation over 28 days in the same CONCAWE test. Naphtha (petroleum), light alkylate [CASRN 64741-66-8], which consists mostly of saturated branched alkanes, showed only 41% degradation in the inherent CONCAWE test. Finally, for the supporting substance gasoline, which contains all four classes of hydrocarbons, 62% degradation over 25 days was observed in a nonstandard ready test using activated sludge; 74% of hydrocarbons underwent primary transformation in two days in this test. In a nonstandard aerobic test utilizing retention pond water inoculum, 94% primary degradation was observed for unleaded gasoline. Degradation of longer chain n-alkanes, iso-alkanes and aromatics occurred first, followed by smaller chain n-alkanes, iso-alkanes and cycloalkanes. Overall the data support a conclusion that chemicals in this category are inherently biodegradable. Volatilization is

expected to be moderate to high based on the Henry's Law constants for the sponsored and supporting substances. The rate of hydrolysis is expected to be negligible since the substances in this category lack water-sensitive functional groups. The overall weight of experimental evidence and reading across from structurally similar compounds suggest that most of the hydrocarbon components of the category members are expected to have low persistence (P1). The members of the gasoline blending streams category are expected to have low (B1) to high (B3) bioaccumulation potential.

Conclusion: The Gasoline Blending Streams Category comprises 81 hydrocarbon stream members and five supporting chemicals. The component streams that comprise this category are complex mixtures containing primarily C3 to C12 aliphatic and aromatic hydrocarbons; all these streams are blended to make various grades of gasoline. The members of this category are liquids possessing moderate to high vapor pressure and low to high water solubility. The category members are expected to possess moderate to high mobility in soil. Volatilization is expected to be moderate to high. The rate of hydrolysis is negligible. In general, chemicals in this category are inherently biodegradable. The rate of atmospheric photooxidation is negligible to rapid. The members of the Gasoline Blending Streams category are expected to possess low persistence (P1) and low to high bioaccumulation potential (B1-B3).

Table 2. Environmental Fate Characteristics of Gasoline Blending Streams [1]						
Property	**SPONSORED CHEMICAL Naphtha (petroleum), heavy straight-run[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range straight-run[3]**	**SPONSORED CHEMICAL Naphtha (petroleum), light straight-run[2]**	**SPONSORED CHEMICAL Natural gas condensates (petroleum)[3]**	**SPONSORED CHEMICAL Natural gas (petroleum), raw liq. mix[3]**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy catalytic cracked[3]**
CASRN	64741-41-9	64741-42-0	64741-46-4	64741-47-5	64741-48-6	64741-54-4
Photodegradation Half-life	12–19 hours (estimated)[4]	1.4–31 hours (estimated)[4]	1.4–32 hours (estimated)[4]	1.4–32 hours (estimated)[4]	15–101 hours (estimated)[4]	1.4–9.5 hours (estimated)[4]
Hydrolysis Half-life	Stable					
Biodegradation	77% in 28 days (readily biodegradable) 301F	No data	No data	No data	No data	No data
Bioaccumulation Factor	210–7,600 (estimated)[4]	44–940 (estimated)[4]	44–940 (estimated)[4]	43–511,000 (estimated)[4]	21–1,160 (estimated)[4]	119–1,180 (estimated)[4]
Log K_{oc}	2.32–2.90 (estimated)[4]	1.78–3.16 (estimated)[4]	1.73–3.16 (estimated)[4]	1.78–4.20 (estimated)[4]	1.37–2.64 (estimated)[4]	2.20–3.09 (estimated)[4]
Fugacity (Level III Model)[4]						
Air (%)	25–35	0.95–39	0.95–39	0.95–39	32–50	0.95–9.9
Water (%)	63–72	41–95	60–95	32–95	49–66	41–95
Soil (%)	1.2–2.1	0.75–52	0.75–2.3	0.75–64	0.61–1.3	2.3–52
Sediment (%)	0.55–1.37	0.26–2.3	0.26–2.3	0.26–11	0.13–0.87	0.52–3.8
Persistence	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)
Bioaccumulation	B1 (low) to B3 (high)	B1 (low)	B1 (low)	B1 (low) to B3 (high)	B1 (low) to B2 (moderate)	B1 (low) to B2 (moderate)

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.

[2] Data range based upon GC/MS compositional information provided by the submitter as a supplement to the test plan, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[3] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[4] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 2. Environmental Fate Characteristics of Gasoline Blending Streams [1]						
Property	**SPONSORED CHEMICAL Naphtha (petroleum), light catalytic cracked[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), light catalytic reformed[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range alkylate[3]**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy alkylate[3]**	**SPONSORED CHEMICAL Naphtha (petroleum), light alkylate[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy catalytic reformed[2]**
CASRN	64741-55-5	64741-63-5	64741-64-6	64741-65-7	64741-66-8	64741-68-0
Photodegradation Half-life	1.4–32 hours (estimated)[4]	9–32 hours (estimated)[4]	11–21 hours (estimated)[4]	10–21 hours (estimated)[4]	10–32 hours (estimated)[4]	8–32 hours (estimated)[4]
Hydrolysis Half-life	Stable					
Biodegradation	74% in 28 days (inherently biodegradable)[5]	96% in 28 days (inherently biodegradable)[5]	No data	No data	42% in 28 days (inherently biodegradable)[5]	No data
Bioaccumulation Factor	44–577(estimated)[4]	38–119 (estimated)[4]	234–1,020 (estimated)[4]	497–522 (estimated)[4]	44–722 (estimated)[4]	38–142 (estimated)[4]
Log K_{oc}	1.78–2.57 (estimated)[4]	1.78–2.57 (estimated)[4]	2.30–3.09 (estimated)[4]	2.64–3.35 (estimated)[4]	1.78–3.35 (estimated)[4]	1.78–2.79 (estimated)[4]
Fugacity (Level III Model)[4]						
Air (%)	0.95–39	6.5–39	24–36	22–29	22–39	3.2–39
Water (%)	41–97	41–65	63–72	69–72	60–72	32–60
Soil (%)	0.75–52	0.75–52	0.91–1.3	0.91–1.49	0.75–1.49	0.75–64
Sediment (%)	0.26–1.5	0.26–0.63	0.49–3.0	1.7–5.1	0.26–5.1	0.26–1.08
Persistence	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)
Bioaccumulation	B1 (low)	B1 (low)	B1 (low) to B2 (moderate)	B1 (low)	B1 (low)	B1 (low)

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.
[2] Data range based upon GC/MS compositional information provided by the submitter as a supplement to the test plan, from which representative structures were derived; see Appendix for detailed information on structures and composition.
[3] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.
[4] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.
[5] Measured in the 1996/1997 standard aerobic test guideline developed by the Conservation of Clean Air and Water in Europe (CONCAWE) group.

Table 2. Environmental Fate Characteristics of Gasoline Blending Streams [1]						
Property	**SPONSORED CHEMICAL Naphtha (petroleum), light hydrocracked[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), isomerization[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), polymn.[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), light thermal cracked[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy hydrocracked[2]**	**SPONSORED CHEMICAL 'Naphtha (petroleum), heavy thermal cracked[2]**
CASRN	64741-69-1	64741-70-4	64741-72-6	64741-74-8	64741-78-2	64741-83-9
Photodegradation Half-life	12–32 hours (estimated)[3]	22–71 hours (estimated)[3]	1.4–2.0 hours (estimated)[3]	1.4–4.7 hours (estimated)[3]	10–23 hours (estimated)[3]	1.4–9.5 hours (estimated)[3]
Hydrolysis Half-life	Stable					
Biodegradation	No data	No data	No data	No data	No data	No data
Bioaccumulation Factor	44–939 (estimated)[3]	44–310 (estimated)[3]	580–4,750 (estimated)[3]	23–560 (estimated)[3]	307–500 (estimated)[3]	119–1,180 (estimated)[3]
Log K_{oc}	1.78–3.16 (estimated)[3]	1.50–2.06 (estimated)[3]	2.57–3.50 (estimated)[3]	1.60–2.57 (estimated)[3]	2.11–3.35 (estimated)[3]	2.11–3.09 (estimated)[3]
Fugacity (Level III Model)[3]						
Air (%)	25–39	34–45	0.95–5.1	0.95–11	22–38	0.95–10
Water (%)	60–72	54–65	83–95	86–95	60–72	41–95
Soil (%)	0.75–2.1	0.66–0.86	2.3–4.4	2.0–2.3	1.0–2.1	2.3–52
Sediment (%)	0.26–2.3	0.17–0.42	1.5–7.8	0.27–1.5	0.36–5.1	0.52–3.8
Persistence	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)
Bioaccumulation	B1 (low)	B1 (low)	B1 (low) to B2 (moderate)	B1 (low)	B1 (low)	B1 (low) to B2 (moderate)

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.
[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.
[3] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 2. Environmental Fate Characteristics of Gasoline Blending Streams [1]						
Property	**SPONSORED CHEMICAL Naphtha (petroleum), solvent-refined light[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), sweetened[3]**	**SPONSORED CHEMICAL Naphtha (petroleum), solvent-refined heavy[2]**	**SPONSORED CHEMICAL Extracts (petroleum), light naphtha solvent[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), chem. neutralized heavy[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), chem. neutralized light[2]**
CASRN	64741-84-0	64741-87-3	64741-92-0	64741-99-7	64742-22-9	64742-23-0
Photodegradation Half-life	1.4–32 hours (estimated)[4]	4.2–32 hours (estimated)[4]	4.3–13 hours (estimated)[4]	9.5–66 hours (estimated)[4]	4.2–13 hours (estimated)[4]	1.4–31 hours (estimated)[4]
Hydrolysis Half-life	Stable					
Biodegradation	No data	No data	No data	No data	No data	No data
Bioaccumulation Factor	44–540 (estimated)[4]	44–307 (estimated)[4]	151–1,020 (estimated)[4]	15–119 (estimated)[4]	119–497 (estimated)[4]	44–940 (estimated)[4]
Log K_{oc}	1.78–3.16 (estimated)[4]	1.78–2.12 (estimated)[4]	2.11–3.09 (estimated)[4]	2.16–2.57 (estimated)[4]	2.17–3.35 (estimated)[4]	1.78–3.16 (estimated)[4]
Fugacity (Level III Model)[4]						
Air (%)	0.95–39	10–43	9.9–25	6.5–32	6.5–25	0.95–39
Water (%)	60–-95	56–87	72–87	40.6–41.1	40–87	41–95
Soil (%)	0.75–2.3	0.75–2.4	1.3–2.1	27–52	1.5–52	0.75–52
Sediment (%)	0.26–2.3	0.23–0.52	0.52–3.0	0.37–0.63	0.52–5.1	0.26–2.3
Persistence	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)
Bioaccumulation	B1 (low)	B1 (low)	B1 (low) to B2 (moderate)	B1 (low)	B1 (low)	B1 (low)

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.
[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.
[3] Data range based upon GC/MS compositional information provided by the submitter as a supplement to the test plan, from which representative structures were derived; see Appendix for detailed information on structures and composition.
[4] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 2. Environmental Fate Characteristics of Gasoline Blending Streams [1]						
Property	**SPONSORED CHEMICAL Naphtha (petroleum), hydrotreated heavy[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), hydrotreated light[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), hydrodesulfurized light[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), hydrodesulfurized heavy[3]**	**SPONSORED CHEMICAL Solvent naphtha (petroleum), light aliph.[2]**	**SPONSORED CHEMICAL Solvent naphtha (petroleum), light arom.[2]**
CASRN	64742-48-9	64742-49-0	64742-73-0	64742-82-1	64742-89-8	64742-95-6
Photodegradation Half-life	4.2–13 hours (estimated)[4]	1.4–31 hours (estimated)[4]	1.4–31 hours (estimated)[4]	9.5–19 hours (estimated)[4]	12–32 hours (estimated)[4]	7.7–9.5 hours (estimated)[4]
Hydrolysis Half-life	Stable					
Biodegradation	No data	No data	No data	No data	No data	No data
Bioaccumulation Factor	119–497 (estimated)[4]	44–940 (estimated)[4]	44–940 (estimated)[4]	119–7,600 (estimated)[4]	44–940 (estimated)[4]	119–142 (estimated)[4]
Log K_{oc}	2.12–3.35 (estimated)[4]	1.78–3.16 (estimated)[4]	1.78–3.16 (estimated)[4]	2.40–2.90 (estimated)[4]	1.78–3.16 (estimated)[4]	2.57–2.79 (estimated)[4]
Fugacity (Level III Model)[4]						
Air (%)	6.5–25	0.95–39	0.95–39	6.5–35	25–39	3.2–6.5
Water (%)	41–87	41–95	41–95	41–72	60–72	32–41
Soil (%)	1.5–52	0.75–52	0.75–52	1.2–2.1	0.75–2.1	52–64
Sediment (%)	0.52–5.1	0.26–2.3	0.26–2.3	0.55–1.4	0.26–2.3	0.63–1.1
Persistence	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)
Bioaccumulation	B1 (low)	B1 (low)	B1 (low)	B1 (low) to B3 (high)	B1 (low)	B1 (low)

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.
[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.
[3] Data range based upon GC/MS compositional information provided by the submitter as a supplement to the test plan, from which representative structures were derived; see Appendix for detailed information on structures and composition.
[4] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 2. Environmental Fate Characteristics of Gasoline Blending Streams [1]

Property	SPONSORED CHEMICAL Distillates (petroleum), heavy arom.[2]	SPONSORED CHEMICAL Distillates (petroleum), light arom.[2]	SPONSORED CHEMICAL Residues (petroleum), light naphtha solvent extracts[2]	SPONSORED CHEMICAL Distillates (petroleum), straight-run light[2]	SPONSORED CHEMICAL Raffinates (petroleum), catalytic reformer ethylene glycol-water countercurrent exts.[2]	SPONSORED CHEMICAL Distillates (petroleum), hydrotreated middle, intermediate boiling[2]
CASRN	67891-79-6	67891-80-9	68333-29-9	68410-05-9	68410-71-9	68410-96-8
Photodegradation Half-life	1.5–66 hours (estimated)[3]	1.5–66 hours (estimated)[3]	7.7–15 hours (estimated)[3]	1.5–101 hours (estimated)[3]	21–24 hours (estimated)[3]	1.4–31 hours (estimated)[3]
Hydrolysis Half-life	Stable					
Biodegradation	No data	No data	No data	No data	No data	No data
Bioaccumulation Factor	15–44 (estimated)[3]	15–44 (estimated)[3]	81–142 (estimated)[3]	21–44 (estimated)[3]	307–722 (estimated)[3]	44–940 (estimated)[3]
Log K_{oc}	1.73–2.37 (estimated)[3]	1.73–2.37 (estimated)[3]	2.79–2.93 (estimated)[3]	1.34–2.37 (estimated)[3]	2.12–2.64 (estimated)[3]	1.78–3.16 (estimated)[3]
Fugacity (Level III Model)[3]						
Air (%)	0.98–32	0.98–32	2.9–3.2	0.98–50	29–38	0.95–39
Water (%)	41–97	41–97	20–32	41–96	60–69	41–95
Soil (%)	2.1–39	2.1–39	64–77	0.61–39	0.91–1.0	0.75–52
Sediment (%)	0.37–0.44	0.37–0.44	0.60–1.1	0.14–0.44	0.36–1.7	0.26–2.3
Persistence	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)
Bioaccumulation	B1 (low)	B1 (low)	B1 (low)	B1 (low)	B1 (low)	B1 (low)

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.

[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[3] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 2. Environmental Fate Characteristics of Gasoline Blending Streams [1]						
Property	**SPONSORED CHEMICAL Distillates (petroleum), light distillate hydrotreating process, low-boiling[2]**	**SPONSORED CHEMICAL Distillates (petroleum), hydrotreated heavy naphtha, deisohexanizer overheads[2]**	**SPONSORED CHEMICAL Gasoline, natural gas, natural[2]**	**SPONSORED CHEMICAL Distillates (petroleum), catalytic reformed depentanizer[2]**	**SPONSORED CHEMICAL Hydrocarbons, C4-6, C5-rich[2]**	**SPONSORED CHEMICAL Hydrocarbons, C3-C11 catalytic cracker distillates[2]**
CASRN	68410-97-9	68410-98-0	68425-31-0	68475-79-6	68476-43-7	68476-46-0
Photodegradation Half-life	7.9–28 hours (estimated)[3]	13–101 hours (estimated)[3]	9.5–32 hours (estimated)[3]	4.2–101 hours (estimated)[3]	1.5–4.5 hours (estimated)[3]	1.5–101 hours (estimated)[3]
Hydrolysis Half-life	Stable					
Biodegradation	No data	No data	No data	No data	No data	No data
Bioaccumulation Factor	142–428 (estimated)[3]	21–338 (estimated)[3]	44–338 (estimated)[3]	23–151 (estimated)[3]	40–44 (estimated)[3]	21–497 (estimated)[3]
Log K_{oc}	2.12–2.79 (estimated)[3]	1.34–2.37 (estimated)[3]	1.78–2.57 (estimated)[3]	1.37–2.12 (estimated)[3]	1.78–1.86 (estimated)[3]	1.34–3.35 (estimated)[3]
Fugacity (Level III Model)[3]						
Air (%)	3.2–38	25–50	6.5–39	10–50	0.98–11	0.98–50
Water (%)	32–63	49–72	41–72	49–87	86–97	41–97
Soil (%)	0.68–64	0.61–2.1	0.75–52	0.61–2.4	1.9–2.1	0.61–39
Sediment (%)	0.36–1.1	0.14–0.77	0.26–0.77	0.14–0.52	0.36–0.42	0.14–5.1
Persistence	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)
Bioaccumulation	B1 (low)	B1 (low)	B1 (low)	B1 (low)	B1 (low)	B1 (low)

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.

[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[3] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 2. Environmental Fate Characteristics of Gasoline Blending Streams [1]						
Property	**SPONSORED CHEMICAL Hydrocarbons, C5 and higher, C5-6-rich[2]**	**SPONSORED CHEMICAL Hydrocarbons, C5-rich[2]**	**SPONSORED CHEMICAL Hydrocarbons, cyclic C5 and C6[2]**	**SPONSORED CHEMICAL Distillates (petroleum), C3-C5, 2-methyl-2-butene-rich[2]**	**SPONSORED CHEMICAL Extracts (petroleum), reformer recycle[2]**	**SPONSORED CHEMICAL Distillates (petroleum), dependentanizer overheads[2]**
CASRN	68476-50-6	68476-55-1	68476-56-2	68477-34-9	68477-63-4	68477-89-4
Photodegradation Half-life	4.3–66 hours (estimated)[3]	4.5–32 hours (estimated)[3]	2.2–15 hours (estimated)[3]	1.5 hours (estimated)[3]	66 hours (estimated)[3]	4.3–53 hours (estimated)[3]
Hydrolysis Half-life	Stable					
Biodegradation	No data	No data	No data	No data	No data	No data
Bioaccumulation Factor	15–151 hours (estimated)[3]	40–44 hours (estimated)[3]	25–70 hours (estimated)[3]	44 hours (estimated)[3]	15 hours (estimated)[3]	47–151 hours (estimated)[3]
Log K_{oc}	1.73–2.16 (estimated)[3]	1.78–1.86 (estimated)[3]	1.90–2.16 (estimated)[3]	1.78 (estimated)[3]	2.16 (estimated)[3]	1.50–2.12 (estimated)[3]
Fugacity (Level III Model)[3]						
Air (%)	10–39	12–39	1.4–29	0.98	32	10–45
Water (%)	41–87	60–86	67–93	97	41	55–87
Soil (%)	0.75–27	0.75–1.9	3.0–5.2	2.0	27	0.66–2.4
Sediment (%)	0.26–0.52	0.26–0.36	0.47–0.51	0.42	0.37	0.17–0.52
Persistence	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)
Bioaccumulation	B1 (low)	B1 (low)	B1 (low)	B1 (low)	B1 (low)	B1 (low)

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.

[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[3] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 2. Environmental Fate Characteristics of Gasoline Blending Streams [1]						
Property	**SPONSORED CHEMICAL Residues (petroleum), butane splitter bottoms[2]**	**SPONSORED CHEMICAL Residues (petroleum), C6-8, catalytic reformer[2]**	**SPONSORED CHEMICAL Residual oils (petroleum), deisobutanizer tower[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range coker[3]**	**SPONSORED CHEMICAL Naphtha (petroleum), light catalytic reformed, arom.-free[2]**	**SPONSORED CHEMICAL Distillates (petroleum), catalytic reformed straight-run naphtha overheads[2]**
CASRN	68478-12-6	68478-15-9	68478-16-0	68513-02-0	68513-03-1	68513-63-3
Photodegradation Half-life	4.3–53 hours (estimated)[4]	4.2–101 hours (estimated)[4]	4.2–49 hours (estimated)[4]	12–19 hours (estimated)[4]	1.4–24 hours (estimated)[4]	23–101 hours (estimated)[4]
Hydrolysis Half-life	Stable					
Biodegradation	No data	No data	No data	No data	No data	No data
Bioaccumulation Factor	47–151 (estimated)[4]	21–151 (estimated)[4]	62–151 (estimated)[4]	210–7,601 (estimated)[4]	106–577 (estimated)[4]	21–106 (estimated)[4]
Log K_{oc}	1.50–2.12 (estimated)[4]	1.34–2.12 (estimated)[4]	1.60–2.12 (estimated)[4]	2.32–3.16 (estimated)[4]	2.04–2.56 (estimated)[4]	1.34–2.04 (estimated)[4]
Fugacity (Level III Model)[4]						
Air (%)	10–45	10–50	10–48	25–35	0.95–34	34–50
Water (%)	55–87	49–87	87–51	63–72	64–95	49–64
Soil (%)	0.66–2.4	0.61–2.4	0.80–2.4	1.2–2.1	0.85–2.3	0.61–0.85
Sediment (%)	0.17–0.52	0.14–0.52	0.16–0.52	0.55–2.3	0.40–1.5	0.14–0.40
Persistence	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)
Bioaccumulation	B1 (low)	B1 (low)	B1 (low)	B1 (low) to B3 (high)	B1 (low)	B1 (low)

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2080. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.

[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[3] Data range based upon GC/MS compositional information provided by the submitter as a supplement to the test plan, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[4] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 2. Environmental Fate Characteristics of Gasoline Blending Streams [1]						
Property	**SPONSORED CHEMICAL Gasoline, vapour-recovery[2]**	**SPONSORED CHEMICAL Hydrocarbons, C4-10 unsatd.[2]**	**SPONSORED CHEMICAL Petroleum products, hydrofiner-powerformer reformates[2]**	**SPONSORED CHEMICAL Alkenes, C6[2]**	**SPONSORED CHEMICAL Alkenes, C8-10, C9-rich[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), clay-treated full-range straight-run[2]**
CASRN	68514-15-8	68514-38-5	68514-79-4	68526-52-3	68526-55-6	68527-21-9
Photodegradation Half-life	1.4–31 hours (estimated)[3]	1.4–9.5 hours (estimated)[3]	1.4–31 hours (estimated)[3]	1.4–4.3 hours (estimated)[3]	2.2–3.7 hours (estimated)[3]	1.4–31 hours (estimated)[3]
Hydrolysis Half-life	Stable					
Biodegradation	No data	No data	No data	No data	No data	No data
Bioaccumulation Factor	44–940 (estimated)[3]	44–1,180 (estimated)[3]	44–940 (estimated)[3]	110–151 (estimated)[3]	904–1,290 (estimated)[3]	44–940 (estimated)[3]
Log K_{oc}	1.78–3.16 (estimated)[3]	1.73–3.09 (estimated)[3]	1.78–3.16 (estimated)[3]	2.04–2.12 (estimated)[3]	2.83–2.90 (estimated)[3]	1.78–3.16 (estimated)[3]
Fugacity (Level III Model)[3]						
Air (%)	0.95–39	0.98–6.5	0.95–39	0.97–10	6.0–8.5	0.95–39
Water (%)	41–95	41–97	41–95	87–97	85–89	41–95
Soil (%)	0.75–52	2.1–52	0.75–52	1.8–2.4	2.9–3.7	0.75–52
Sediment (%)	0.26–2.3	0.42–3.8	0.26–2.3	0.52–0.60	2.2–2.5	0.26–2.3
Persistence	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)
Bioaccumulation	B1 (low)	B1 (low) to B2 (moderate)	B1 (low)	B1 (low)	B1 (low) to B2 (moderate)	B1 (low)

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.

[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[3] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 2. Environmental Fate Characteristics of Gasoline Blending Streams [1]

Property	SPONSORED CHEMICAL Naphtha (petroleum), light steam-cracked, debenzenized[2]	SPONSORED CHEMICAL Naphtha (petroleum), full-range alkylate, butane-contg.[2]	SPONSORED CHEMICAL Distillates, (petroleum), benzene unit hydrotreater depentanizer overheads[2]	SPONSORED CHEMICAL Distillates (petroleum), thermal cracked naphtha and gas oil, C5-dimer-contg.[2]	SPONSORED CHEMICAL Naphtha (petroleum), arom.-contg[2]	SPONSORED CHEMICAL Gasoline, straight-run, topping-plant[2]
CASRN	68527-26-4	68527-27-5	68602-79-9	68603-01-0	68603-08-7	68606-11-1
Photodegradation Half-life	1.4–31 hours (estimated)[3]	10–53 hours (estimated)[3]	1.4–31 hours (estimated)[3]	1.4–4.5 hours (estimated)[3]	7.7–66 hours (estimated)[3]	1.4–31 hours (estimated)[3]
Hydrolysis Half-life	Stable					
Biodegradation	No data	No data	No data	No data	No data	No data
Bioaccumulation Factor	44–940 (estimated)[3]	47–497 (estimated)[3]	44–940 (estimated)[3]	40–1,510 (estimated)[3]	15–141 (estimated)[3]	44–940 (estimated)[3]
Log K_{oc}	1.78–3.16 (estimated)[3]	1.50–3.35 (estimated)[3]	1.78–3.16 (estimated)[3]	1.86–3.03 (estimated)[3]	2.16–2.79 (estimated)[3]	1.78–3.16 (estimated)[3]
Fugacity (Level III Model)[3]						
Air (%)	0.95–39	22–45	0.95–39	0.91–12	3.2–32	0.95–39
Water (%)	41–95	55–72	41–95	86–93	32–41	41–95
Soil (%)	0.75–52	0.66–1.49	0.75–52	1.9–3.1	27–64	0.75–52
Sediment (%)	0.26–2.3	0.17–5.1	0.26–2.3	0.36–3.5	0.37–1.1	0.26–2.3
Persistence	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)
Bioaccumulation	B1 (low)	B1 (low)	B1 (low)	B1 (low) to B2 (moderate)	B1 (low)	B1 (low)

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.
[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.
[3] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 2. Environmental Fate Characteristics of Gasoline Blending Streams [1]						
Property	**SPONSORED CHEMICAL Naphtha (petroleum), light polymn.[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), unsweetened[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), light, sweetened[2]**	**SPONSORED CHEMICAL Hydrocarbons, C6-12, benzene-recovery[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range reformed[2]**	**SPONSORED CHEMICAL Natural gas condensate[2]**
CASRN	68783-11-9	68783-12-0	68783-66-4	68919-15-3	68919-37-9	68919-39-1
Photodegradation Half-life	1.5–2.2 hours (estimated)[3]	1.4–31 hours (estimated)[3]	4.2–101 hours (estimated)[3]	4.2–66 hours (estimated)[3]	1.4–31 hours (estimated)[3]	1.5–101 hours (estimated)[3]
Hydrolysis Half-life	Stable					
Biodegradation	No data	No data	No data	No data	No data	No data
Bioaccumulation Factor	110–796 (estimated)[3]	44–940 (estimated)[3]	21–151 (estimated)[3]	15–497 (estimated)[3]	44–940 (estimated)[3]	21–119 (estimated)[3]
Log K_{oc}	2.04–2.75 (estimated)[3]	1.78–3.16 (estimated)[3]	1.34–2.12 (estimated)[3]	2.11–3.35 (estimated)[3]	1.78–3.16 (estimated)[3]	1.34–2.57 (estimated)[3]
Fugacity (Level III Model)[3]						
Air (%)	0.97–6.0	0.95–39	10–50	10–32	0.95–39	0.98–50
Water (%)	89–97	41–95	49–87	41–87	41–95	41–97
Soil (%)	1.8–2.6	0.75–52	0.61–2.4	1.5–27	0.75–52	0.61–52
Sediment (%)	0.60–1.9	0.26–2.3	0.14–0.52	0.37–5.1	0.26–2.3	0.14–0.63
Persistence	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)
Bioaccumulation	B1 (low)	B1 (low)	B1 (low)	B1 (low)	B1 (low)	B1 (low)

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.

[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[3] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 2. Environmental Fate Characteristics of Gasoline Blending Streams [1]						
Property	**SPONSORED CHEMICAL Hydrocarbons, C7-9[2]**	**SPONSORED CHEMICAL Distillates (petroleum), light straight-run gasoline fractionation stabilizer overheads[2]**	**SPONSORED CHEMICAL Distillates (petroleum), naphtha unifiner stripper[2]**	**SPONSORED CHEMICAL Distillates (petroleum), light thermal cracked, debutanized aromatic[2]**	**SPONSORED CHEMICAL Naphtha (petroleum), catalytic reformed[3]**	**SPONSORED CHEMICAL Alkanes, C4-6[2]**
CASRN	68920-06-9	68921-08-4	68921-09-5	68955-29-3	68955-35-1	70955-08-7
Photodegradation Half-life	15–25 hours (estimated)[4]	13–101 hours (estimated)[4]	13–101 hours (estimated)[4]	66 hours (estimated)[4]	7.7–32 hours (estimated)[4]	23–52 hours (estimated)[4]
Hydrolysis Half-life	Stable					
Biodegradation	No data	No data	No data	No data	No data	No data
Bioaccumulation Factor	38–1,150 (estimated)[4]	21–338 (estimated)[4]	21–338 (estimated)[4]	15 (estimated)[4]	38–234 (estimated)[4]	44–307 (estimated)[4]
Log K_{oc}	2.37–2.83 (estimated)[4]	1.34–2.37 (estimated)[4]	1.34–2.37 (estimated)[4]	2.16 (estimated)[4]	1.78–2.79 (estimated)[4]	1.5–2.12 (estimated)[4]
Fugacity (Level III Model)[4]						
Air (%)	6.0–32	25–50	25–50	32	3.2–39	39–45
Water (%)	41–89	49–72	49–72	41	32–63	55–60
Soil (%)	1.3–39	0.61–2.1	0.61–2.1	27	0.75–63	0.66–1.0
Sediment (%)	0.44–2.2	0.14–0.77	0.14–0.77	0.37	0.26–1.1	0.17–0.36
Persistence	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)
Bioaccumulation	B1 (low) to B2 (moderate)	B1 (low)	B1 (low)	B1 (low)	B1 (low)	B1 (low)

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.

[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[3] Data range based upon GC/MS compositional information provided by the submitter as a supplement to the test plan, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[4] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

Table 2. Environmental Fate Characteristics of Gasoline Blending Streams [1]

Property	SPONSORED CHEMICAL Gasoline, natural[2]	SPONSORED CHEMICAL Naphtha[2]	SPONSORED CHEMICAL Naphtha (petroleum), isomerization, C6-fraction[2]	SUPPORTING CHEMICAL Light naphtha n-hexane rich[2]	SUPPORTING CHEMICAL Gasoline[3]	SUPPORTING CHEMICAL Unleaded gasoline[3]	SUPPORTING CHEMICAL Unleaded gasoline blend[3]	SUPPORTING CHEMICAL Leaded gasoline[3]
CASRN	8006-61-9	8030-30-6	92045-58-4	–	86290-81-5	–	–	–
Photodegradation Half-life	13–52 hours (estimated)[4]	4.2–66 (estimated)[4]	23–24 (estimated)[4]	24 (estimated)[4]	1.4–32 (estimated)[4]	1.4–32 (estimated)[4]	1.4–32 (estimated)[4]	1.4–32 (estimated)[4]
Hydrolysis Half-life	Stable							
Biodegradation	No data	No data	No data	No data	62% in 25 days (readily biodegradable)[5] 94% in 30 days (inherently biodegradable)[6]	No data	No data	No data
Bioaccumulation Factor	47–1160 (estimated)[4]	15–151 (estimated)[4]	106–307 (estimated)[4]	307 (estimated)[4]	44–577 (estimated)[4]	44–577 (estimated)[4]	44–577 (estimated)[4]	44–577 (estimated)[4]
Log K_{oc}	1.50–2.64 (estimated)[4]	1.78–2.16 (estimated)[4]	2.04–2.12 (estimated)[4]	2.12 (estimated)[4]	1.78–3.35 (estimated)[4]	1.78–3.35 (estimated)[4]	1.78–3.35 (estimated)[4]	1.78–3.35 (estimated)[4]
Fugacity (Level III Model)[4]								
Air (%)	25–45	10–39	34–38	38	0.95–39	0.95–39	0.95–39	0.95–39
Water (%)	55–72	41–87	60–65	60	32–95	32–95	32–95	32–95
Soil (%)	0.66–2.1	0.75–27	0.85–1.0	1.0	0.75–64	0.75–64	0.75–64	0.75–64
Sediment (%)	0.17–0.87	0.26–0.52	0.36–0.40	0.36	0.26–5.1	0.26–5.1	0.26–5.1	0.26–5.1
Persistence	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)	P1 (low)
Bioaccumulation	B1 (low) to B2 (moderate)	B1 (low)	B1 (low)	B1 (low)	B1 (low)	B1 (low)	B1 (low)	B1 (low)

[1] American Petroleum Institute, Petroleum HPV Testing Group. 2008. Revised Test Plan and Robust Summary for the Gasoline Blending Streams Category. Available online at http://www.epa.gov/hpv/pubs/summaries/gasnecat/c13409tc.htm as of October 20, 2010.

[2] Data range based upon the CAS definition, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[3] Data range based upon GC/MS compositional information provided by the submitter as a supplement to the test plan, from which representative structures were derived; see Appendix for detailed information on structures and composition.

[4] U.S. EPA. 2010. Estimation Programs Interface Suite™ for Microsoft® Windows, v4.00. U.S. Environmental Protection Agency, Washington, DC, USA. Available online at http://www.epa.gov/opptintr/exposure/pubs/episuitedl.htm as of October 27, 2010.

[5] Solano-Serena, F; Marchal, R; Ropars, M; et al. 1999. Biodegradation of gasoline: kinetics, mass balance and fate of individual hydrocarbons. J Appl Microbiol 86:1008–1016.

[6] Prince, RC; Parkerton, TF; Lee, C. 2007. The primary aerobic biodegradation of gasoline hydrocarbons. Env Sci Technol 41:3316–3321.

3. Human Health Hazard

A summary of the human health toxicity data submitted for SIDS endpoint is provided in Table 3.

Acute Oral Toxicity

Paraffinic Naphthas

Naphtha (petroleum), light alkylate (CASRN 64741-66-8)
Paraffins: 99.4% (v/v), Olefins: 0%,Naphthenes: 0.6%,Aromatics: 0%
Sprague-Dawley rats (5/sex/dose) were administered naphtha (petroleum), light alkylate (API 83-19) via an unspecified oral route at 5000 and 7000 mg/kg-bw and observed for 14 days following dosing. Mortality was observed in one female at 5000 mg/kg-bw.
LD_{50} > 7000 mg/kg

Olefinic Naphthas

Naphtha (petroleum), light catalytic cracked (CASRN 64741-55-5)
Paraffins: 30.6% (v/v), Olefins: 45.6%, Naphthenes: 10.4%, Aromatics: 13.1%
Sprague-Dawley rats (5/sex/dose) were administered naphtha (petroleum), light catalytic cracked (API 83-20) via gavage at 5000 mg/kg-bw and observed for 14 days following dosing. No mortalities occurred.
LD_{50} > 5000 mg/kg (NOTE: it's listed as mg/kg-bw in the text. Do we want to remove bw for the rest of the entries under health?)

Naphthenic Naphthas

Naphtha (petroleum), sweetened (CASRN 64741-87-3)
Paraffins: 72.1% (v/v), Olefins: < 0.1%, Naphthenes: 20.9%, Aromatics: 4.1%
Sprague-Dawley rats (5/sex/dose) were administered naphtha (petroleum), sweetened (API 81-08) via gavage at 5000 mg/kg-bw and observed for 14 days following dosing. No mortalities occurred.
LD_{50} > 5000 mg/kg

Aromatic Naphthas

Naphtha (petroleum), catalytic reformed (CASRN 68955-35-1)
Paraffins: 32.1% (v/v), Olefins: 0.5%, Naphthenes: 3.7%, Aromatics: 63.3%
Sprague-Dawley rats (5/sex/dose) were administered naphtha (petroleum), catalytic reformed (API 83-05) via gavage at 5000, 6000, 6500, 7000 or 9800 mg/kg-bw (males) or 3570, 4290, 5000, 7000 or 9800 mg/kg-bw (females) and observed for 14 days following dosing. Mortalities occurred at dose levels ≥ 6000 mg/kg-bw in males and ≥ 5000 mg/kg-bw in females.
LD_{50} (male) = 6620 mg/kg
LD_{50} (female) = 5390 mg/kg

Gasoline

Unleaded gasoline (No CASRN, supporting chemical)
Paraffins: 57.8% (v/v), Olefins: 9.9%, Naphthenes: 3.9%, Aromatics: 28.1%
Sprague-Dawley rats (5/sex/dose) were administered unleaded gasoline (API PS-6) via gavage at 10, 15, 17.5, 20 or 25 mL/kg-bw (~ 13,875 mg/kg-bw)[4] and observed for 14 days following dosing. Mortality occurred at doses ≥ 15 mL/kg-bw.
LD_{50} ~ 13,875 mg/kg

Acute Dermal Toxicity

Paraffinic Naphthas

Naphtha (petroleum), light alkylate (CASRN 64741-66-8)
Paraffins: 99.4% (v/v), Olefins: 0%, Naphthenes: 0.6%, Aromatics: 0%
New Zealand White rabbits (4/sex/dose) were administered naphtha (petroleum), light alkylate (API 83-19) via the dermal route at 2000 mg/kg-bw on either abraded or intact skin under occluded conditions for 24 hours and observed for 14 days following dosing. No mortalities occurred.
LD_{50} > 2000 mg/kg

Olefinic Naphthas

Naphtha (petroleum), light catalytic cracked (CASRN 64741-55-5)
Paraffins: 30.6% (v/v), Olefins: 45.6%, Naphthenes: 10.4%, Aromatics: 13.1%
New Zealand White rabbits (4/sex/dose) were administered naphtha (petroleum), light catalytic cracked (API 83-20) via the dermal route at 2000 or 3000 mg/kg-bw under occluded conditions for 24 hours and observed for 14 days following dosing. Mortality occurred in one male and one female in the 2000 mg/kg-bw dose level, but no mortalities occurred in the 3000 mg/kg-bw dose level.
LD_{50} > 3000 mg/kg

Naphthenic Naphthas

Naphtha (petroleum), sweetened (CASRN 64741-87-3)
Paraffins: 72.1% (v/v), Olefins: < 0.1%, Naphthenes: 20.9%, Aromatics: 4.1%
New Zealand White rabbits (4/sex/dose) were administered naphtha (petroleum), sweetened (API 81-08) via the dermal route at 2000 mg/kg-bw on either abraded or intact skin under occluded conditions for 24 hours and observed for 14 days following dosing. No mortalities occurred.
LD_{50} > 2000 mg/kg

[4] Gasoline units were converted from volume to mass using a density of 0.74 g/mL, which was calculated using the specific gravity provided in the robust summaries for the gasoline sample API 94-01. Density of API PS-6 was not provided.

Aromatic Naphthas

Naphtha (petroleum), catalytic reformed (CASRN 68955-35-1)
Paraffins: 32.1% (v/v), Olefins: 0.5%, Naphthenes: 3.7%, Aromatics: 63.3%
New Zealand White rabbits (4/sex/dose) were administered naphtha (petroleum), catalytic reformed (API 83-05) via the dermal route at 2000 mg/kg-bw on either abraded or intact skin under occluded conditions for 24 hours and observed for 14 days following dosing. No mortalities occurred.
LD_{50} > 2000 mg/kg

Gasoline

Unleaded gasoline (No CASRN, supporting chemical)
Paraffins: 57.8% (v/v), Olefins: 9.9%, Naphthenes: 3.9%, Aromatics: 28.1%
New Zealand White rabbits (4/sex/dose) were administered unleaded gasoline (API PS-6) via the dermal route at 5 mL/kg-bw (~ 3700 mg/kg-bw)[5] to intact or abraded skin under occluded conditions for 24 hours and observed for 14 days following dosing. Mortality occurred in one female.
LD_{50} > ~ 3700 mg/kg

Acute Inhalation Toxicity

Paraffinic Naphthas

Naphtha (petroleum), light alkylate (CASRN 64741-66-8)
Paraffins: 99.4% (v/v), Olefins: 0%, Naphthenes: 0.6%, Aromatics: 0%
Sprague-Dawley rats (5/sex/dose) were exposed whole-body to naphtha (petroleum), light alkylate (API 83-19) as a vapor at a nominal concentration of 5.04 mg/L for 4 hours and observed for 14 days following exposure. The mean measured concentration was 6.31 mg/L. No mortalities occurred.
LC_{50} > 6.31 mg/L

Olefinic Naphthas

Naphtha (petroleum), light catalytic cracked (CASRN 64741-55-5)
Paraffins: 30.6% (v/v), Olefins: 45.6%, Naphthenes: 10.4%, Aromatics: 13.1%
Sprague-Dawley rats (5/sex/dose) were exposed whole-body to naphtha (petroleum), light catalytic cracked (API 83-20) at a nominal concentration of 5 mg/L for 4 hours and observed for 14 days following exposure. The mean measured concentration was 5.3 mg/L. No mortalities occurred.
LC_{50} > 5.3 mg/L

[5] Gasoline units were converted from volume to mass using a density of 0.74 g/mL, which was calculated using the specific gravity provided in the robust summaries for the gasoline sample API 94-01. Density of API PS-6 was not provided.

Naphthenic Naphthas

Naphtha (petroleum), sweetened (CASRN 64741-87-3)
Paraffins: 72.1% (v/v), Olefins: < 0.1%, Naphthenes: 20.9%, Aromatics: 4.1%
Sprague-Dawley rats (5/sex/dose) were exposed whole-body to naphtha (petroleum), sweetened (API 81-08) at a nominal concentration of 5 mg/L for 4 hours and observed for 14 days following exposure. The mean measured concentration was 5.2 mg/L. No mortalities occurred.
LC_{50} > 5.2 mg/L

Aromatic Naphthas

Naphtha (petroleum), catalytic reformed (CASRN 68955-35-1)
Paraffins: 32.1% (v/v), Olefins: 0.5%, Naphthenes: 3.7%, Aromatics: 63.3%
Sprague-Dawley rats (5/sex/dose) were exposed whole-body to naphtha (petroleum), catalytic reformed (API 83-05) as a vapor at a nominal concentration of 5 mg/L for 4 hours and observed for 14 days following exposure. The mean measured concentration was 5.22 mg/L. No mortalities occurred.
LC_{50} > 5.22 mg/L

Class Not Specified

Naphtha (petroleum), hydrotreated heavy (CASRN 64742-48-9)
PONA Composition Not Specified
CD Albino rats (5/sex/group) were exposed whole-body to naphtha (petroleum), hydrotreated heavy (97.35% purity) as an aerosol at mean measured concentrations of 92, 184, 319 or 1014 ppm (~ 0.55, 1.1, 1.9 or 6.1 mg/L) for 4 hours and observed for 14 days following exposure. Mortalities occurred at 319 and 1014 ppm (1.9 and 6.1 mg/L) within the first 3 days post-exposure. No finite LC_{50} was calculated, but the LC_{50} was estimated to be between 184 and 319 ppm (1.1 and 1.9 mg/L). Additional details are available from TSCATS (OTS0537641).
LC_{50} = 1.1 – 1.9 mg/L

Repeated-Dose Toxicity

Paraffinic Naphthas

Naphtha (petroleum), light alkylate (CASRN 64741-66-8)
Paraffins: 99.97% (v/v), Olefins: 0.03%, Naphthenes: 0%, Aromatics: 0%
Sprague-Dawley rats (12/sex/dose) were exposed whole-body to naphtha (petroleum), light alkylate distillate (LAN-D) as a vapor at mean measured concentrations of 0, 2.5, 8.2 and 24.3 mg/L, 6 hours/day, 5 days/week for 13 weeks and observed for 4 weeks after the exposure ended. Endpoints included clinical signs, body weight, food consumption, hematology, clinical chemistry, organ weights, histopathology, neurobehavior and ophthalmoscopy. No mortality was observed. Absolute and relative kidney weights were increased in the males at all dose levels; this correlated with the occurrence of hyaline droplets in the proximal convoluted

tubules.[6] Increased absolute and relative liver weights were observed in the high-dose males and females; there were no pathological findings associated with this increase and differences disappeared after the recovery period. No other treatment-related effects were observed.
NOAEC = 24.3 mg/L/day (based on no effects observed at the highest concentration tested)

Light naphtha, n-hexane rich (No CASRN, supporting chemical)
Paraffins: 94.5% (v/v), Olefins: 0.03%, Naphthenes: 3.2%, Aromatics: 2.3%
Sprague-Dawley rats (10/sex/dose) were administered light naphtha, n-hexane rich (F-186) via the dermal route at 0, 0.05, 0.25 or 1 mL/kg-bw (~ 0, 33, 166 or 665 mg/kg-bw)[7], 5 days/week for 28 days. The site of application was occluded for 6 hours after administration. No study-related mortalities occurred. No differences were found in body weights, necropsy, organ weights, hematology and clinical chemistry. Moderate dermal irritation, as evidenced by grossly visible lesions and microscopic histopathological changes in the skin, was observed at a dose of 1 mL/kg-bw/day (665 mg/kg-bw) and slight irritation was observed at 0.05 mL/kg-bw/day (33 mg/kg-bw). No other histopathological changes were found in any of the test groups.
NOAEL ~ 665 mg/kg-bw/day (based on no systemic effects at the highest dose tested)

<u>Olefinic Naphthas</u>

Naphtha (petroleum), sweetened (CASRN 64741-87-3)
Paraffins: 49.6% (v/v), Olefins: 43.5%, Naphthenes: 5.6%, Aromatics: 0.5%
Sprague-Dawley rats (10/sex/dose) were administered naphtha (petroleum), sweetened (F-251) via the dermal route at 0, 0.05, 0.25 or 1.0 mL/kg-bw (~ 0, 33, 163 or 652 mg/kg-bw)[8] under occluded conditions, 6 hours/day, 5 days/week for 28 days. Endpoints included clinical signs, body weights, hematology, clinical chemistry, organ weights and histopathology. No study-related mortalities occurred. Mild dermal irritation, as evidenced by grossly visible lesions and by microscopic histopathological changes in the skin, was observed at a dose of 1.0 mL/kg-bw/day. Slight dermal irritation was noted at a dose of 0.25 mL/kg-bw/day. No effects on any other parameters were observed.
NOAEL = 652 mg/kg-bw/day (based on no systemic effects at the highest dose tested)

Naphtha (petroleum), full-range coker (CASRN 68513-02-0)
Paraffins: 37.8% (v/v), Olefins: 39.2%, Naphthenes: 12.6%, Aromatics: 10.5%
Sprague-Dawley rats (10/sex/dose) were administered naphtha (petroleum), full-range coker (F-250) via the dermal route at 0, 0.05, 0.25 or 1.0 mL/kg-bw (~ 0, 38, 188 or 750 mg/kg-bw)[8] under occluded conditions, 6 hours/day, 5 days/week for 28 days. Endpoints included clinical signs, body weights, organ weights, hematology, clinical chemistry and histopathology. No study-related mortalities occurred. Alterations were observed in percent neutrophils, percent

[6] Nephropathy seen in male rats may be occurring by an alpha 2µ-globulin-mediated mechanism (which is male rat-specific and not considered relevant to humans). EPA's Risk Assessment Forum has outlined key events and data that are necessary to demonstrate this mode of action (Alpha 2µ-Globulin: Association with Chemically Induced Renal Toxicity and Neoplasia in the Rat, EPA/625/3-91/019F).
[7] The units of light naphtha, n-hexane rich (F-186) were converted from volume to mass using a density of 0.665 g/mL, which was calculated using the specific gravity for F-186 provided in the analytical chemistry data set.
[8] The units of naphtha (petroleum), full-range coker (F-250) were converted from volume to mass using a density of 0.750 g/mL, which was calculated using the specific gravity for F-250 provided in the analytical chemistry data set.

lymphocytes, globulin and albumin/globulin ratio values at 1.0 mL/kg-bw (750 mg/kg-bw). An increase in total protein was observed in females at 1.0 mL/kg-bw (750 mg/kg-bw). Increased globulin values and decreased albumin/globulin ratios were observed in females at 0.25 mL/kg-bw (188 mg/kg-bw). Trace myeloid hyperplasia of the bone marrow was observed at 1.0 mL/kg-bw (750 mg/kg-bw) and trace to mild auxiliary lymph node hyperplasia was observed at ≥ 0.25 mL/kg-bw (≥ 188 mg/kg-bw). Slight to moderate dermal irritation, as evidenced by grossly visible lesions and microscopic histopathological changes in the skin, was observed at a dose of 1.0 mL/kg-bw/day (750 mg/kg-bw). Slight dermal irritation was noted at a dose of 0.25 mL/kg-bw/day (188 mg/kg-bw) and very slight dermal irritation was noted at a dose of 0.05 mL/kg-bw/day (38 mg/kg-bw). No other treatment-related effects on any other parameters were observed.
LOAEL = 188 mg/kg-bw/day (based on increased globulin values [females], decreased albumin/globulin ratios [females] and lymph node hyperplasia [both sexes])
NOAEL = 38 mg/kg-bw/day

Naphtha (petroleum), light catalytic cracked (CASRN 64741-55-5)
(1) **Paraffins: 43.6% (w/w), Olefins: 22.7%, Naphthenes: 9.7%, Aromatics: 24.0%**
Sprague-Dawley rats (15/sex/dose) were administered naphtha (petroleum), light catalytic cracked (MEHSL CRU #84152) via the dermal route at 0, 30, 125 or 300 mg/kg-bw/day under open conditions, 5 days/week for 90 days. There were no treatment-related effects on mortality, body weight, hematologic parameters or any indication of systemic toxicity at any dose level. No organs were directly affected as determined by serum chemistry, clinical observations, organ weights, gross necropsy or microscopic evaluation of organ structures. There were no differences seen in sperm morphology. Moderate erythema and slight edema was observed in males at all dose groups. Histopathological examination revealed mild to moderate epidermal hyperplasia, mild inflammation of the superficial dermis and ulceration in all dose groups.
NOAEL = 300 mg/kg-bw/day (based on no systemic effects observed at the highest dose tested)

(2) **Paraffins: 37.7% (v/v), Olefins: 53.7%, Naphthenes: 4.3%, Aromatics: 4.4%**
Sprague-Dawley rats (16/sex/dose) were exposed whole-body to a distillate of naphtha (petroleum), light catalytic cracked distillate (LCCN-D) as a vapor at nominal concentrations of 0, 2.3, 7.7 and 23.4 mg/L, 6 hours/day, 5 days/week for 15 weeks and observed for 4 weeks after the exposure ended. Mean measured concentrations were within 0.8% of nominal concentrations. Endpoints included clinical signs, body weight, food consumption, hematology, clinical chemistry, organ weights, histopathology, neurobehavior and ophthalmoscopy. Body weight gain was lower in females at 23.4 mg/L. During the recovery period, the high-dose males and females exhibited greater food consumption than controls. Decreases in hematocrit and hemoglobin concentration were observed in males at 23.4 mg/L. Reductions in mean corpuscular hemoglobin concentration were observed in males at 7.7 mg/L and in females at 23.4 mg/L. Increases were observed in absolute kidney weight (males only), relative kidney weight (females only) and relative liver weight (both sexes) at 23.4 mg/L. Elevated relative kidney weights were observed in males at ≥ 7.7 mg/L. A dose-related increase in nasal mucosa hyperplasia, indicative of exposure to a mild irritant, was observed (dose spread not reported). An increase in hyaline droplet accumulation was observed in treated males at all doses (protein

measurement unspecified but assumed).[9] Renal inflammation and tubular dilatation were observed in males at ≥ 7.7 mg/L. No other treatment-related effects were observed.
LOAEC (males) = 7.7 mg/L/day (increases in relative kidney weight, renal inflammation and tubular dilatation)
NOAEC (males) = 2.3 mg/L/day
LOAEC (females) = 23.4 mg/L/day (based on reductions in mean corpuscular hemoglobin concentration)
NOAEC (females) = 7.7 mg/L/day

(3) **Paraffins: 33.2% (v/v), Olefins: 40.0%, Naphthenes: 10.1%,Aromatics: 16.8%**
CD-1 mice (10/sex/dose) were exposed whole-body to naphtha (petroleum), light catalytic cracked (LCCN) as a vapor at nominal concentrations of 0, 0.5, 2 and 8 mg/L, 6 hours/day, 5 days/week for 13 weeks. Mean measured concentrations were 0, 0.53, 2.06 and 7.69 mg/L. Endpoints included clinical signs, body weight, hematology, clinical chemistry, organ weights and histopathology. No treatment-related effects were observed.
NOAEC = 7.69 mg/L/day (based on no effects observed at the highest concentration tested)

(4) **Paraffins: 33.2% (v/v), Olefins: 40.0%, Naphthenes: 10.1%, Aromatics: 16.8%**
Sprague-Dawley rats (10/sex/dose) were exposed whole-body to naphtha (petroleum), light catalytic cracked (LCCN) as a vapor at nominal concentrations of 0.5, 2 and 8 mg/L, 6 hours/day, 5 days/week for 13 weeks. Sham controls were included, but no specific details regarding the sham controls were located in the robust summary for this study. Mean measured concentrations were 0.53, 2.06 and 7.69 mg/L. Endpoints included clinical signs, body weight, hematology, clinical chemistry, organ weights and histopathology. Lesions on the skin in the scrotal area were observed in four male rats in the high-dose group. Uterine weights were less than untreated controls at all exposure levels, but not less than the sham controls, and the difference was not dose-related. The number of sperm per gram of cauda epididymis was lower at 7.69 mg/L, compared to the sham controls, but not the untreated controls. No other effects were observed. The decreases in sperm number compared to sham controls were not considered to be treatment-related given the lack of effects on sperm number compared with untreated concurrent controls,
NOAEC = 7.69 mg/L/day (based on no effects at the highest concentration tested)

(5) Paraffins: 42.8% (v/v), Olefins: 36.5%, Naphthenes: 10.2%, Aromatics: 10.2%
Sprague-Dawley rats (20/sex/dose) were exposed whole-body to naphtha (petroleum), light catalytic cracked (API 81-03) as a vapor at 0, 5.5, 9.5 and 16.4 mg/L, 6 hours/day, 5 days/week for 13 weeks. Endpoints included clinical signs, body weight, hematology, clinical chemistry, urinalysis, organ weights and histopathology. No mortalities were observed. Exposure-related

[9] The presence of nephropathy in association with the hyaline droplet accumulation in male rats suggests that the nephropathy in the males may be occurring by an $alpha_{2u}$-globulin-mediated mechanism, which appears to be unique to male rats and the response is probably not relevant to humans for purposes of risk assessment. EPA's Risk Assessment Forum has outlined the key events and the data that are necessary to demonstrate this mode of action ($Alpha_{2u}$-Globulin: Association with Chemically Induced Renal Toxicity and Neoplasia in the Rat, EPA/625/3-91/019F). One of the key events, $alpha_{2u}$-globulin accumulation, has not been demonstrated. Therefore, the nephropathy is assumed to be relevant to human health and it is concluded that a NOAEL for nephropathy in male rats was not established.

redness with "red material" around the nose was observed at 16.4 mg/L. Body weights of males at 16.4 mg/L were lower than those of controls. Increased kidney weights (relative or absolute unspecified) were observed in treated males at all dose levels (dose-response not indicated), accompanied by histopathological changes in the renal tubules consistent with light hydrocarbon-induced nephropathy (male-rat specific). Liver weights (relative or absolute unspecified) were increased in males at ≥ 9.5 mg/L and in females at 16.4 mg/L, accompanied by centrilobular hepatocellular hypertrophy, which was compatible with non-specific hepatic enzyme induction.
LOAEC (males) = 9.5 mg/L/day (based on increased liver weights and centrilobular hepatocellular hypertrophy)
NOAEC (males) = 5.5 mg/L/day
LOAEC (females) = 16.4 mg/L/day (based on increased liver weights and centrilobular hepatocellular hypertrophy)
NOAEC (females) = 9.5 mg/L/day

Naphthenic Naphthas

Naphtha (petroleum), heavy straight-run (CASRN 64741-41-9)
Paraffins: 52.9% (v/v), Olefins: 5.1%, Naphthenes: 28.6%, Aromatics: 11.8%
In a combined repeated-dose/reproductive/developmental toxicity screening test, Sprague-Dawley Crl:CD(SD) rats (12/sex/dose) were exposed whole-body to naphtha (petroleum), heavy straight-run as a vapor at nominal concentrations of 0, 0.46, 2.28 or 13.7 mg/L, 6 hours/day, 7 days/week for 30 – 31 days. Mean measured concentrations were 0, 0.46, 2.37 or 13.4 mg/L. Endpoints included body weight, food consumption, clinical signs, hematology, clinical chemistry, neurobehavioral evaluation, organ weights and histopathology. No mortalities occurred. Treatment-related increases in the incidence of stained wet fur in males and females were observed at 13.4 mg/L, but did not impact the health of the animals. At 13.4 mg/L, females exhibited significant ($p < 0.05$), treatment-related decreases in body weight, body weight gain and food consumption. There were no effects on hematology or clinical chemistry. Liver weights were elevated at 13.4 mg/L, correlating with hepatocellular hypertrophy. Kidney weights (relative or absolute unspecified) were increased at ≥ 2.37 mg/L in males and at 13.4 mg/L in females. Minimal hypertrophy of thyroid follicular epithelium occurred at 13.4 mg/L in both males and females. Hyaline droplet accumulation was observed in males at ≥ 0.46 mg/L.[10] No neurobehavioral effects were observed.
LOAEC = 13.4 mg/L/day (based on signs of liver toxicity, and minimal hypertrophy of thyroid follicular epithelium)
NOAEC = 2.37 mg/L/day

Naphtha (petroleum), hydrodesulfurized heavy (CASRN 64742-82-1)
Paraffins: 50.8% (v/v), Olefins: 0.03%, Naphthenes: 26.4%, Aromatics: 21.3%

[10] Nephropathy seen in male rats may be occurring by an alpha 2µ-globulin-mediated mechanism (which is male rat-specific and not considered relevant to humans). EPA's Risk Assessment Forum has outlined key events and data that are necessary to demonstrate this mode of action (Alpha 2µ-Globulin: Association with Chemically Induced Renal Toxicity and Neoplasia in the Rat, EPA/625/3-91/019F).

Sprague-Dawley rats (10/sex/dose) were administered naphtha (petroleum), hydrodesulfurized heavy (F-185) via the dermal route at 0, 0.05, 0.25 or 1.0 mL/kg-bw (~ 0, 38, 191 or 764 mg/kg-bw)[11] under occluded conditions for 6 hours/day, 5 days/week for 28 days. Endpoints included clinical signs, body weights, organ weights, hematology, clinical chemistry and histopathology. No study-related mortalities occurred. Moderate dermal irritation, as evidenced by grossly visible lesions and by microscopic histopathological changes in the skin, was observed at 764 mg/kg-bw/day. Slight to very slight dermal irritation was observed at doses of 191 mg/kg-bw/day and 38 mg/kg-bw/day, respectively. No effects on any other parameters were observed. **NOAEL ~ 764 mg/kg-bw/day** (based on no systemic effects observed at the highest dose tested)

Aromatic Naphthas

Naphtha (petroleum), heavy catalytic reformed (CASRN 64741-68-0)
Paraffins: 33.6% (v/v), Olefins: 1.3%, Naphthenes: 3.3%, Aromatics: 58.1%
Sprague-Dawley rats (10/sex/dose) were administered naphtha (petroleum), heavy catalytic reformed (F-184) via the dermal route at 0, 0.05, 0.25 or 1.0 mL/kg-bw (~ 0, 40, 199 or 797 mg/kg-bw)[12] under occluded conditions, 6 hours/day, 5 days/week for 28 days. Endpoints included clinical signs, body weights, organ weights, hematology, clinical chemistry and histopathology. No study-related mortalities occurred. Slight to moderate dermal irritation, as evidenced by grossly visible lesions and by microscopic histopathological changes in the skin, was observed at a dose of 797 mg/kg-bw/day. Slight dermal irritation was noted at a dose of 199 mg/kg-bw/day and very slight dermal irritation was noted at a dose of 40 mg/kg-bw/day. No treatment-related effects were observed in any other parameters.
NOAEL ~ 797 mg/kg-bw/day (based on no systemic effects at the highest dose tested)

Naphtha (petroleum), light catalytic reformed (CASRN 64741-63-5)
Paraffins: 88.3% (v/v), Olefins: 1.4%, Naphthenes: 1.2%, Aromatics: 9.1%
Sprague-Dawley rats (16/sex/dose) were exposed whole-body to naphtha (petroleum), light catalytic reformed distillate (LCRN-D) as a vapor at 0, 2.8, 9.3 or 27.8 mg/L, 6 hours/day, 5 days/ week for 13 weeks. Endpoints included clinical signs, ophthalmoscopy, body weight, food consumption, hematology, clinical chemistry, organ weights, histopathology, motor activity and a functional operational battery. There were no mortalities observed during the study. Decreases were observed in the total white blood cell (WBC) and lymphocyte counts in males at 27.8 mg/L, which corresponded with decreases in absolute and relative spleen weights. Relative kidney weights were elevated in males exposed to 27.8 mg/L; the changes in kidney weight correlated with the occurrence of hyaline droplets in the proximal convoluted tubules of males.[13]

[11] The units of naphtha (petroleum), hydrodesulfurized heavy (F-185) were converted from volume to mass using a density of 0.764 g/mL, which was calculated using the specific gravity for F-185 provided in the analytical chemistry data set.
[12] The units of naphtha (petroleum), heavy catalytic reformed (F-184) were converted from volume to mass using a density of 0.797 g/mL, which was calculated using the specific gravity for F-184 provided in the analytical chemistry data set.
[13] Nephropathy seen in male rats may be occurring by an alpha 2µ-globulin-mediated mechanism (which is male rat-specific and not considered relevant to humans). EPA's Risk Assessment Forum has outlined key events and data that are necessary to demonstrate this mode of action (Alpha 2µ-Globulin: Association with Chemically Induced Renal Toxicity and Neoplasia in the Rat, EPA/625/3-91/019F).

LOAEL (male) = 27.8 mg/L/day (based on decreases in total WBC count, lymphocyte count and absolute and relative spleen weights)
NOAEL (male) = 9.3 mg/L/day
NOAEL (female) = 27.8 mg/L/day (based on no effects observed at the highest dose tested)

Solvent naphtha (petroleum), light arom. (CASRN 64742-95-6)
Paraffins: Not specified, Olefins: Not specified, Naphthenes: Not specified, Aromatics: 99.89%
Sprague-Dawley rats (10/sex/group) were administered solvent naphtha (petroleum), light arom. in corn oil via gavage at 0, 30, 125, 500 or 1250 mg/kg-bw/day, 5 days/week for 13 weeks. No mortality from systemic toxicity was observed. Clinical signs included salivation, pale reddish brown oral discharge and perineal staining at ≥ 500 mg/kg-bw/day. Animals exposed to 1250 mg/kg-bw/day demonstrated a significant ($p < 0.05$) reduction in body weight and body weight gain compared with sham controls. Females exposed to 500 mg/kg-bw/day exhibited a significant ($p < 0.05$) reduction in body weight gain. Hematological parameters were not affected. At 1250 mg/kg-bw/day, increases were observed in total bilirubin, albumin and albumin/globulin ratio in males, as well as in alanine aminotransferase, alkaline phosphatase, creatinine and total protein in females. At ≥ 500 mg/kg-bw/day, increases were observed in alanine aminotransferase and total protein in males. At 1250 mg/kg-bw/day, blood urea nitrogen (BUN) was significantly ($p < 0.05$) decreased in females. At 1250 mg/kg-bw/day, significant ($p < 0.05$) elevations were observed in absolute and relative weights of the adrenals and liver of females and in relative liver weights in males. Relative liver and kidney weights of females were significantly ($p < 0.05$) elevated over controls at ≥ 500 mg/kg-bw/day. Histology revealed liver cell hypertrophy in both sexes at ≥ 500 mg/kg-bw/day. Renal histology in males revealed a dose-related increase in the severity of hyaline droplets (with no hydrocarbon nephropathy)[13] and cortical tubular degeneration without a dose-response relationship. No significant changes in histology were observed in females. Additional details are available from TSCATS (OTS0556721).
LOAEL = 500 mg/kg-bw/day (based on signs of liver toxicity such as, increased alanine aminotransferase and total protein in males, increased relative liver [and kidney] weights in females and liver cell hypertrophy in both sexes)
NOAEL = 125 mg/kg-bw/day

Gasoline

Unleaded gasoline (No CASRN, supporting chemical)
(1) Paraffins: 77.4% (v/v), Olefins: 15.2%, Naphthenes: 3.3%, Aromatics: 4.2%
Sprague-Dawley rats (10/sex/dose) were administered unleaded gasoline (API 99-01) vapor condensate via whole-body inhalation at nominal concentrations of 0, 2, 10 or 20 mg/L, 6 hours/day, 5 days/week for 13 weeks. Mean measured concentrations were 0, 2.1, 10.2 and 20.3 mg/L. Endpoints included clinical signs, body weight, feed consumption, ophthalmology, hematology, clinical chemistry, neurobehavioral effects, organ weights and histopathology. No treatment-related mortalities occurred. A slight and reversible increase in red nasal discharge was observed in the 20.3 mg/L group. This effect corresponded with eosinophilic material within the nasolacrimal duct lumen. There were no toxicologically significant differences in

ophthalmoscopic findings, body weights, feed consumption, motor activity, functional observational battery measures, clinical chemistry, hematology and coagulation values between groups compared to controls. No gross anomalies were observed. Microscopic renal histopathologic changes, consisting of hyaline droplet nephropathy, were observed in male rats at all exposure levels
NOAEC = 20.3 mg/L/day (based on no adverse systemic effects at the highest concentration tested)[14]

(2) Paraffins + Naphthenes: 61.7% (units not specified), Olefins: 8.2%, Aromatics: 30.1%
Sprague-Dawley rats (20/sex/dose) were exposed whole-body to unleaded gasoline as a vapor at nominal concentrations of 0, 400 or 1500 ppm (~ 0, 1.6 or 5.9 mg/L),[15] 6 hours/day, 5 days/week for 13 weeks. Mean measured concentrations were 0, 384 and 1552 ppm (~ 0, 1.57 and 6.35 mg/L). Endpoints measured in the control and high-dose animals included hematology and histopathology. Endpoints measured at all doses included urinalysis and organ weights. No treatment-related mortality was observed. Increases were observed in thrombocytes in males and in reticulocytes in females at 6.35 mg/L. An increase in absolute liver weight was observed at 1.57 mg/L. Decreases in relative adrenal (females only) and brain (males only) weights were observed at 6.35 and ≥ 1.57 mg/L, respectively. No evidence of treatment-related histopathology was observed, with the exception of kidney lesions in males at all doses, which were characterized by subtle, but discernible increases in the incidence and severity of regenerative epithelium and dilated tubules. The latter were seen to contain protein in their lumens. The dose-related decreases in brain weight in males is considered to be an adverse effect.
LOAEC ~ 1.57 mg/L/day (based on decreases in brain weight in males)
NOAEC ~ Not established

(3) Paraffins + Naphthenes: 61.7% (units not specified), Olefins: 8.2%, Aromatics: 30.1%
Squirrel monkeys (4/sex/dose) were exposed whole-body to unleaded gasoline as a vapor at nominal concentrations of 0, 400 or 1500 ppm (~ 0, 1.6 or 5.9 mg/L),[15] 6 hours/day, 5 days/week for 13 weeks. Mean measured concentrations were 0, 384 and 1552 ppm (~ 0, 1.57 and 6.35 mg/L). Endpoints measured in the control and high-dose animals included hematology, central nervous system evaluation, pulmonary function and histopathology. Endpoints measured at all doses included urinalysis and organ weights. No treatment-related mortality was observed. One female exhibited emesis at 6.35 mg/L after 13 days of exposure. Decreases in respiratory rate (males only) and tidal volume (females only) and an increase in minute volume (males only) were observed at 6.35 mg/L. An increase in absolute thyroid weight was observed in males at concentrations ≥ 1.57 mg/L. A decrease in relative kidney weight was observed in males at 1.57 mg/L. No evidence of treatment-related histopathology was observed.
LOAEC ~ 6.35 mg/L/day (based on reduced respiratory rate in males, reduced tidal volume in females and elevated minute volume in males)
NOAEC ~ 1.57 mg/L/day

[14] In the absence of corroborating evidence of kidney toxicity, EPA does not consider the presence of hyaline droplets in the kidney to be an adverse effect for the purposes of determining a NOAEL or LOAEL.
[15] Units were converted from ppm to mg/L using the molecular weight of 96.2 g/mole provided by the sponsor for unleaded gasoline sample API 99-01.

(4) Paraffins + Naphthenes: 45% (units not specified), Olefins: 12%, Aromatics: 43%
Sprague-Dawley rats (10/sex/dose) were exposed whole-body to an unleaded gasoline blend as a vapor at 0, 0.15, 1.44 or 14.7 mg/L, 6 hours/day, 5 days/week for 90 days. General toxicity and kidney effects were evaluated. No treatment-related mortalities were noted. Irreversible tubular dilatation and necrosis at the corticomedullary junction were observed in male rats at all dose levels, with dose-related increases in severity. No effects were observed in females.
LOAEC (male) = 0.15 mg/L/day (based on nephropathy)
NOAEC (male) = Not established
NOAEC (female) = 14.7 mg/L/day (based on no effects at the highest concentration tested)

Leaded gasoline (No CASRN, supporting chemical)
(1) Paraffins + Naphthenes: 64.8% (units not specified), Olefins: 7.8%, Aromatics: 27.4%
Sprague-Dawley rats (20/sex/dose) were exposed whole-body to leaded gasoline as a vapor at nominal concentrations of 0, 100 or 400 ppm (~ 0, 0.4 or 1.6 mg/L),[16] 6 hours/day, 5 days/week for 13 weeks. Mean measured concentrations were 0, 0.42 and 1.53 mg/L. Endpoints measured in the control and high-dose animals included hematology and histopathology. Endpoints measured at all doses included urinalysis and organ weights. No treatment-related mortality was observed. Hematological changes at 1.53 mg/L included a decrease in mean corpuscular hemoglobin concentration in males, increases in hematocrit and mean corpuscular volume in females and a decrease in WBC count in females. Decreases in absolute and relative liver weights were observed in females at 1.53 mg/L. Increases in absolute liver and kidney weights were observed at 0.42 mg/L in males and females, respectively. Decreased relative heart weight was observed in males at $\geq$ 0.42 mg/L. No evidence of treatment-related histopathology was observed, with the exception of kidney lesions in males at all doses, which were characterized by subtle, but discernible increases in the incidence and severity of regenerative epithelium and dilated tubules. Affected tubules contained protein in their lumens.
LOAEC ~ 1.53 mg/L/day (based on decreased mean corpuscular hemoglobin concentration in males, increased hematocrit and mean corpuscular volume in females and decreased WBC count in females)
NOAEC ~ 0.42 mg/L/day

(2) Paraffins + Naphthenes: 64.8% (units not specified), Olefins: 7.8%, Aromatics: 27.4%
Squirrel monkeys (4/sex/dose) were exposed whole-body to leaded gasoline as a vapor at nominal concentrations of 0, 100 or 400 ppm (~ 0, 0.4 or 1.6 mg/L),[16] 6 hours/day, 5 days/week for 13 weeks. Mean measured concentrations were 0, 0.42 and 1.53 mg/L. Endpoints measured in the control and high-dose animals included hematology, central nervous system evaluation, pulmonary function and histopathology. Endpoints measured at all doses included urinalysis and organ weights. No treatment-related mortality was observed. One female exhibited emesis after 17 days of exposure at 1.53 mg/L. An increase in minute volume was observed in males at 1.53 mg/L. A decrease in absolute kidney weight was observed in males at 1.53 mg/L. No evidence of treatment-related histopathology was observed.
LOAEC (male) ~ 1.53 mg/L/day (based on an increase in minute volume)
NOAEC (male) ~ 0.42 mg/L/day

[16] Units were converted from ppm to mg/L using the molecular weight of 96.2 g/mole provided by the sponsor for unleaded gasoline sample API 99-01.

NOAEC (female) ~ 1.53 mg/L/day (based on no observed systemic effects at the highest concentration tested)

Reproductive Toxicity

Paraffinic Naphthas

Naphtha (petroleum), light alkylate (CASRN 64741-66-8)
Paraffins: 99.97% (v/v), Olefins: 0.03%, Naphthenes: 0%, Aromatics: 0%
In a combined reproductive/developmental toxicity screening test, Sprague-Dawley rats (10/sex/dose) were exposed whole-body to naphtha (petroleum), light alkylate (LAN-D) at nominal concentrations of 0, 5, 12.5 or 25 mg/L as a vapor, 6 hours/day for 7 – 8 weeks, including 2 weeks prior to mating, during mating and gestation, and up to postpartum day 4. Exposure of females was suspended on gestation day 19. Measured concentrations were between 96 and 104% of nominal concentrations. No treatment-related mortalities were observed. There were no effects on parental body weights, food consumption, organ weights, number of pregnant females, number of animals delivering, number of corpora lutea, number of implantation sites, number of pups born, live born index, viability index, sex ratio, clinical observations of pups and pup body weights.
NOAEC (reproductive toxicity) = 25 mg/L/day (based on no effects observed at the highest concentration tested)

Olefinic Naphthas

Naphtha (petroleum), light catalytic cracked (CASRN 64741-55-5)
(1) Paraffins: 37.7% (v/v), Olefins: 53.7%, Naphthenes: 4.3%, Aromatics: 4.4%
In a combined reproductive/developmental toxicity screening test, Sprague-Dawley rats (10/sex/dose) were exposed whole-body to a distillate of naphtha (petroleum), light catalytic cracked (LCCN-D) at nominal concentrations of 0, 750, 2500 or 7500 ppm (~ 0, 2.4, 7.9 and 23.8 mg/L) as a vapor, 6 hours/day, 7 days/week for 30 – 47 days, starting 14 days prior to mating and extending through gestation day 19. Dams and their litters were sacrificed on postpartum day 4. Mean measured concentrations were 0, 752, 2512 and 7518 ppm (0, 2.4, 8.0 and 23.9 mg/L). No treatment-related mortalities were observed. Red staining of the snout was observed at concentrations ≥ 8.0 mg/L. At 23.9 mg/L, organ weight changes included increases in absolute and relative kidney weights and relative liver weights in males and increases in absolute and relative spleen weights in females. Hyaline droplet formation and dilatation of tubules in the cortico-medullary junction were observed in males at 23.9 mg/L.[17] There were no effects on parental body weight, food consumption, histology (including testes, epididymides and ovaries), fertility index, live birth index, number of litters, numbers of live and dead pups, number of implantation sites, pup viability, sex ratio and pup body weight.

[17] Nephropathy seen in male rats may be occurring by an alpha 2µ-globulin-mediated mechanism (which is male rat-specific and not considered relevant to humans). EPA's Risk Assessment Forum has outlined key events and data that are necessary to demonstrate this mode of action (Alpha 2µ-Globulin: Association with Chemically Induced Renal Toxicity and Neoplasia in the Rat, EPA/625/3-91/019F).

NOAEC (reproductive toxicity) ~ 23.9 mg/L/day (based on no effects observed at the highest concentration tested)

(2) Paraffins: 33.2% (v/v), Olefins: 40.0%, Naphthenes: 10.1%, Aromatics: 16.8%
In the repeated-dose inhalation study in described previously, Sprague-Dawley rats exposed to naphtha (petroleum), light catalytic cracked (LCCN) as a vapor at a measured concentration of 7.69 mg/L for 13 weeks had a lower number of sperm per gram of cauda epididymis compared to the sham controls, but not the untreated controls.

Naphthenic Naphthas

Naphtha (petroleum), heavy straight-run (CASRN 64741-41-9)
Paraffins: 52.9% (v/v), Olefins: 5.1%, Naphthenes: 28.6%, Aromatics: 11.8%
In the combined repeated-dose/reproductive/developmental toxicity screening test described previously, Sprague-Dawley rats were exposed whole-body to naphtha (petroleum), heavy straight-run as a vapor for 30 – 54 days, including 14 days prior to mating, up to 14 days during mating and during gestation up to day 19. Pups were observed until lactation day 4. There were no effects on histopathology of reproductive organs, number of pregnant females, number of females delivering, mating index, fertility index, precoital interval, gestation length, number of corpora lutea, number of implantation sites, post-implantation losses, number of pups born, live born index, viability index, sex ratio, clinical observations of pups, pup body weights or pup body weight gain.
NOAEC (reproductive toxicity) = 13.4 mg/L/day (based on no effects observed at the highest concentration tested)

Aromatic Naphthas

Naphtha (petroleum), light catalytic reformed (CASRN 64741-63-5)
Paraffins: 88.3% (v/v), Olefins: 1.4%, Naphthenes: 1.2%, Aromatics: 9.1%[18]
In a combined reproductive/developmental toxicity screening test, Sprague-Dawley rats (10/sex/dose) were exposed whole-body to naphtha, light catalytic reformed distillate (LCRN-D) as a vapor at nominal concentrations of 0, 750, 2500 or 7500 ppm (~ 0, 2.4, 7.9 or 23.7 mg/L), 6 hours/day, 7 days/week for 30 – 47 days. Mean measured concentrations were 0, 750, 2490 and 7480 ppm (~ 0, 2.4, 7.9 or 23.6 mg/L). Males and unmated females were exposed for 14 days prior to mating, throughout mating and for 18 additional days following the mating period. Parental females were exposed for 14 days prior to mating, throughout mating and during gestation days 0 – 19. All animals were sacrificed when litters reached postpartum day 4. No treatment-related mortalities or clinical signs were observed. Treatment-related increases in relative kidney and liver weights were observed in males at 23.6 mg/L. There were no significant effects on body weight, food consumption, histopathology of reproductive organs or nasal turbinates, number of pregnant females, number of litters, mating index, number of implantation sites, numbers of live and dead pups, live birth index, viability index, pup sex ratio, clinical observations of pups and pup body weights.

[18] This sample only contains 9.1% aromatics, but is considered an aromatic naphtha because it is the vapor distillate of a mixture that contains 33% aromatics.

NOAEC (reproductive toxicity) ~ 23.6 mg/L/day (based on no effects observed at the highest concentration tested)

Gasoline

Unleaded gasoline (No CASRN, supporting chemical)
(1) Paraffins: 48.7% (v/v), Olefins: 9.0%, Naphthenes: 6.3%, Aromatics: 36.0%
In a two-generation study, Sprague-Dawley rats (26/sex/dose) were exposed whole-body to unleaded gasoline (API 99-01) vapor condensate at nominal concentrations of 0, 2, 10 or 20 mg/L as a vapor, 6 hours/day, 7 days/week for 10 weeks prior to mating, 2 weeks during mating, 3 weeks during gestation and 4 weeks during lactation. Exposure was suspended on gestation day 19 and resumed on lactation day 5. Mean measured concentrations were 0, 2.01, 10.1 and 20 mg/L. No treatment-related mortalities were observed. Decreases were observed in body weight gain in P0 females and F1 males at 20 mg/L. No effects were observed on the following parameters in adults: clinical condition, feed consumption, estrous cycle data, mating, fertility and gestation indices, pregnancy rate, gestation duration, primordial and growing follicle counts and sperm motility, count and morphology. An increase in kidney weight was observed in P0 and F1 males at ≥ 10.1 mg/L and in P0 females at 20 mg/L. Males exhibited hyaline droplet nephropathy[19] at 20 mg/L. There were no effects observed on the number of pups delivered, number of pups dying, number of implantation sites per litter, sex ratio and number of live pups per litter. There were no exposure-related differences in measured parameters in pups, including body weight and body weight gain, macroscopic postmortem evaluations, viability and lactation survival indices, organ weights or neuropathological findings.
LOAEC (systemic toxicity) = 20 mg/L/day (based on decreased body weight gain)
NOAEC (systemic toxicity) = 10.1 mg/L/day
NOAEC (reproductive toxicity) = 20 mg/L/day (based on no effects observed at the highest concentration tested)

(2) PONA Composition Not Specified
In a two-generation study, Sprague-Dawley rats (30/sex/dose) were exposed via inhalation to unleaded gasoline vapor condensate (~ 98.8% C3 – C8 non-aromatic hydrocarbons and ~ 1.4% aromatic hydrocarbons) at nominal concentrations of 0, 5, 10 or 20 mg/L, 6 hours/day, 7 days/week for 10 (P0) or 13 (F1) weeks prior to mating, 3 weeks during mating, during gestation until day 20 and resuming on postpartum day 5. Mean measured concentrations were 0, 5.08, 10.3 and 20.2 mg/L. No treatment-related mortality was observed. Increases were observed in liver, kidney and testis weights in males and lung weights in females (doses not specified), but no dose-response relationship was observed. Relative kidney weights in males were elevated at 20.2 mg/L in the F1 generation. Hyaline droplets were observed in the kidneys of males at 20.2 mg/L.[20] No treatment-related effects were observed on clinical condition, body weight of pups

[19] Nephropathy seen in male rats may be occurring by an alpha 2µ-globulin-mediated mechanism (which is male rat-specific and not considered relevant to humans). EPA's Risk Assessment Forum has outlined key events and data that are necessary to demonstrate this mode of action (Alpha 2µ-Globulin: Association with Chemically Induced Renal Toxicity and Neoplasia in the Rat, EPA/625/3-91/019F).
[20] Nephropathy seen in male rats may be occurring by an alpha 2µ-globulin-mediated mechanism (which is male rat-specific and not considered relevant to humans). EPA's Risk Assessment Forum has outlined key events and data that are necessary to demonstrate this mode of action (Alpha 2µ-Globulin: Association with Chemically Induced Renal Toxicity and Neoplasia in the Rat, EPA/625/3-91/019F).

and adults, food consumption, mating index, fecundity, fertility index, length of gestation, litter size, live birth index, numbers of live and dead pups, sex ratio, pup survival, pup body weight gain, sperm count, motility and morphology, estrous cycle data, number of corpora lutea and pup maturation rate.
NOAEC (reproductive toxicity) = 20.2 mg/L/day (based on no effects observed at the highest concentration tested)

Developmental Toxicity

Paraffinic Naphthas

Naphtha (petroleum), light alkylate (CASRN 64741-66-8)
Paraffins: 99.97% (v/v), Olefins: 0.03%, Naphthenes: 0%, Aromatics: 0%
In the combined reproductive/developmental inhalation toxicity screening test in Sprague-Dawley rats described previously, no effects were observed on the number of corpora lutea, number of implantation sites, number of pups born, live born index, viability index, sex ratio, clinical observations of pups, pup body weights and body weight gain. No treatment-related effects were observed on the incidence of visceral and skeletal abnormalities in pups on day 4 postpartum.
NOAEC (maternal and developmental toxicity) = 25 mg/L/day (based on no effects observed at the highest concentration tested)

Olefinic Naphthas

Naphtha (petroleum), light catalytic cracked (CASRN 64741-55-5)
(1) **Paraffins: 37.7% (v/v), Olefins: 53.7%, Naphthenes: 4.3%, Aromatics: 4.4%**
In the combined reproductive/developmental inhalation toxicity screening test in Sprague-Dawley rats exposed to a distillate of naphtha (petroleum), light catalytic cracked (LCCN-D) described previously, no effects were observed on live birth index, number of litters, numbers of live and dead pups, number of implantation sites, pup survival, sex ratio, pup body weight and body weight change. No abnormalities were observed in pups.
NOAEC (maternal and developmental toxicity) ~ 23.9 mg/L/day (based on no effects observed at the highest concentration tested)

(2) **Paraffins: 33.2% (v/v), Olefins: 40.0%, Naphthenes: 10.1%, Aromatics: 16.8%**
In a prenatal developmental toxicity test, pregnant female Sprague-Dawley rats (15/dose) were exposed to naphtha (petroleum), light catalytic cracked (LCCN) as a vapor at nominal concentrations of 0, 2 or 8 mg/L, 6 hours/day from gestation days 0 – 19. Mean measured concentrations were 0, 2.2 and 7.7 mg/L. There were no treatment-related clinical abnormalities or differences in body weight in the maternal generation. There was an increase in the number of resorptions at 7.7 mg/L compared to controls; however, this did not appear to affect any fertility parameters. There were no treatment-related effects on the number of implantation sites, preimplantation losses, numbers of live and dead fetuses per litter, number of corpora lutea, sex ratio, fetal weight, crown-rump length and incidence of visceral and skeletal abnormalities.
NOAEC (maternal toxicity) = 7.7 mg/L/day (based on no effects observed at the hdt)

LOAEC (developmental toxicity) = 7.7 mg/L/day (based on an increase in the number of resorptions)
NOAEC (developmental toxicity) = 2.2 mg/L/day

(3) **Paraffins: 33.2% (v/v), Olefins: 40.0%, Naphthenes: 10.1%,Aromatics: 16.8%**
In a prenatal developmental toxicity test, pregnant female Sprague-Dawley rats (10/dose) were administered naphtha (petroleum), light catalytic cracked (LCCN) via the dermal route at 0, 30, 125 or 500 mg/kg-bw under non-occlusive conditions from gestation day 0 – 19. Slight to moderate dermal irritation was observed in all treatment groups and included erythema, edema, scabbing, flaking and eschar formation. There were no treatment-related effects on maternal body weight, body weight gain, food consumption, clinical chemistry, numbers of corpora lutea, implantation sites and viable fetuses, fetal weight, crown-rump length and visceral or skeletal development.
NOAEL (maternal and developmental toxicity) = 500 mg/kg-bw/day (based on no effects observed at the highest dose tested)

Naphtha (petroleum), full-range coker (CASRN 68513-02-0)
Paraffins: 37.8% (v/v), Olefins: 39.2%, Naphthenes: 12.6%, Aromatics: 10.5%
In a prenatal developmental toxicity test, pregnant female Sprague-Dawley rats (12 – 15/dose) were administered naphtha (petroleum), full-range coker (F-250) via the dermal route at 0, 100, 500 or 1000 mg/kg-bw under non-occlusive conditions from gestation day 0 – 20. Pups were observed until lactation day 4. Slight to severe dermal irritation was observed in all treatment groups and included erythema, edema, eschar and dry skin. Significant ($p < 0.05$) lower body weights were observed in all treatment groups relative to controls, but the effect was not dose-related and there was no effect on body weight gain. There were no significant treatment-related effects on gestation duration, number of pregnant rats, mean number implantation sites, number of live pups, pup survival, pup body weight or sex ratio.
NOAEL (maternal and developmental toxicity) = 1000 mg/kg-bw/day (based on no treatment-related effects observed at the highest dose tested)

Naphthenic Naphthas

Naphtha (petroleum), heavy straight-run (CASRN 64741-41-9)
Paraffins: 52.9% (v/v), Olefins: 5.1%, Naphthenes: 28.6%, Aromatics: 11.8%
In the combined repeated-dose/reproductive/developmental toxicity screening test described previously, Sprague-Dawley rats were exposed whole-body to naphtha (petroleum), heavy straight-run as a vapor for 30 – 54 days, including 14 days prior to mating, up to 14 days during mating and during gestation up to day 19. Pups were observed until lactation day 4. There were no effects on the number of corpora lutea, number of implantation sites, post-implantation losses, number of pups born, live born index, viability index, sex ratio, clinical observations of pups, pup body weights or pup body weight gain.
LOAEC (maternal toxicity) ~ 13.4 mg/L/day (based on reduced body weight, body weight gain and food consumption in females and minimal hypertrophy of thyroid follicular epithelium)
NOAEC (maternal toxicity) ~ 2.37 mg/L/day
NOAEC (developmental toxicity) ~ 13.4 mg/L/day/day (based on no effects observed at the highest concentration tested)

Aromatic Naphthas

Naphtha (petroleum), light catalytic reformed (CASRN 64741-63-5)
Paraffins: 88.3% (v/v), Olefins: 1.4%, Naphthenes: 1.2%, Aromatics: 9.1%
In the combined reproductive/developmental inhalation toxicity screening test in Sprague-Dawley rats described previously, there were no significant effects on developmental endpoints, including number of implantation sites, numbers of live and dead pups, live birth index, pup viability (survival to postpartum day 4), pup sex ratio, clinical observations of pups, pup body weights, pup body weight change or frequency of abnormalities.
NOAEC (maternal and developmental toxicity) = 23.7 mg/L/day (based on no effects observed at the highest concentration tested)

Gasoline

Unleaded gasoline (No CASRN, supporting chemical)
Paraffins: 48.7% (v/v), Olefins: 9.0%, Naphthenes: 6.3%, Aromatics: 36.0%
Pregnant Sprague-Dawley (Crl:CD(SD)IGSBR) rats (25 females/dose) were exposed whole-body to unleaded gasoline (API 99-01) vapor condensate at 0, 2, 10 or 20 mg/L as a vapor, 6 hours/day on gestation days 5 – 20. Mean measured concentrations were 0, 2.0, 10.7 and 20.6 mg/L. No treatment-related mortalities were observed. A significant ($p < 0.05$) reduction in mean fetal body weight was observed in all exposed groups, but the study authors concluded that this effect was not treatment-related because mean fetal weights of treatment groups were within the historical control range of the laboratory, there was no dose response and the mean litter size in the control group was smaller than any treated group. There were no significant adverse effects on maternal body weight and food consumption, uterine implantation data, number of corpora lutea, numbers of live, dead and resorbed fetuses and external, visceral and skeletal observations.
NOAEL (maternal and developmental toxicity) = 20.6 mg/L/day (based on no effects observed at the highest dose tested)

Gasoline (CASRN 86290-81-5, supporting chemical)
(1) Paraffins: 79.5% (units not specified), Olefins: 14.1%, Naphthenes: 2.3%, Aromatics: 4.0%
Pregnant Sprague-Dawley (CD) [CDBR] rats (21 – 24/dose) were exposed to unleaded gasoline vapor condensate (API 94-02) as a vapor at 0, 2.7, 8 or 24 mg/L, 6 hours/day on gestation days 6 – 19. No maternal toxicity was observed. There were no differences between treated and control groups in developmental malformations, total variations, number of resorptions, fetal body weight and viability. Further details were not provided.
NOAEL (maternal and developmental toxicity) = 24 mg/L/day (based on no effects observed at the highest dose tested)

(2) PONA Composition Not Specified
Pregnant Sprague-Dawley rats (25/dose) were exposed to unleaded gasoline as a vapor at nominal concentrations of 0, 400 or 1600 ppm (~ 0, 1.6 or 6.3 mg/L)[21], 6 hours/day on gestation days 6 – 15. Mean measured concentrations were 0, 442 and 1573 ppm (~ 0, 1.7 and 6.2 mg/L). There were no treatment-related effects on maternal body weight, food consumption, number of implantation sites, number of resorptions, numbers of live and dead fetuses, fetal weight or incidence of visceral abnormalities. An increase in the number of fetuses with skeletal variations was observed at ~ 6.2 mg/L and consisted mainly of changes related to retarded ossification.
NOAEL (maternal toxicity) ~ 6.2 mg/L/day (based on no effects observed at the hdt)
LOAEL (developmental toxicity) ~ 6.2 mg/L/day (based on an increase in skeletal variations/delayed ossification)
NOAEL (developmental toxicity) ~ 1.7 mg/L/day

Genetic Toxicity – Gene Mutation

In vitro

Paraffinic Naphthas

Naphtha (petroleum), light alkylate (CASRN 64741-66-8)
Paraffins: 99.4% (v/v), Olefins: 0%, Naphthenes: 0.6%, Aromatics: 0%
Mouse lymphoma L5178Y TK+/- cells were exposed to naphtha (petroleum), light alkylate (API 83-19) in acetone at concentrations of 0.005 – 0.08 µg/mL without metabolic activation or 0.00004 – 0.8 µg/mL with metabolic activation. Positive and negative controls responded appropriately. Complete toxicity was observed at 0.05 µg/mL without activation and 0.5 µg/mL with activation. Naphtha (petroleum), light alkylate (API 83-19) did not cause an increase in mutation frequency.
Naphtha (petroleum), light alkylate was not mutagenic in this assay.

Olefinic Naphthas

Naphtha (petroleum), light catalytic cracked (CASRN 64741-55-5)
(1) Paraffins: 30.6% (v/v), Olefins: 45.6%, Naphthenes: 10.4%, Aromatics: 13.1%
Mouse lymphoma cells were exposed to naphtha (petroleum), light catalytic cracked (API 83-20) in ethanol at concentrations of 50 – 800 nL/mL without metabolic activation and 25 – 500 nL/mL with activation. Positive control and negative controls responded appropriately. Cytotoxicity was observed at 175 nL/mL. Naphtha (petroleum), light catalytic cracked (API 83-20) did not cause an increase in mutation frequency.
Naphtha (petroleum), light catalytic cracked was not mutagenic in this assay.

(2) Paraffins: 42.8% (v/v), Olefins: 36.5%, Naphthenes: 10.2%, Aromatics: 10.2%
Mouse lymphoma cells were exposed to naphtha (petroleum), light catalytic cracked (API 81-03) at unspecified concentrations with and without metabolic activation. Naphtha (petroleum), light

[21] Units were converted from ppm to mg/L using the molecular weight of 96.2 g/mole provided by the sponsor for unleaded gasoline sample API 99-01.

catalytic cracked (API 81-03) was not mutagenic with or without activation. No other details were provided.
Naphtha (petroleum), light catalytic cracked was not mutagenic in this assay.

(3) Paraffins: 34.6% (v/v), Olefins: 29.2%, Naphthenes: 14.5%, Aromatics: 21.1%
Mouse lymphoma cells were exposed to naphtha (petroleum), light catalytic cracked (API 81-04) at unspecified concentrations with and without metabolic activation. Naphtha (petroleum), light catalytic cracked (API 81-04) was not mutagenic without activation, but the results were equivocal with activation. No other details were provided.
Naphtha (petroleum), light catalytic cracked was equivocal for the induction of mutations in this assay.

Naphthenic Naphthas

Naphtha (petroleum), sweetened (CASRN 64741-87-3)
Paraffins: 72.1% (v/v), Olefins: <0.1%, Naphthenes: 20.9%, Aromatics: 6.9%
Mouse lymphoma L5178Y TK+/- cells were exposed to naphtha (petroleum), sweetened (API 81-08) in ethanol at concentrations of 12.5 – 300 µL/mL with and without metabolic activation. Positive and negative controls responded appropriately. Naphtha (petroleum), sweetened (API 81-08) did not cause a reproducible increase in mutation frequency.
Naphtha (petroleum), sweetened was not mutagenic in this assay.

Aromatic Naphthas

Naphtha (petroleum), heavy catalytic reformed (CASRN 64741-68-0)
(1) Paraffins: 9.4% (v/v), Olefins: <0.1%, Naphthenes: 0.1%, Aromatics: 89.8%
Mouse lymphoma L5178Y TK+/- cells were exposed to naphtha (petroleum), heavy catalytic reformed (API 83-06) in ethanol at concentrations of 18 – 75 nL/mL without metabolic activation and 67 and 220 nL/mL with activation. Both positive and negative controls responded appropriately. An increase in mutation frequency was observed at high concentrations both with and without activation. The response was judged to be equivocal because the growth of cultures was below 10% without activation and the positive response was not reproducible with activation.
Naphtha (petroleum), heavy catalytic reformed was equivocal for the induction of mutations in this assay.

(2) Paraffins: 9.4% (v/v), Olefins: <0.1%, Naphthenes: 0.1%, Aromatics: 89.8%
Mouse lymphoma L5178Y TK+/- cells were exposed to naphtha (petroleum), heavy catalytic reformed (API 83-06) at unspecified concentrations with and without activation. Naphtha (petroleum), heavy catalytic reformed (API 83-06) was mutagenic with activation only. No other details were provided.
Naphtha (petroleum), heavy catalytic reformed was mutagenic in this assay.

Naphtha (petroleum), light catalytic reformed (CASRN 64741-63-5)
Paraffins: 52.1% (v/v), Olefins: 1.1%, Naphthenes: 5.4%, Aromatics: 42.1%
Mouse lymphoma L5178Y TK+/- cells were exposed to naphtha (petroleum), light catalytic reformed (API 83-04) in ethanol at concentrations of 25, 50, 75, 100 and 125 nL/mL without metabolic activation and 25, 50, 75, 100 and 150 nL/mL with activation. Positive control and negative controls responded appropriately. The test substance did not induce a treatment-related increase in mutation frequency.
Naphtha (petroleum), light catalytic reformed was not mutagenic in this assay.

Naphtha (petroleum), catalytic reformed (CASRN 68955-35-1)
Paraffins: 32.1% (v/v), Olefins: 0.5%, Naphthenes: 3.7%, Aromatics: 63.3%
Mouse lymphoma L5178Y TK+/- cells were exposed to naphtha (petroleum), catalytic reformed (API 83-05) in ethanol at concentrations of 6.25, 25, 37.5, 75 and 100 nL/mL without metabolic activation and 18.8, 37.5, 75, 100, 150 and 200 nL/mL with activation. Positive and negative controls responded appropriately. An increase in mutation frequency was observed with activation at concentrations ≥ 75 µL/mL. No increase was observed without activation.
Naphtha (petroleum), catalytic reformed was mutagenic in this assay.

Solvent naphtha (petroleum), light arom. (CASRN 64742-95-6)
PONA Composition Not Specified
Salmonella typhimurium strains TA98, TA100, TA1535 and TA1537 were exposed to solvent naphtha (petroleum), light arom. in dimethylsulfoxide (DMSO) at concentrations of 10 – 1000 µg/plate with and without metabolic activation. Positive and negative controls responded appropriately. Cytotoxicity was observed at 1000 µg/plate in all strains. No mutagenicity with or without metabolic activation was observed in any strain. Additional details are from TSCATS (OTS0529431).
Solvent naphtha (petroleum), light arom. was not mutagenic in this assay.

<u>Gasoline</u>

Unleaded gasoline (No CASRN, supporting chemical)
(1) PONA Composition Not Specified
Salmonella typhimurium strains TA98, TA100, TA1535, TA1537 and TA1538 and *Saccharomyces cerevisiae* strain D4 were exposed to unleaded gasoline in DMSO at concentrations of 0.375 to 3% for *Salmonella typhimurium* and of 0.625 to 5% for *Saccharomyces cerevisiae*, with and without metabolic activation. Positive and negative controls responded appropriately. Unleaded gasoline did not cause a reproducible increase in mutation frequency.
Unleaded gasoline was not mutagenic in this assay.

(2) PONA Composition Not Specified
Mouse lymphoma L5178Y TK+/- cells were exposed to unleaded gasoline in acetone at concentrations of 0.065 – 1.04 µL/mL with and without metabolic activation. Positive and negative controls responded appropriately. Unleaded gasoline did not cause an increase in mutation frequency.
Unleaded gasoline was not mutagenic in this assay.

Genetic Toxicity – Chromosomal Aberrations

In vitro

<u>Olefinic Naphthas</u>

Naphtha (petroleum), light catalytic cracked (CASRN 64741-55-5)
Paraffins: 42.8% (v/v), Olefins: 36.5%, Naphthenes: 10.2%, Aromatics: 10.2%
In a sister chromatid exchange assay, CHO cells were exposed to naphtha (petroleum), light catalytic cracked (API 81-03) at concentrations of 0.05 – 0.3 µL/mL without metabolic activation and 0.03 – 0.2 µL/mL with metabolic activation. A small, but significant ($p < 0.05$) increase in the frequency of sister chromatid exchange was observed at two intermediate dose levels in the presence of metabolic activation. No increase in sister chromatid exchange frequency was observed without activation. Positive and negative controls responded appropriately.
Naphtha (petroleum), light catalytic cracked was equivocal for the induction of sister chromatid exchange in this assay.

<u>Aromatic Naphthas</u>

Solvent naphtha (petroleum), light arom. (CASRN 64742-95-6)
PONA Composition Not Specified
Human lymphocytes were exposed to solvent naphtha (petroleum), light arom. in DMSO for 24 hours at concentrations of 2.5, 5, 10 and 20 µg/mL without metabolic activation and at 5, 10, 20 and 25 µg/mL with metabolic activation. Positive and negative controls responded appropriately. Cytotoxicity was observed at concentrations ≥ 20 µg/mL. Chromosome analysis was performed at 5, 10 and 20 µg/mL. Increases in aberrant cell frequencies were observed at all concentrations with metabolic activation and at 20 µg/mL without metabolic activation. Additional details are from TSCATS (OTS0529432).
Solvent naphtha (petroleum), light arom. induced chromosomal aberrations in this assay.

In vivo

<u>Paraffinic Naphthas</u>

Naphtha (petroleum), light alkylate (CASRN 64741-66-8)
Paraffins: 99.4% (v/v), Olefins: 0%, Naphthenes: 0.6%, Aromatics: 0%
In a bone marrow chromosomal aberration assay, Sprague-Dawley rats (15/sex/dose) were administered naphtha (petroleum), light alkylate (API 83-19) in corn oil at concentrations of 0, 0.3, 1.0 or 3.0 g/kg-bw via intraperitoneal injection and sacrificed up to 48 hours later. Positive and negative controls responded appropriately. There were no treatment-related increases in chromosomal aberrations.
Naphtha (petroleum), light alkylate did not induce chromosomal aberrations in this assay.

Olefinic Naphthas

Naphtha (petroleum), light catalytic cracked (CASRN 64741-55-5)
(1) **Paraffins: 42.8% (v/v), Olefins: 36.5%, Naphthenes: 10.2%, Aromatics: 10.2%**
In a sister chromatid exchange assay, B6C3F1 mice (5/sex/dose) were administered naphtha (petroleum), light catalytic cracked (APR 81-03) in corn oil at concentrations of 0, 200, 1200 or 2400 mg/kg-bw via intraperitoneal injection. Positive and negative controls responded appropriately. A statistically significant ($p < 0.05$) increase in the frequency of sister chromatid exchange was observed at all dose levels.
Naphtha (petroleum), light catalytic cracked induced sister chromatid exchange in this assay.

(2) **Paraffins: 34.6% (v/v),**
Olefins: 29.2%,Naphthenes: 14.5%, Aromatics: 21.1%
In a bone marrow chromosomal aberration assay, Sprague-Dawley rats (15/sex/dose) were administered naphtha (petroleum), light catalytic cracked (API 81-04) in corn oil at concentrations of 0, 0.3, 1 or 3 g/kg-bw via intraperitoneal injection and sacrificed up to 48 hours later. Positive and negative controls responded appropriately. There were no treatment-related increases in chromosomal aberrations.
Naphtha (petroleum), light catalytic cracked did not induce chromosomal aberrations in this assay.

Naphthenic Naphthas

Naphtha (petroleum), sweetened (CASRN 64741-87-3)
Paraffins: 72.1% (v/v), Olefins: <0.1%, Naphthenes: 20.9%, Aromatics: 6.9%
In a bone marrow chromosomal aberration assay, Sprague-Dawley rats (10/sex/dose) were exposed whole-body to naphtha (petroleum), sweetened (API 81-08) as a vapor at nominal concentrations of 0, 65, 300 or 2050 ppm (0, 0.21, 0.99 or 6.8 mg/L), 6 hours/day for 5 days. Mean measured concentrations were 0, 69, 293 and 2012 ppm (0, 0.23, 0.97 and 6.7 mg/L). Positive and negative controls responded appropriately. There were no treatment-related increases in chromosomal aberrations.
Naphtha (petroleum), sweetened did not induce chromosomal aberrations in this assay.

Aromatic Naphthas

Naphtha (petroleum), catalytic reformed (CASRN 68955-35-1; aromatic naphtha)
Paraffins: 32.1% (v/v), Olefins: 0.5%, Naphthenes: 3.7%, Aromatics: 63.3%
In a bone marrow chromosomal aberration assay, Sprague-Dawley rats (5/sex/dose) were administered naphtha (petroleum), catalytic reformed (API 83-05) in corn oil at concentrations of 0, 0.26, 0.82 or 2.42 g/kg-bw via intraperitoneal injection and sacrificed up to 48 hours later. Positive and negative controls responded appropriately. There were no treatment-related increases in chromosomal aberrations.
Naphtha (petroleum), catalytic reformed did not induce chromosomal aberrations in this assay.

Gasoline

Unleaded gasoline (No CASRN, supporting chemical)

(1) **Paraffins: 48.7% (v/v), Olefins: 9.0%, Naphthenes: 6.3%, Aromatics: 36.0%**
In a sister chromatid exchange assay, Sprague-Dawley rats (5/sex/dose) were exposed whole-body to unleaded gasoline (API 99-01) vapor condensate via inhalation at nominal concentrations of 0, 2, 10 or 20 mg/L, 6 hours/day, 5 days/week for 4 weeks. Mean measured concentrations were 0, 2.05, 10.2 and 20.3 mg/L. Positive and negative controls responded appropriately. A statistically significant ($p < 0.05$) increase in the frequency of sister chromatid exchange was observed at all dose levels.
Unleaded gasoline induced sister chromatid exchange in this assay.

(2) **Paraffins: 48.7% (v/v), Olefins: 9.0%, Naphthenes: 6.3%, Aromatics: 36.0%**
In a micronucleus assay, Sprague-Dawley rats (5/sex/dose) were exposed whole-body to unleaded gasoline (API 99-01) vapor condensate via inhalation at nominal concentrations of 0, 2, 10 or 20 mg/L, 6 hours/day, 5 days/week for 4 weeks. Mean measured concentrations were 0, 2.05, 10.2 and 20.3 mg/L. Positive and negative controls responded appropriately. Unleaded gasoline (API 99-01) caused neither an increase in micronucleated immature erythrocytes nor bone marrow cell toxicity.
Unleaded gasoline did not induce micronuclei in this assay.

(3) **Paraffins: 57.8% (v/v), Olefins: 9.9%, Naphthenes: 3.9%, Aromatics: 28.1%**
In a bone marrow chromosomal aberrations assay, male rats (3 – 5/dose) were administered unleaded gasoline (API PS-6) in acetone at concentrations of 0, 0.01, 0.024, 0.03, 0.08, 0.1 or 0.24 mL via intraperitoneal injection for 5 days. Positive and negative controls responded appropriately. There were no dose-related increases in chromosomal aberrations.
Unleaded gasoline did not induce chromosomal aberrations in this assay.

(4) **Paraffins: 57.8% (v/v), Olefins: 9.9%,Naphthenes: 3.9%, Aromatics: 28.1%**
In a dominant lethal assay, CD-1 mice (10 males/dose) were exposed to unleaded gasoline (API PS-6) as a vapor at nominal concentrations of 0, 400 or 1600 ppm (0, 1.5 or 6 mg/L), 6 hours/day, 5 days/week for 8 weeks. Exposed males were mated with unexposed females, and the numbers of live and dead implants were counted. Mean measured concentrations were 0, 396 and 1525 ppm (~ 0, 1.6 and 6.0 mg/L)[22]. Positive and negative controls responded appropriately. There were no treatment-related increases in post-implantation deaths.
Unleaded gasoline did not induce chromosome aberrations in this assay.

Class Not Specified

Alkenes, C6 (CASRN 68526-52-3)

PONA Composition Not Specified
In a mammalian micronucleus assay, B6C3F1 mice (5/sex/group) were exposed to alkenes, C6 at concentrations of 0 or 1000 ppm (~ 0 or 3.4 mg/L) administered via inhalation, 6 hours/day for 2 days. A positive control was also tested administered via gavage and responded appropriately.

[22] Units were converted from ppm to mg/L using the molecular weight of 96.2 g/mole provided by the sponsor for unleaded gasoline sample API 99-01.

Alkenes, C6 did not induce an increase in bone marrow micronuclei in male or female mice. Additional details are from TSCATS (OTS50533682-1).
Alkenes, C6 did not induce micronuclei in this assay.

Additional Information

Skin Irritation

<u>Paraffinic Naphthas</u>

Naphtha (petroleum), light alkylate (CASRN 64741-66-8)
Paraffins: 99.4% (v/v), Olefins: 0%, Naphthenes: 0.6%, Aromatics: 0%
Six rabbits (strain and sex not specified) were administered 0.5 mL of naphtha (petroleum), light alkylate (API 83-19) to intact or abraded skin under occluded conditions for 24 hours and observed for 14 days following dosing. Erythema and edema were observed on both intact and abraded skin. The primary dermal irritation index was 3.9.
Naphtha (petroleum), light alkylate was moderately irritating to rabbit skin in this study.

Light naphtha, n-hexane rich (No CASRN, supporting chemical)
Paraffins: 94.5% (v/v), Olefins: 0.03%, Naphthenes: 3.2%, Aromatics: 2.3%
In the dermal repeated-dose study in Sprague-Dawley rats described previously, application of light naphtha, n-hexane rich (F-186) at a dose of 1 mL/kg-bw/day resulted in moderate dermal irritation, as evidenced by grossly visible lesions and microscopic histopathological changes in the skin. Slight irritation was observed at 0.05 mL/kg-bw/day.
Light naphtha, n-hexane rich was moderately irritating to rat skin in this study.

<u>Olefinic Naphthas</u>

Naphtha (petroleum), light catalytic cracked (CASRN 64741-55-5)
(1) Paraffins: 30.6% (v/v), Olefins: 45.6%, Naphthenes: 10.4%, Aromatics: 13.1%
Six rabbits (strain and sex not specified) were administered 0.5 mL of naphtha (petroleum), light catalytic cracked (API 83-20) to intact or abraded skin under occluded conditions for 24 hours and observed for 14 days following dosing. Edema and erythema were observed on both intact and abraded skin. The primary dermal irritation score was 3.7.
Naphtha (petroleum), light catalytic cracked was moderately irritating to rabbit skin in this study.

(2) Paraffins: 33.2% (v/v), Olefins: 40.0%, Naphthenes: 10.1%, Aromatics: 16.8%
In the prenatal developmental toxicity test in Sprague-Dawley rats described previously, administration of naphtha (petroleum), light catalytic cracked (LCCN) via the dermal route at 0, 30, 125 or 500 mg/kg-bw resulted in slight to moderate dermal irritation, including erythema, edema, scabbing, flaking and eschar.
Naphtha (petroleum), light catalytic cracked was moderately irritating to rat skin in this study.

Naphtha (petroleum), sweetened (CASRN 64741-87-3)
Paraffins: 49.6% (v/v), Olefins: 43.5%, Naphthenes: 5.6%, Aromatics: 0.5%
In the dermal repeated-dose study in Sprague-Dawley rats described previously, administration of naphtha (petroleum), sweetened (F-251) at 1.0 mL/kg-bw/day resulted in mild dermal irritation, as evidenced by grossly visible lesions and by microscopic histopathological changes in the skin. Slight dermal irritation was noted at a dose of 0.25 mL/kg-bw/day.
Naphtha (petroleum), sweetened was slightly irritating to rat skin in this study.

Naphtha (petroleum), full-range coker (CASRN 68513-02-0)
(1) Paraffins: 37.8% (v/v), Olefins: 39.2%, Naphthenes: 12.6%,Aromatics: 10.5%
In the dermal repeated-dose study in Sprague-Dawley rats described previously, administration of naphtha (petroleum), full-range coker (F-250) at a dose of 1.0 mL/kg-bw/day resulted in slight to moderate dermal irritation, as evidenced by grossly visible lesions and microscopic histopathological changes in the skin. Slight dermal irritation was noted at a dose of 0.25 mL/kg-bw/day and very slight dermal irritation was noted at a dose of 0.05 mL/kg-bw/day.
Naphtha (petroleum), full-range coker was moderately irritating to rat skin in this study.

(2) Paraffins: 37.8% (v/v),Olefins: 39.2%, Naphthenes: 12.6%, Aromatics: 10.5%
In the prenatal developmental toxicity test in Sprague-Dawley rats described previously, administration of naphtha (petroleum), full-range coker (F-250) via the dermal route at 100, 500 or 1000 mg/kg-bw resulted in slight to severe dermal irritation, including erythema, edema, eschar and dry skin.
Naphtha (petroleum), full-range coker was severely irritating to rat skin in this study.

Naphthenic Naphthas

Naphtha (petroleum), sweetened (CASRN 64741-87-3)
Paraffins: 72.1% (v/v), Olefins: <0.1%, Naphthenes: 20.9%, Aromatics: 4.1%
Six rabbits (strain and sex not specified) were administered 0.5 mL of naphtha (petroleum), sweetened (API 81-08) to intact or abraded skin under occluded conditions for 24 hours and observed for 14 days following dosing. Slight edema and erythema were observed on both intact and abraded skin. The primary dermal irritation score was 1.2.
Naphtha (petroleum), sweetened was slightly irritating to rabbit skin in this study.

Naphtha (petroleum), hydrodesulfurized heavy (CASRN 64742-82-1)
Paraffins: 50.8% (v/v), Olefins: 0.03%, Naphthenes: 26.4%, Aromatics: 21.3%
In the dermal repeated-dose study in Sprague-Dawley rats described previously, administration of naphtha (petroleum), hydrodesulfurized heavy (F-185) at 1.0 mL/kg-bw/day resulted in moderate dermal irritation, as evidenced by grossly visible lesions and by microscopic histopathological changes in the skin. Slight and very slight dermal irritation was observed at doses of 0.25 mL/kg-bw/day and 0.05 mL/kg-bw/day, respectively.
Naphtha (petroleum), hydrodesulfurized heavy was moderately irritating to rat skin in this study.

Aromatic Naphthas

Naphtha (petroleum), catalytic reformed (CASRN 68955-35-1)
Paraffins: 32.1% (v/v), Olefins: 0.5%, Naphthenes: 3.7%, Aromatics: 63.3%
Six rabbits (strain and sex not specified) were administered 0.5 mL of naphtha (petroleum), catalytic reformed (API 83-05) to intact or abraded skin under occluded conditions for 24 hours and observed for 14 days following dosing. Erythema and edema were observed on both intact and abraded skin. The primary dermal irritation index was 3.1.
Naphtha (petroleum), catalytic reformed was moderately irritating to rabbit skin in this study.

Naphtha (petroleum), heavy catalytic reformed (CASRN 64741-68-0)
Paraffins: 33.6% (v/v), Olefins: 1.3%, Naphthenes: 3.3%, Aromatics: 58.1%
In the dermal repeated-dose study in Sprague-Dawley rats described previously, administration of naphtha (petroleum), heavy catalytic reformed (F-184) at a dose of 1.0 mL/kg-bw/day resulted in slight to moderate dermal irritation, as evidenced by grossly visible lesions and by microscopic histopathological changes in the skin. Slight dermal irritation was noted at a dose of 0.25 mL/kg-bw/day and very slight dermal irritation was noted at a dose of 0.05 mL/kg-bw/day.
Naphtha (petroleum), heavy catalytic reformed was moderately irritating to rat skin in this study.

Solvent naphtha (petroleum), light arom. (CASRN 64742-95-6)
PONA Composition Not Specified
New Zealand White rabbits (3/sex) were administered 0.5 mL of solvent naphtha (petroleum), light arom. to six sites of either intact or abraded skin for 4 hours under occluded conditions, 24 hours with occlusion or 24 hours without occlusion. Irritation was scored by the Draize method. Moderate irritation was observed at all sites. Effects included erythema, edema, necrosis, eschar, cracking and flaking. Primary irritation indices ranged from 3.1 to 3.5. Additional details are from TSCATS (OTS0556731).
Solvent naphtha (petroleum), light arom. was moderately irritating to rabbit skin in this assay.

Gasoline

Gasoline (No CASRN, supporting chemical)
Paraffins: 57.8% (v/v), Olefins: 9.9%, Naphthenes: 3.9%, Aromatics: 28.1%
Rabbits (3/sex, strain not specified) were administered 0.5 mL of unleaded gasoline (API PS-6) to intact or abraded skin under occluded conditions for 24 hours and observed for 14 days following dosing. Edema and erythema were noted at 72 hours on both intact and abraded skin. The primary dermal irritation score was 0.98.
Gasoline was slightly irritating to rabbit skin in this study.

Eye Irritation

Paraffinic Naphthas

Naphtha (petroleum), light alkylate (CASRN 64741-66-8)
Paraffins: 99.4% (v/v), Olefins: 0%, Naphthenes: 0.6%, Aromatics: 0%
Rabbits (9/dose; strain and sex not specified) were administered 0.1 mL of naphtha (petroleum), light alkylate (API 83-19) to one eye; the other eye served as a control. After 20 – 30 seconds, the treated eyes of three rabbits were rinsed with water for 1 minute. Animals were observed for 7 days after treatment. No corneal or iridial irritation was observed.
Naphtha (petroleum), light alkylate was not irritating to rabbit eyes in this study.

Olefinic Naphthas

Naphtha (petroleum), light catalytic cracked (CASRN 64741-55-5)
Paraffins: 30.6% (v/v), Olefins: 45.6%, Naphthenes: 10.4%, Aromatics: 13.1%
Rabbits (9/dose; strain and sex not specified) were administered 0.1 mL of naphtha (petroleum), light catalytic cracked (API 83-20) to one eye; the other eye served as a control. After 20 – 30 seconds, the treated eyes of three rabbits were rinsed with water for 1 minute. Animals were observed for 7 days after treatment. After 1 hour, primary eye irritation scores were 1.0 and 3.3 for unwashed and washed eyes, respectively. An irritation score of zero was recorded at all other times.
Naphtha (petroleum), light catalytic cracked was not irritating to rabbit eyes in this study.

Naphthenic Naphthas

Naphtha (petroleum), sweetened (CASRN 64741-87-3)
Paraffins: 72.1% (v/v),Olefins: <0.1%, Naphthenes: 20.9%, Aromatics: 6.9%
Four male and five female rabbits (strain not specified) were administered 0.1 mL of naphtha (petroleum), sweetened (API 81-08) to one eye; the other eye served as a control. After 20 – 30 seconds, the treated eyes of three rabbits were rinsed with water for 1 minute. Animals were observed for 7 days after treatment. After 1 hour, primary eye irritation scores were 2.0 and 0.7 for unwashed and washed eyes, respectively. No irritation remained after 24 hours.
Naphtha (petroleum), sweetened was not irritating to rabbit eyes in this study.

Aromatic Naphthas

Naphtha (petroleum), catalytic reformed (CASRN 68955-35-1)
Paraffins: 32.1% (v/v), Olefins: 0.5%, Naphthenes: 3.7%, Aromatics: 63.3%
Rabbits (9/dose; strain and sex not specified) were administered 0.1 mL of naphtha (petroleum), catalytic reformed (API 83-05) to one eye; the other eye served as a control. After 20 – 30 seconds, the treated eyes of three rabbits were rinsed with water for 1 minute. Animals were observed for 14 days after treatment. After 1 hour, primary eye irritation scores were 7.2 and 7.3 for unwashed and washed eyes, respectively. After 24 hours, irritation scores declined to 5.5 and 2.7 for unwashed and washed eyes, respectively. All signs of irritation had subsided by day 14 after exposure.
Naphtha (petroleum), catalytic reformed was moderately irritating to rabbit eyes in this study.

Gasoline

Gasoline (No CASRN, supporting chemical)
Paraffins: 57.8% (v/v), Olefins: 9.9%, Naphthenes: 3.9%, Aromatics: 28.1%
Four male and five female rabbits (strain not specified) were administered 0.1 mL of unleaded gasoline (API PS-6) to one eye; the other eye served as a control. After 20 – 30 seconds, the treated eyes of three rabbits were rinsed with water for 1 minute. Animals were observed for 7 days after treatment. No irritation was observed in either rinsed or unrinsed eyes.
Unleaded gasoline was not irritating to rabbit eyes in this study.

Skin Sensitization

Paraffinic Naphthas

Naphtha (petroleum), light alkylate (CASRN 64741-66-8)
Paraffins: 99.4% (v/v), Olefins: 0%, Naphthenes: 0.6%, Aromatics: 0%
Guinea pigs (10/sex, strain not specified) were administered 0.4 mL of 50% naphtha (petroleum), light alkylate (API 83-19) in paraffin oil to shorn skin under occluded conditions for 6 hours once per week for 3 weeks. After a 2-week resting period, a challenge dose of 0.4 mL of 25% test substance in paraffin oil was applied to a previously untreated site, and animals were observed for 48 hours following treatment. A very slight erythema was observed in one animal after the challenge dose; the remaining treatment animals exhibited no response. A similar response was observed in control animals.
Naphtha (petroleum), light alkylate was not sensitizing to guinea pig skin in this study.

Olefinic Naphthas

Naphtha (petroleum), light catalytic cracked (CASRN 64741-55-5)
Paraffins: 30.6% (v/v), Olefins: 45.6%, Naphthenes: 10.4%, Aromatics: 13.1%
Guinea pigs (10/sex, strain not specified) were administered 0.4 mL of naphtha (petroleum), light catalytic cracked (API 83-20) to shorn skin under occluded conditions for 6 hours once per week for 3 weeks. After a 2-week resting period, a challenge dose of 0.4 mL of 25% test substance in paraffin oil was applied to a previously untreated site, and animals were observed for 48 hours following treatment. No skin reactions were observed following application of the challenge dose.
Naphtha (petroleum), light catalytic cracked was not sensitizing to guinea pig skin in this study.

Aromatic Naphthas

Naphtha (petroleum), catalytic reformed (CASRN 68955-35-1)
Paraffins: 32.1% (v/v), Olefins: 0.5%, Naphthenes: 3.7%, Aromatics: 63.3%
Ten male albino guinea pigs (strain not specified) were administered 0.4 mL of 50% naphtha (petroleum), catalytic reformed (API 83-05) in paraffin oil to shorn skin under occluded conditions for 6 hours, 1 time/week, for 3 weeks. After a 2-week resting period, a challenge

dose of 0.4 mL of 25% test substance in paraffin oil was applied to a previously untreated site, and animals were observed for 48 hours after treatment. No dermal reactions were observed.
Naphtha (petroleum), catalytic reformed was not sensitizing to guinea pig skin in this study.

Gasoline

Gasoline (No CASRN, supporting chemical)
Paraffins: 57.8% (v/v), Olefins: 9.9%, Naphthenes: 3.9%, Aromatics: 28.1%, Guinea pigs (10/sex, strain not specified) were administered 0.5 mL of unleaded gasoline (API PS-6) to shorn skin under occluded conditions for 6 hours, 3 times/week, for 3 weeks. The first application consisted of undiluted test substance; the remaining applications were 50% dilutions in mineral oil. After a 2-week resting period, a challenge dose of 0.5 mL of 50% unleaded gasoline in mineral oil was applied to a previously untreated site, and animals were observed for 48 hours following treatment. On the basis of edema and erythema scores, the challenge dose did not appear to be more reactive than the sensitizing treatments.
Gasoline was not sensitizing to guinea pig skin in this study.

Carcinogenicity

Paraffinic

Naphtha (petroleum), light alkylate (CASRN 64741-66-8)
Paraffins: 99.4% (v/v), Olefins: 0%, Naphthenes: 0.6%, Aromatics: 0.1%
C3H/HeJ mice (50 males) were administered 0.05 mL of naphtha (petroleum), light alkylate (API 83-19) via the dermal route 2 times/week to clipped skin for 104 weeks. No effects were observed on the incidence of tumors.
Naphtha (petroleum), light alkylate was not carcinogenic to mice in this study.

Olefinic Naphthas

Naphtha (petroleum), light catalytic cracked (CASRN 64741-55-5)
Paraffins: 42.8% (v/v),Olefins: 36.5%,Naphthenes: 10.2%, Aromatics: 10.2%
C3H/HeJ mice (50 males) were administered 0.05 mL of naphtha (petroleum), light catalytic cracked (API 81-03) via the dermal route 2 times/week to clipped skin for 139 weeks. An increased incidence of malignant dermal neoplasms was observed in exposed mice, relative to control mice. Dermal neoplasms included squamous cell carcinomas and fibrosarcomas. The study authors concluded that naphtha (petroleum), light catalytic cracked (API 81-03) was a weak dermal carcinogen.
Naphtha (petroleum), light catalytic cracked was carcinogenic to mice in this study.

Naphthenic Naphthas

Naphtha (petroleum), sweetened (CASRN 64741-87-3)
Paraffins: 72.1% (v/v), Olefins: <0.1%, Naphthenes: 20.9%, Aromatics: 6.9%

Male C3H mice (47 – 50/dose) were administered 0.05 mL of naphtha (petroleum), sweetened (API 81-08) to shorn skin 2 times/week for 139 weeks. No adverse effects were observed on body weight or survival. There was no treatment-related effect on the incidence of non-neoplastic or neoplastic lesions.
Naphtha (petroleum), sweetened was not carcinogenic to mice in this study.

Aromatic Naphthas

Naphtha (petroleum), heavy catalytic reformed (CASRN 64741-68-0)
Paraffins: 9.4% (v/v), Olefins: < 0.1%, Naphthenes: 0.1%, Aromatics: 89.8%
C3H/HeJ mice (50 males) were administered 0.05 mL of naphtha (petroleum), heavy catalytic reformed (API 83-06) via the dermal route 2 times/week to clipped skin for 104 weeks. No effects were observed on the incidence of tumors.
Naphtha (petroleum), heavy catalytic reformed was not carcinogenic to mice in this study.

Naphtha (petroleum), heavy catalytic cracked (CASRN 64741-54-4)
Paraffins: 22.8% (units not specified), Olefins: 9.8%, Naphthenes: 10.6%, Aromatics: 56.6%
C3H/HeJ mice (50 males) were administered 0.05 mL of naphtha (petroleum), heavy catalytic cracked (API 83-18) via the dermal route 2 times/week to clipped skin for 104 weeks. An increased incidence of malignant dermal neoplasms was observed in exposed mice, relative to control mice. Dermal neoplasms included squamous cell carcinomas and fibrosarcomas. The study authors concluded that naphtha (petroleum), heavy catalytic cracked (API 83-18) was a weak dermal carcinogen.
Naphtha (petroleum), heavy catalytic cracked was carcinogenic to mice in this study.

Gasoline

Gasoline (No CASRN, supporting chemical)
(1) Paraffins: 57.8% (v/v), Olefins: 9.9%, Naphthenes: 3.9%, Aromatics: 28.1%
Fischer 344 rats (100/sex/dose) were exposed whole-body to gasoline (API PS-6) as a vapor at nominal concentrations of 0, 50, 275 or 1500 ppm (~ 0, 0.2, 1.1 or 5.9 mg/L)[23] for up to 113 weeks. Mean measured concentrations were 0, 67, 292 and 2056 ppm (0, 0.3, 1.1 or 8.1 mg/L). Increases were observed in the incidence of renal carcinomas, sarcomas and adenomas in males.
Gasoline was carcinogenic to rats in this study.

(2) Paraffins: 57.8% (v/v), Olefins: 9.9%,Naphthenes: 3.9%, Aromatics: 28.1%
B6C3F1 mice (100/sex/dose) were exposed whole-body to gasoline (API PS-6) as a vapor at nominal concentrations of 0, 50, 275 or 1500 ppm (~ 0, 0.2, 1.1 or 5.9 mg/L)[23] for up to 113 weeks. Mean measured concentrations were 0, 67, 292 and 2056 ppm (0, 0.3, 1.1 or 8.1 mg/L). Increases were observed in the incidence of hepatocellular carcinomas and adenomas.
Gasoline was carcinogenic to mice in this study.

[23] Units were converted from ppm to mg/L using the molecular weight of 96.2 g/mole provided by the sponsor for unleaded gasoline sample API 99-01.

(3) Paraffins: 57.8% (v/v), Olefins: 9.9%, Naphthenes: 3.9%, Aromatics: 28.1%
C3H/HeJ mice (50 males) were administered 0.05 mL of gasoline (API PS-6) via the dermal route 2 times/week to clipped skin for 131 weeks. There was no treatment-related effect on the incidence of systemic or dermal tumors.
Gasoline was not carcinogenic to mice in this study.

Class Not Specified

Naphtha (petroleum), heavy thermal cracked (CASRN 64741-83-9)
Paraffins + Naphthenes: 53% (units not specified), Olefins: 27%, Aromatics: 20%
C3H/HeJ mice (50 males) were administered 0.05 mL of naphtha (petroleum), heavy thermal cracked (API 84-02) via the dermal route 2 times/week to clipped skin for 104 weeks. An increased incidence of malignant dermal neoplasms was observed in exposed mice, relative to control mice. Dermal neoplasms included squamous cell carcinomas and fibrosarcomas. The study authors concluded that naphtha (petroleum), heavy thermal cracked (API 84-02) was a weak dermal carcinogen.
Naphtha (petroleum), heavy thermal cracked was carcinogenic to mice in this study.

Neurotoxicity

Paraffinic Naphthas

Naphtha (petroleum), light alkylate (CASRN 64741-66-8)
Paraffins: 99.97% (v/v), Olefins: 0.03%, Naphthenes: 0%, Aromatics: 0%
In the repeated-dose inhalation study described previously, Sprague-Dawley rats exposed to naphtha (petroleum), light alkylate distillate (LAN-D) as a vapor were subjected to neurobehavioral measurements, including motor activity and functional operational battery tests. No treatment-related effects were observed on neurobehavior.
Naphtha (petroleum), light alkylate was not neurotoxic to rats in this study.

Olefinic Naphthas

Naphtha (petroleum), light catalytic cracked (CASRN 64741-55-5)
Paraffins: 37.7% (v/v), Olefins: 53.7%, Naphthenes: 4.3%, Aromatics: 4.4%
In the repeated-dose inhalation study described previously, Sprague-Dawley rats exposed to a distillate of naphtha (petroleum), light catalytic cracked (LCCN-D) as a vapor were subjected to neurobehavioral measurements, including motor activity and functional operational battery tests. No treatment-related effects were observed on neurobehavior.
Naphtha (petroleum), light catalytic cracked was not neurotoxic to rats in this study.

Aromatic Naphthas

Naphtha (petroleum), light catalytic reformed (CASRN 64741-63-5)
Paraffins: 88.3% (v/v), Olefins: 1.4%, Naphthenes: 1.2%, Aromatics: 9.1%

In the repeated-dose inhalation study described previously, Sprague-Dawley rats exposed to naphtha (petroleum), light catalytic reformed distillate (LCRN-D) as a vapor were subjected to neurobehavioral measurements, including motor activity and functional operational battery tests. An increase in motor activity was observed in males at 27.8 mg/L.
Naphtha (petroleum), light catalytic reformed was neurotoxic to rats in this study.

Gasoline

Gasoline (No CASRN, supporting chemical)
(1) Paraffins: 77.4% (v/v), Olefins: 15.2%, Naphthenes: 3.3%, Aromatics: 4.2%
Sprague-Dawley rats (5/sex/dose) were administered unleaded gasoline (API 99-01) vapor condensate via whole-body inhalation as a vapor at nominal concentrations of 0, 2, 10 or 20 mg/L for 6 hours/day, 7 days/week. Mean measured concentrations were 0, 2.0, 10.1 and 20.0 mg/L. The parental generation was exposed for 10 weeks prior to mating, 2 weeks during mating, 3 weeks during gestation and 4 weeks postpartum. Exposure of pregnant females was suspended between gestation day 19 and postpartum day 5. Pups were not exposed directly to unleaded gasoline (API 99-01). F1 pup brains were evaluated for glial fibrillary acidic protein (GFAP) levels on postpartum day 28. Exposure of the parental generation did not elevate GFAP levels in any assessed brain region, indicating that unleaded gasoline (API 99-01) did not cause gliosis.
Gasoline was not neurotoxic to rats in this study.

(2) Paraffins: 77.4% (v/v), Olefins: 15.2%, Naphthenes: 3.3%, Aromatics: 4.2%
Sprague-Dawley rats (5/sex/dose) were administered unleaded gasoline (API 99-01) vapor condensate via whole-body inhalation as a vapor at nominal concentrations of 0, 2, 10 or 20 mg/L, 6 hours/day, 5 days/week for 13 weeks. Mean measured concentrations were 0, 2.1, 10.2 and 20.3 mg/L. Adult brains were evaluated for GFAP levels at the end of exposure. Exposure to unleaded gasoline did not elevate GFAP levels in any assessed brain region, indicating that unleaded gasoline did not cause gliosis.
Gasoline was not neurotoxic to rats in this study.

(3) Although gasoline did not demonstrate neurotoxicity in the studies provided by the sponsor, the neurotoxicity of gasoline is well-established in humans. Information on the human neurotoxicity of gasoline may be found in the ATSDR Toxicological Profile for Automotive Gasoline, http://www.atsdr.cdc.gov/toxprofiles/tp72.pdf

Gasoline, Leaded

The sponsor did not provide studies pertaining to the neurotoxicity of leaded gasoline. However, the neurotoxicity of leaded gasoline to humans and laboratory animals is well established. Information on the human neurotoxicity of leaded gasoline may be found in the ATSDR Toxicological Profile for Automotive Gasoline (cited above) or in the ATSDR Toxicological Profile for Lead (http://www.atsdr.cdc.gov/toxprofiles/tp13.pdf).

Conclusion: The acute toxicity of gasoline blending streams (including paraffinic, olefinic, naphthenic and aromatic naphthas - PONA) and gasoline, a supporting chemical, is low for the oral route in rats and low for the dermal route in rabbits. The inhalation route is the most relevant route of human exposure. The acute inhalation toxicity in rats is moderate for representative paraffinic, olefinic, naphthenic and aromatic naphthas, but is high for the sponsored category member, naphtha (petroleum), hydrotreated heavy (CASRN 64742-48-9; PONA composition not specified).

For representative paraffinic naphthas, no adverse treatment-related effects were observed in repeated-dose toxicity studies by the inhalation route in rats; the lowest NOAEC for systemic toxicity is 24.3 mg/L/day. A representative olefinic naphtha (CASRN 68513-02-0) showed lymph node hyperplasia and decreased albumin/globulin ratios in rats following dermal exposure to 188 mg/kg-bw/day; the NOAEL for systemic toxicity is 38 mg/kg-bw/day. For representative olefinic naphthas, effects observed in several repeated-dose toxicity studies by the inhalation route in rats included signs of organ (liver and kidney) toxicity and decreased mean corpuscular hemoglobin levels at doses $\leq$ 9.5 mg/L/day; the NOAECs for systemic toxicity ranged from 2.3 mg/L/day to 5.5 mg/L/day. An olefinic naphtha (No CASRN) showed no treatment-related effects in repeated-dose toxicity studies by the inhalation route in rats or in mice; the NOAEC for systemic toxicity is 7.69 mg/L/day. A naphthenic naphtha (CASRN 64742-82-1) showed no treatment-related signs of toxicity in a repeated-dose toxicity study by the dermal route in rats; the NOAEL for systemic toxicity is 764 mg/kg-bw/day. A naphthenic naphtha (CASRN 64741-41-9) showed signs of thyroid and liver toxicity at 13.4 mg/L/day in a combined repeated-dose, reproductive/developmental toxicity study by the inhalation route in rats; the NOAEC for systemic toxicity is 2.37 mg/L/day. An aromatic naphtha (CASRN 64741-68-0) showed no adverse treatment-related effects in a repeated-dose toxicity study by the dermal route in rats; the NOAEL for systemic toxicity is 797 mg/kg-bw/day. An aromatic naphtha (CASRN 64741-63-5) showed signs indicative of immunotoxicity in a repeated-dose toxicity study by the inhalation route in male rats at 27.8 mg/L/day; the NOAEC for systemic toxicity in males and females is 9.3 mg/L/day and 27.8 mg/L/day, respectively. An aromatic naphtha (CASRN 64742-95-6) showed signs of liver toxicity at 500 mg/kg-bw/day in a repeated-dose toxicity study by the oral route in rats; the NOAEL for systemic toxicity is 125 mg/kg-bw/day. Several representative studies in gasoline are available. In unleaded gasoline (no CASRN), a decrease in brain weight in males was observed at 1.57 mg/L/day, the lowest dose tested in a repeated-dose toxicity study by the inhalation route in rats; the NOAEC for systemic toxicity was not be established. Effects on pulmonary function were observed at 6.35 mg/L/day in a repeated-dose toxicity study by the inhalation route in monkeys; the NOAEC for systemic toxicity is 1.57 mg/L/day. In unleaded gasoline blend (no CASRN), signs of kidney toxicity in males were reported at 0.15 mg/L/day in a repeated-dose toxicity study by the inhalation route in rats; the NOAEC for systemic toxicity is 14.7 mg/L/day in females (highest dose tested). The NOAEC is not established in males. In leaded gasoline (no CASRN), signs of blood toxicity and effects on pulmonary function were reported at 1.53 mg/L/day in repeated-dose toxicity studies by the inhalation route in rats and monkeys; the NOAEC for systemic toxicity is 0.42 mg/L/day in rats and in male monkeys, and 1.53 mg/L/day in female monkeys (highest dose tested).

Several combined repeated-dose reproductive/developmental toxicity screening studies with paraffinic, olefinic, and aromatic naphthas by the inhalation route in rats showed no signs of

reproductive or developmental toxicity at any dose level; the lowest NOAEC is 23.6 mg/L/day. A combined reproductive/developmental toxicity screening study by the inhalation route in rats with a naphthenic naphtha (CASRN 64741-41-9) showed signs of thyroid and liver toxicity, and reductions in body weight/body weight gain in females (but no reproductive or developmental effects) at 13.4 mg/L/day; the NOAEC for maternal and developmental/reproductive toxicity is 2.37 mg/L/day and 13.4 mg/L/day, respectively. In a two-generation reproductive toxicity study by the inhalation route in rats with unleaded gasoline (no CASRN), decreases in body weight gain in adults were reported at 20 mg/L/day; the NOAEC for systemic toxicity is 10.1 mg/L/day. No signs of reproductive/developmental toxicity were reported at any dose level; the NOAEC is 20 mg/L/day. A prenatal developmental toxicity study by the inhalation route in rats with an olefinic naphtha (CASRN 64741-55-5) showed no signs of maternal toxicity, but an increase in the number of resorptions was observed at 7.7 mg/L/day; the NOAEC for maternal and developmental toxicity are 7.7 mg/L/day and 2.2 mg/L/day, respectively. A prenatal developmental toxicity study by the inhalation route in rats with unleaded gasoline (PONA composition not specified) showed no signs of maternal toxicity, but increases in delayed ossification in offspring were observed at 6.2 mg/L/day; the NOAECs for maternal and developmental toxicity are 6.2 mg/L/day and 1.7 mg/L/day, respectively.

Aromatic naphthas induced gene mutation in mouse lymphoma cells, but not in bacterial cells. Paraffinic and naphthenic naphthas did not induce gene mutation in mouse lymphoma cells and gasoline did not induce gene mutation in either mouse lymphoma cells or bacterial cells. The mutagenicity results for olefinic naphthas were equivocal in mouse lymphoma cells. Aromatic naphthas induced chromosomal aberrations in human lymphocytes. Olefinic naphthas were equivocal for induction of chromosomal aberrations in Chinese hamster ovary (CHO) cells. Paraffinic, naphthenic and aromatic naphthas did not induce chromosomal aberrations *in vivo* in rats, but olefinic naphthas and gasoline induced chromosomal aberrations *in vivo* in mice and rats, respectively.

Paraffinic, olefinic, naphthenic, and aromatic naphthas are irritating to rabbit and rat skin. Gasoline is irritating to rabbit skin. Paraffinic, olefinic and naphthenic naphthas and gasoline are not irritating to rabbit eyes, but aromatic naphthas are irritating to rabbit eyes. Paraffinic, olefinic and aromatic naphthas and gasoline are not dermal sensitizers in guinea pigs. Paraffinic and naphthenic naphthas were not carcinogenic in mice via the dermal route. Olefinic and aromatic naphthas and naphtha (petroleum), heavy thermal cracked (CASRN 64741-83-9; PONA composition not specified) were carcinogenic to mice via the dermal route. Gasoline was carcinogenic in rats and mice via the inhalation route, but not carcinogenic to mice via the dermal route. Aromatic naphthas were neurotoxic in rats via the inhalation route, whereas paraffinic and olefinic naphthas and gasoline were not neurotoxic in rats via the inhalation route. Unleaded and leaded gasolines are known to cause neurotoxicity in humans.

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Paraffinic**		**Olefinic**				
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), light alkylate (64741-66-8)**		**SPONSORED CHEMICAL Naphtha (petroleum), light catalytic cracked (64741-55-5)**				
PONA Composition	**P: 99.4% O: 0% N: 0.6% A: 0%**	**P: 99.97% O: 0.03% N: 0% A: 0%**	**P: 30.6% O: 45.6% N: 10.4% A: 13.1%**	**P: 43.6% O: 22.7% N: 9.7% A: 24.0%**	**P: 37.7% O: 53.7% N: 4.3% A: 4.4%**	**P: 33.2% O: 40.0% N: 10.1% A: 16.8%**	**P: 42.8% O: 36.5% N: 10.2% A: 10.2%**
Acute Oral Toxicity LD_{50} (mg/kg)	**> 7000**	No Data 6620 (male) 5390 (female) (RA)	**> 5000**	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)
Acute Inhalation Toxicity LC_{50} (mg/L)	**> 6.3**	No Data 1.1 – 1.9 (RA)	**> 5.3**	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)
Acute Dermal Toxicity LD_{50} (mg/kg)	**> 2000**	No Data > ~ 3700 (RA)	**> 3000**	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)
Repeated-Dose Toxicity NOAEL/LOAEL Oral (mg/kg-bw/day)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)
Repeated-Dose Toxicity NOAEC/LOAEC Inhalation (mg/L/day)	No Data NOAEC (male) = Not established LOAEC (male) = 0.15	**NOAEC = 24.3 (highest concentration tested)**	No Data NOAEC (male) = Not established LOAEC (male) = 0.15	No Data NOAEC (male) = Not established LOAEC (male) = 0.15	**NOAEC (male) = 2.3 LOAEC (male) = 7.7**	**NOAEC (male) = 2.06 LOAEC (male) = 7.69**	**NOAEC (male) = 5.5 LOAEC (male) = 9.5**

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Paraffinic**		**Olefinic**				
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), light alkylate (64741-66-8)**		**SPONSORED CHEMICAL Naphtha (petroleum), light catalytic cracked (64741-55-5)**				
PONA Composition	**P: 99.4% O: 0% N: 0.6% A: 0%**	**P: 99.97% O: 0.03% N: 0% A: 0%**	**P: 30.6% O: 45.6% N: 10.4% A: 13.1%**	**P: 43.6% O: 22.7% N: 9.7% A: 24.0%**	**P: 37.7% O: 53.7% N: 4.3% A: 4.4%**	**P: 33.2% O: 40.0% N: 10.1% A: 16.8%**	**P: 42.8% O: 36.5% N: 10.2% A: 10.2%**
	NOAEL (female) = 0.42 LOAEC (female) = 1.53 (RA)		NOAEC (female) = 0.42 LOAEC (female) = 1.53 (RA)	NOAEC (female) = 0.42 LOAEC (female) = 1.53 (RA)	**NOAEC (female) = 7.7** **LOAEC (female) = 23.4**	**NOAEC (female) = 7.69 (highest concentration tested)**	**NOAEC (female) = 9.5** **LOAEC (female) = 16.4**
Repeated-Dose Toxicity **NOAEL/LOAEL** **Dermal (mg/kg-bw/day)**	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	**NOAEL = 300 (highest dose tested)**	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)
Reproductive Toxicity **NOAEC/LOAEC** **Inhalation (mg/L/day)** **Reproductive Toxicity**	No Data NOAEC = 10.1 LOAEC = 13.4 (RA)	**NOAEC = 25 (highest concentration tested)**	No Data NOAEC = 10.1 LOAEC = 13.4 (RA)	No Data NOAEC = 10.1 LOAEC = 13.4 (RA)	**NOAEC = 23.9 (highest concentration tested)**	**NOAEC = 7.69 (highest concentration tested)**	No Data NOAEC = 10.1 LOAEC = 13.4 (RA)
Developmental Toxicity **NOAEC/LOAEC** **Inhalation (mg/L/day)** **Maternal Toxicity**	No Data NOAEC = 7.7 LOAEC = 13.4	**NOAEC = 25 (highest concentration tested)**	No Data NOAEC = 7.7 LOAEC = 13.4	No Data NOAEC = 7.7 LOAEC = 13.4	**NOAEC = 23.9 (highest concentration tested)**	**NOAEC = 7.7 (highest concentration tested)**	No Data NOAEC = 7.7 LOAEC = 13.4

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Paraffinic**		**Olefinic**				
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), light alkylate (64741-66-8)**		**SPONSORED CHEMICAL Naphtha (petroleum), light catalytic cracked (64741-55-5)**				
PONA Composition	**P: 99.4% O: 0% N: 0.6% A: 0%**	**P: 99.97% O: 0.03% N: 0% A: 0%**	**P: 30.6% O: 45.6% N: 10.4% A: 13.1%**	**P: 43.6% O: 22.7% N: 9.7% A: 24.0%**	**P: 37.7% O: 53.7% N: 4.3% A: 4.4%**	**P: 33.2% O: 40.0% N: 10.1% A: 16.8%**	**P: 42.8% O: 36.5% N: 10.2% A: 10.2%**
Developmental Toxicity	NOAEC = 2.2 LOAEC = 6.2 (RA)	**NOAEC = 25 (highest concentration tested)**	NOAEC = 2.2 LOAEC = 6.2 (RA)	NOAEC = 2.2 LOAEC = 6.2 (RA)	**NOAEC = 23.9 (highest concentration tested)**	**NOAEC = 2.2 LOAEC = 7.7**	NOAEC = 2.2 LOAEC = 6.2 (RA)
Developmental Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day) Maternal Toxicity	No Data NOAEL = 1000	No Data NOAEL = 1000	No Data NOAEL = 1000	No Data NOAEL = 1000	No Data NOAEL = 1000	**NOAEL = 500 (highest dose tested)**	No Data NOAEL = 1000
Developmental Toxicity	NOAEL = 1000 (RA)	NOAEL = 1000 (RA)	NOAEL = 1000 (RA)	NOAEL = 1000 (RA)	NOAEL = 1000 (RA)	**NOAEL = 500 (highest dose tested)**	NOAEL = 1000 (RA)

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Paraffinic**		**Olefinic**				
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), light alkylate (64741-66-8)**		**SPONSORED CHEMICAL Naphtha (petroleum), light catalytic cracked (64741-55-5)**				
PONA Composition	**P: 99.4% O: 0% N: 0.6% A: 0%**	**P: 99.97% O: 0.03% N: 0% A: 0%**	**P: 30.6% O: 45.6% N: 10.4% A: 13.1%**	**P: 43.6% O: 22.7% N: 9.7% A: 24.0%**	**P: 37.7% O: 53.7% N: 4.3% A: 4.4%**	**P: 33.2% O: 40.0% N: 10.1% A: 16.8%**	**P: 42.8% O: 36.5% N: 10.2% A: 10.2%**
Genetic Toxicity – Gene Mutation *In vitro*	**Negative**	No Data Positive (RA)	**Negative**	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	**Negative**
Genetic Toxicity – Chromosomal Aberrations *In vitro*	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	**Equivocal**
Genetic Toxicity – Chromosomal Aberrations *In vivo*	**Negative**	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	**Positive**
Additional Information **Skin Irritation** **Eye Irritation** **Skin Sensitization** **Carcinogenicity** **Neurotoxicity**	 **Moderately irritating** **Not irritating** **Not sensitizing** **Negative** –	 – – – **Negative** **Negative**	 **Moderately irritating** **Not irritating** **Not sensitizing** **–** –	 – – – – –	 – **Negative** – – –	 **Moderately irritating** – – – –	 – – – **Positive** –

Measured data in bold text; (RA) = read-across; N/A = not available; – indicates that endpoint was not evaluated for this substance

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Olefinic**			**Naphthenic**			**Aromatic**
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), light catalytic cracked (64741-55-5)**	**SPONSORED CHEMICAL Naphtha (petroleum), sweetened (64741-87-3)**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range coker (68513-02-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), sweetened (64741-87-3)**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy straight-run (64741-41-9)**	**SPONSORED CHEMICAL Naphtha (petroleum), hydrodesulfurized heavy (64742-82-1)**	**SPONSORED CHEMICAL Naphtha (petroleum), catalytic reformed (68955-35-1)**
PONA Composition	**P: 34.6% O: 29.2% N: 14.5% A: 21.1%**	**P: 49.6% O: 43.5% N: 5.6% A: 0.5%**	**P: 37.8% O: 39.2% N: 12.6% A: 10.5%**	**P: 72.1% O: < 0.1% N: 20.9% A: 4.1%**	**P: 52.9% O: 5.1% N: 28.6% A: 11.8%**	**P: 50.8% O: 0.03% N: 26.4% A: 21.3%**	**P: 32.1% O: 0.5% N: 3.7% A: 63.3%**
Acute Oral Toxicity LD_{50} (mg/kg)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	**> 5000**	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	**6620 (male) 5390 (female)**
Acute Inhalation Toxicity LC_{50} (mg/L)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	**> 5.2**	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	**> 5.22**
Acute Dermal Toxicity LD_{50} (mg/kg)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)	**> 2000**	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)	**> 2000**
Repeated-Dose Toxicity NOAEL/LOAEL Oral (mg/kg-bw/day)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Olefinic**			**Naphthenic**			**Aromatic**
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), light catalytic cracked (64741-55-5)**	**SPONSORED CHEMICAL Naphtha (petroleum), sweetened (64741-87-3)**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range coker (68513-02-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), sweetened (64741-87-3)**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy straight-run (64741-41-9)**	**SPONSORED CHEMICAL Naphtha (petroleum), hydrodesulfurized heavy (64742-82-1)**	**SPONSORED CHEMICAL Naphtha (petroleum), catalytic reformed (68955-35-1)**
PONA Composition	**P: 34.6% O: 29.2% N: 14.5% A: 21.1%**	**P: 49.6% O: 43.5% N: 5.6% A: 0.5%**	**P: 37.8% O: 39.2% N: 12.6% A: 10.5%**	**P: 72.1% O: < 0.1% N: 20.9% A: 4.1%**	**P: 52.9% O: 5.1% N: 28.6% A: 11.8%**	**P: 50.8% O: 0.03% N: 26.4% A: 21.3%**	**P: 32.1% O: 0.5% N: 3.7% A: 63.3%**
Repeated-Dose Toxicity NOAEC/LOAEC Inhalation (mg/L/day)	No Data NOAEC(male) = Not established LOAEC (male) = 0.15 NOAEC (female) = 0.42 LOAEC (female) = 1.53 (RA)	No Data NOAEC (male) = Not established LOAEC (male) = 0.15 NOAEC (female) = 0.42 LOAEC (female) = 1.53 (RA)	No Data NOAEC (male) = Not established LOAEC (male) = 0.15 NOAEC (female) = 0.42 LOAEC (female) = 1.53 (RA)	No Data NOAEC (male) = Not established LOAEC (male) = 0.15 NOAEC (female) = 0.42 LOAEC (female) = 1.53 (RA)	**NOAEC = 2.37 LOAEC = 13.4**	No Data NOAEL (male) = Not established LOAEL (male) = 0.15 NOAEL (female) = 0.42 LOAEL (female) = 1.53 (RA)	No Data NOAEL (male) = Not established LOAEL (male) = 0.15 NOAEL (female) = 0.42 LOAEL (female) = 1.53 (RA)
Repeated-Dose Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day)	No Data NOAEL = 38 LOAEL = 188 (RA)	**NOAEL = 652 (highest dose tested)**	**NOAEL = 38 LOAEL = 188**	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	**NOAEL ~ 764 (highest dose tested)**	No Data NOAEL = 38 LOAEL = 188 (RA)

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Olefinic**			**Naphthenic**			**Aromatic**
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), light catalytic cracked (64741-55-5)**	**SPONSORED CHEMICAL Naphtha (petroleum), sweetened (64741-87-3)**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range coker (68513-02-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), sweetened (64741-87-3)**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy straight-run (64741-41-9)**	**SPONSORED CHEMICAL Naphtha (petroleum), hydrodesulfurized heavy (64742-82-1)**	**SPONSORED CHEMICAL Naphtha (petroleum), catalytic reformed (68955-35-1)**
PONA Composition	**P: 34.6% O: 29.2% N: 14.5% A: 21.1%**	**P: 49.6% O: 43.5% N: 5.6% A: 0.5%**	**P: 37.8% O: 39.2% N: 12.6% A: 10.5%**	**P: 72.1% O: < 0.1% N: 20.9% A: 4.1%**	**P: 52.9% O: 5.1% N: 28.6% A: 11.8%**	**P: 50.8% O: 0.03% N: 26.4% A: 21.3%**	**P: 32.1% O: 0.5% N: 3.7% A: 63.3%**
Reproductive Toxicity NOAEC/LOAEC Inhalation (mg/L/day) Reproductive Toxicity	No Data NOAEC = 10.1 LOAEC = 13.4 (RA)	No Data NOAEC = 10.1 LOAEC = 13.4 (RA)	No Data NOAEC = 10.1 LOAEC = 13.4 (RA)	No Data NOAEC = 10.1 LOAEC = 13.4 (RA)	**NOAEC = 13.4 (highest concentration tested)**	No Data NOAEC = 10.1 LOAEC = 13.4 (RA)	No Data NOAEC = 10.1 LOAEC = 13.4 (RA)
Developmental Toxicity NOAEC/LOAEC Inhalation (mg/L/day) Maternal Toxicity Developmental Toxicity	No Data NOAEC = 7.7 LOAEC = 13.4 NOAEC = 2.2 LOAEC ~ 6.2 (RA)	No Data NOAEC = 7.7 LOAEC = 13.4 NOAEC = 2.2 LOAEC ~ 6.2 (RA)	No Data NOAEL = 7.7 LOAEL = 13.4 NOAEL = 2.2 LOAEL ~ 6.2 (RA)	No Data NOAEL = 7.7 LOAEL = 13.4 NOAEL = 2.2 LOAEL ~ 6.2 (RA)	**NOAEL = 2.37 LOAEL = 13.4 NOAEL = 13.4 (highest concentration tested)**	No Data NOAEL = 7.7 LOAEL = 13.4 NOAEL = 2.2 LOAEL ~ 6.2 (RA)	No Data NOAEL = 7.7 LOAEL = 13.4 NOAEL = 2.2 LOAEL ~ 6.2 (RA)
Developmental Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day) Maternal Toxicity Developmental Toxicity	No Data NOAEL = 1000 NOAEL = 1000 (RA)	No Data NOAEL = 1000 NOAEL = 1000 (RA)	**NOAEL = 1000 (highest dose tested) NOAEL = 1000 (highest dose tested)**	No Data NOAEL = 1000 NOAEL = 1000 (RA)	No Data NOAEL = 1000 NOAEL = 1000 (RA)	No Data NOAEL = 1000 NOAEL = 1000 (RA)	No Data NOAEL = 1000 NOAEL = 1000 (RA)

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Olefinic**			**Naphthenic**			**Aromatic**
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), light catalytic cracked (64741-55-5)**	**SPONSORED CHEMICAL Naphtha (petroleum), sweetened (64741-87-3)**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range coker (68513-02-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), sweetened (64741-87-3)**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy straight-run (64741-41-9)**	**SPONSORED CHEMICAL Naphtha (petroleum), hydrodesulfurized heavy (64742-82-1)**	**SPONSORED CHEMICAL Naphtha (petroleum), catalytic reformed (68955-35-1)**
PONA Composition	**P: 34.6% O: 29.2% N: 14.5% A: 21.1%**	**P: 49.6% O: 43.5% N: 5.6% A: 0.5%**	**P: 37.8% O: 39.2% N: 12.6% A: 10.5%**	**P: 72.1% O: < 0.1% N: 20.9% A: 4.1%**	**P: 52.9% O: 5.1% N: 28.6% A: 11.8%**	**P: 50.8% O: 0.03% N: 26.4% A: 21.3%**	**P: 32.1% O: 0.5% N: 3.7% A: 63.3%**
Genetic Toxicity – Gene Mutation *In vitro*	**Equivocal**	No Data Positive (RA)	No Data Positive (RA)	**Negative**	No Data Positive (RA)	No Data Positive (RA)	**Positive**
Genetic Toxicity – Chromosomal Aberrations *In vitro*	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations *In vivo*	**Negative**	No Data Positive (RA)	No Data Positive (RA)	**Negative**	No Data Positive (RA)	No Data Positive (RA)	**Negative**
Additional Information **Skin Irritation** **Eye Irritation** **Skin Sensitization** **Carcinogenicity** **Neurotoxicity**	 – – – – –	 **Slightly irritating** – – – –	 **Severely irritating** – – – –	 **Slightly irritating** **Not irritating** – **Negative** –	 – – – – –	 **Moderately irritating** – – – –	 **Moderately irritating** **Moderately irritating** **Not sensitizing** – –

Measured data in bold text; (RA) = read-across; N/A = not available; – indicates that endpoint was not evaluated for this substance

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Aromatic**						
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), heavy catalytic reformed (64741-68-0)**		**SPONSORED CHEMICAL Naphtha (petroleum), light catalytic reformed (64741-63-5)**		**SPONSORED CHEMCIAL Solvent naphtha (petroleum), light arom. (64742-95-6)**		**SPONSORED CHEMICAL Naphtha (petroleum), heavy catalytic cracked (64741-54-4)**
PONA Composition	**P: 33.6% O: 1.3% N: 3.3% A: 58.1%**	**P: 9.4% O: <0.1% N: 0.1% A: 89.8%**	**P: 88.3% O: 1.4% N: 1.2% A: 9.1%**	**P: 52.1% O: 1.1% N: 5.4% A: 42.1%**	**P: Not specified O: Not specified N: Not specified A: 99.89%**	**N/A**	**P: 22.8% O: 9.8% N: 10.6% A: 56.6%**
Acute Oral Toxicity LD_{50} (mg/kg)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)
Acute Inhalation Toxicity LC_{50} (mg/L)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)
Acute Dermal Toxicity LD_{50} (mg/kg)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)
Repeated-Dose Toxicity NOAEL/LOAEL Oral (mg/kg-bw/day)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	**NOAEL = 125 LOAEL = 500**	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)
Repeated-Dose Toxicity NOAEC/LOAEC Inhalation (mg/L/day)	No Data NOAEC (male) = Not established LOAEC (male) = 0.15 NOAEC (female) =	No Data NOAEC (male) = Not established LOAEC (male) = 0.15 NOAEC(female) =	**NOAEC (male) = 9.3 LOAEC (male) = 27.8 NOAEC (female) =**	No Data NOAEC (male) = Not established LOAEC (male) = 0.15 NOAEC (female) =	No Data NOAEC (male) = Not established LOAEC (male) = 0.15 NOAEC (female) =	No Data NOAEC (male) = Not established LOAEC (male) = 0.15 NOAEC (female) =	No Data NOAEC (male) = Not established LOAEC (male) = 0.15 NOAEC (female) =

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Aromatic**						
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), heavy catalytic reformed (64741-68-0)**		**SPONSORED CHEMICAL Naphtha (petroleum), light catalytic reformed (64741-63-5)**		**SPONSORED CHEMCIAL Solvent naphtha (petroleum), light arom. (64742-95-6)**		**SPONSORED CHEMICAL Naphtha (petroleum), heavy catalytic cracked (64741-54-4)**
PONA Composition	**P: 33.6% O: 1.3% N: 3.3% A: 58.1%**	**P: 9.4% O: <0.1% N: 0.1% A: 89.8%**	**P: 88.3% O: 1.4% N: 1.2% A: 9.1%**	**P: 52.1% O: 1.1% N: 5.4% A: 42.1%**	**P: Not specified O: Not specified N: Not specified A: 99.89%**	**N/A**	**P: 22.8% O: 9.8% N: 10.6% A: 56.6%**
	0.42 LOAEC (female) = 1.53 (RA)	0.42 LOAEC (female) = 1.53 (RA)	**27.8 (highest concentration tested)**	0.42 LOAEC (female) = 1.53 (RA)	0.42 LOAEC (female) = 1.53 (RA)	0.42 LOAEC (female) = 1.53 (RA)	0.42 LOAEC (female) = 1.53 (RA)
Repeated-Dose Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day)	**NOAEL ~ 797 (highest dose tested)**	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Aromatic**						
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), heavy catalytic reformed (64741-68-0)**		**SPONSORED CHEMICAL Naphtha (petroleum), light catalytic reformed (64741-63-5)**		**SPONSORED CHEMCIAL Solvent naphtha (petroleum), light arom. (64742-95-6)**		**SPONSORED CHEMICAL Naphtha (petroleum), heavy catalytic cracked (64741-54-4)**
PONA Composition	**P: 33.6% O: 1.3% N: 3.3% A: 58.1%**	**P: 9.4% O: <0.1% N: 0.1% A: 89.8%**	**P: 88.3% O: 1.4% N: 1.2% A: 9.1%**	**P: 52.1% O: 1.1% N: 5.4% A: 42.1%**	**P: Not specified O: Not specified N: Not specified A: 99.89%**	**N/A**	**P: 22.8% O: 9.8% N: 10.6% A: 56.6%**
Reproductive Toxicity NOAEL/LOAEL Inhalation (mg/L/day) Reproductive Toxicity	No Data NOAEC = 10.1 LOAEC = 13.4 (RA)	No Data NOAEC = 10.1 LOAEC = 13.4 (RA)	**NOAEC = 23.6 (highest concentration tested)**	No Data NOAEC = 10.1 LOAEC = 13.4 (RA)	No Data NOAEC = 10.1 LOAEC = 13.4 (RA)	No Data NOAEC = 10.1 LOAEC = 13.4 (RA)	No Data NOAEC = 10.1 LOAEC = 13.4 (RA)
Developmental Toxicity NOAEL/LOAEL Inhalation (mg/L/day) Maternal Toxicity Developmental Toxicity	No Data NOAEC = 7.7 LOAEC = 13.4 NOAEC = 2.2 LOAEC = 6.2 (RA)	No Data NOAEC = 7.7 LOAEC = 13.4 NOAEC = 2.2 LOAEC = 6.2 (RA)	**NOAEC = 23.7 (highest concentration tested) NOAEC = 23.7 (highest concentration tested)**	No Data NOAEC = 7.7 LOAEC = 13.4 NOAEC = 2.2 LOAEC = 6.2 (RA)	No Data NOAEC = 7.7 LOAEC = 13.4 NOAEC = 2.2 LOAEC = 6.2 (RA)	No Data NOAEC = 7.7 LOAEC = 13.4 NOAEC = 2.2 LOAEC = 6.2 (RA)	No Data NOAEC = 7.7 LOAEC = 13.4 NOAEC = 2.2 LOAEC = 6.2 (RA)
Developmental Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day) Maternal Toxicity Developmental Toxicity	No Data NOAEL = 1000 NOAEL = 1000 (RA)	No Data NOAEL = 1000 NOAEL = 1000 (RA)	No Data NOAEL = 1000 NOAEL = 1000 (RA)	No Data NOAEL = 1000 NOAEL = 1000 (RA)	No Data NOAEL = 1000 NOAEL = 1000 (RA)	No Data NOAEL = 1000 NOAEL = 1000) (RA)	No Data NOAEL = 1000 NOAEL = 1000 (RA)

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Aromatic**						
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), heavy catalytic reformed (64741-68-0)**		**SPONSORED CHEMICAL Naphtha (petroleum), light catalytic reformed (64741-63-5)**		**SPONSORED CHEMCIAL Solvent naphtha (petroleum), light arom. (64742-95-6)**		**SPONSORED CHEMICAL Naphtha (petroleum), heavy catalytic cracked (64741-54-4)**
PONA Composition	**P: 33.6% O: 1.3% N: 3.3% A: 58.1%**	**P: 9.4% O: <0.1% N: 0.1% A: 89.8%**	**P: 88.3% O: 1.4% N: 1.2% A: 9.1%**	**P: 52.1% O: 1.1% N: 5.4% A: 42.1%**	**P: Not specified O: Not specified N: Not specified A: 99.89%**	**N/A**	**P: 22.8% O: 9.8% N: 10.6% A: 56.6%**
Genetic Toxicity – Gene Mutation *In vitro*	No Data Positive (RA)	**Positive**	No Data Positive (RA)	**Negative**	No Data Positive (RA)	**Negative**	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations *In vitro*	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	**Positive**	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations *In vivo*	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Additional Information **Skin Irritation** **Eye Irritation** **Skin Sensitization** **Carcinogenicity** **Neurotoxicity**	**Moderately irritating** **–** **–** **–** **–**	**Negative** **–** **–** **–** **–**	 **–** **–** **–** **Positive**	 **–** **–** **–** **–**	 **–** **–** **–** **–**	**Moderately irritating** **–** **–** **–** **–**	**Positive** **–** **–** **–** **–**

Measured data in bold text; (RA) = read-across; N/A = not available; – indicates that endpoint was not evaluated for this substance

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Alkenes, C6 (68526-52-3)**	**SPONSORED CHEMICAL Naphtha (petroleum), hydrotreated heavy (64742-48-9)**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy thermal cracked (64741-83-9)**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range straight-run (64741-42-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), light straight-run (64741-46-4)**	**SPONSORED CHEMICAL Natural gas condensates (petroleum) (64741-47-5)**	**SPONSORED CHEMICAL Natural gas (petroleum), raw liq. mix (64741-48-6)**
PONA Composition	**N/A**	**N/A**	**P + N: 53% O: 27% A: 20%**	**N/A**	**N/A**	**N/A**	**N/A**
Acute Oral Toxicity LD_{50} (mg/kg)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)
Acute Inhalation Toxicity LC_{50} (mg/L)	No Data 1.1 – 1.9 (RA)	**1.1 – 1.9**	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)
Acute Dermal Toxicity LD_{50} (mg/kg)	No Data > ~ 3700 (RA)						
Repeated-Dose Toxicity NOAEL/LOAEL Oral (mg/kg-bw/day)	No Data NOAEL = 125 LOAEL = 500 (RA)						
Repeated-Dose Toxicity NOAEC/LOAEC Inhalation (mg/L/day)	No Data NOAEC (male) = Not established LOAEC (male) = 0.15 NOAEC (female) = 0.42 LOAEC (female) = 1.53 (RA)						

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Alkenes, C6 (68526-52-3)**	**SPONSORED CHEMICAL Naphtha (petroleum), hydrotreated heavy (64742-48-9)**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy thermal cracked (64741-83-9)**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range straight-run (64741-42-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), light straight-run (64741-46-4)**	**SPONSORED CHEMICAL Natural gas condensates (petroleum) (64741-47-5)**	**SPONSORED CHEMICAL Natural gas (petroleum), raw liq. mix (64741-48-6)**
PONA Composition	**N/A**	**N/A**	**P + N: 53% O: 27% A: 20%**	**N/A**	**N/A**	**N/A**	**N/A**
Repeated-Dose Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day)	No Data NOAEL = 38/ LOAEL = 188 (RA)						
Reproductive Toxicity NOAEL/LOAEL Inhalation (mg/L/day) Reproductive Toxicity	No Data NOAEC = 10.1/LOAEC = 13.4 (RA)						
Developmental Toxicity NOAEC/LOAEC Inhalation (mg/L/day) Maternal Toxicity Developmental Toxicity	No Data NOAEC = 7.7/LOAEC = 13.4 NOAEC = 2.2/LOAEC = 6.2 (RA)						
Developmental Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day) Maternal Toxicity Developmental Toxicity	No Data NOAEL = 1000 NOAEL = 1000 (RA)						

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Alkenes, C6 (68526-52-3)**	**SPONSORED CHEMICAL Naphtha (petroleum), hydrotreated heavy (64742-48-9)**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy thermal cracked (64741-83-9)**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range straight-run (64741-42-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), light straight-run (64741-46-4)**	**SPONSORED CHEMICAL Natural gas condensates (petroleum) (64741-47-5)**	**SPONSORED CHEMICAL Natural gas (petroleum), raw liq. mix (64741-48-6)**
PONA Composition	**N/A**	**N/A**	**P + N: 53% O: 27% A: 20%**	**N/A**	**N/A**	**N/A**	**N/A**
Genetic Toxicity – Gene Mutation *In vitro*	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations *In vitro*	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations *In vivo*	**Negative**	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Additional Information							
Skin Irritation	–	–	–	–	–	–	–
Eye Irritation	–	–	–	–	–	–	–
Skin Sensitization	–	–	–	–	–	–	–
Carcinogenicity	–	–	**Positive**	–	–	–	–
Neurotoxicity	–	–	–	–	–	–	–

Measured data in bold text; (RA) = read-across; N/A = not available; – indicates that endpoint was not evaluated for this substance

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data							
Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), full-range alkylate (64741-64-6)**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy alkylate (64741-65-7)**	**SPONSORED CHEMICAL Naphtha (petroleum), light hydrocracked (64741-69-1)**	**SPONSORED CHEMICAL Naphtha (petroleum), isomerization (64741-70-4)**	**SPONSORED CHEMICAL Naphtha, petroleum, polymn. (64741-72-6)**	**SPONSORED CHEMICAL Naphtha (petroleum), light thermal cracked (64741-74-8)**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy hydrocracked (64741-78-2)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Acute Oral Toxicity LD_{50} (mg/kg)	No Data 6620 (male) 5390 (female) (RA)						
Acute Inhalation Toxicity LC_{50} (mg/L)	No Data 1.1 – 1.9 (RA)						
Acute Dermal Toxicity LD_{50} (mg/kg)	No Data > ~ 3700 (RA)						
Repeated-Dose Toxicity NOAEL/LOAEL Oral (mg/kg-bw/day)	No Data NOAEL = 125/LOAEL = 500 (RA)						
Repeated-Dose Toxicity NOAEC/LOAEC Inhalation (mg/L/day)	No Data NOAEC (male) = Not established/LOAEC (male) = 0.15 NOAEC (female) = 0.42/LOAEC (female) = 1.53 (RA)						
Repeated-Dose Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day)	No Data NOAEL = 38/LOAEL = 188 (RA)						

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), full-range alkylate (64741-64-6)**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy alkylate (64741-65-7)**	**SPONSORED CHEMICAL Naphtha (petroleum), light hydrocracked (64741-69-1)**	**SPONSORED CHEMICAL Naphtha (petroleum), isomerization (64741-70-4)**	**SPONSORED CHEMICAL Naphtha, petroleum, polymn. (64741-72-6)**	**SPONSORED CHEMICAL Naphtha (petroleum), light thermal cracked (64741-74-8)**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy hydrocracked (64741-78-2)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Reproductive Toxicity NOAEC/LOAEC Inhalation (mg/L/day) Reproductive Toxicity	No Data NOAEC = 10.1/LOAEC = 13.4 (RA)						
Developmental Toxicity NOAEC/LOAEC Inhalation (mg/L/day) Maternal Toxicity Developmental Toxicity	No Data NOAEL = 7.7/LOAEL = 13.4 NOAEL = 2.2/LOAEL ~ 6.2 (RA)						
Developmental Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day) Maternal Toxicity Developmental Toxicity	No Data NOAEL = 1000 NOAEL = 1000 (RA)						

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), full-range alkylate (64741-64-6)**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy alkylate (64741-65-7)**	**SPONSORED CHEMICAL Naphtha (petroleum), light hydrocracked (64741-69-1)**	**SPONSORED CHEMICAL Naphtha (petroleum), isomerization (64741-70-4)**	**SPONSORED CHEMICAL Naphtha, petroleum, polymn. (64741-72-6)**	**SPONSORED CHEMICAL Naphtha (petroleum), light thermal cracked (64741-74-8)**	**SPONSORED CHEMICAL Naphtha (petroleum), heavy hydrocracked (64741-78-2)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Genetic Toxicity – Gene Mutation ***In vitro***	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations ***In vitro***	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations ***In vivo***	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)

Measured data in bold text; (RA) = read-across; N/A = not available; – indicates that endpoint was not evaluated for this substance

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), solvent-refined light (64741-84-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), solvent-refined heavy (64741-92-0)**	**SPONSORED CHEMICAL Extracts, petroleum, light naphtha solvent (64741-99-7)**	**SPONSORED CHEMICAL Naphtha (petroleum), chemically neutralized heavy (64742-22-9)**	**SPONSORED CHEMICAL Naphtha (petroleum), chemically neutralized light (64742-23-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), hydrotreated light (64742-49-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), hydrodesulfurized light (64742-73-0)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Acute Oral Toxicity LD_{50} (mg/kg)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)
Acute Inhalation Toxicity LC_{50} (mg/L)	No Data 1.1 – 1.9 (RA)						
Acute Dermal Toxicity LD_{50} (mg/kg)	No Data > ~ 3700 (RA)						
Repeated-Dose Toxicity NOAEL/LOAEL Oral (mg/kg-bw/day)	No Data NOAEL = 125/LOAEL = 500 (RA)						
Repeated-Dose Toxicity NOAEL/LOAEL Inhalation (mg/L/day)	No Data NOAEC (male) = Not established/LOAEC (male) = 0.15 NOAEC (female) = 0.42/LOAEC (female) = 1.53 (RA)						

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), solvent-refined light (64741-84-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), solvent-refined heavy (64741-92-0)**	**SPONSORED CHEMICAL Extracts, petroleum, light naphtha solvent (64741-99-7)**	**SPONSORED CHEMICAL Naphtha (petroleum), chemically neutralized heavy (64742-22-9)**	**SPONSORED CHEMICAL Naphtha (petroleum), chemically neutralized light (64742-23-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), hydrotreated light (64742-49-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), hydrodesulfurized light (64742-73-0)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Repeated-Dose Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)
Reproductive Toxicity NOAEL/LOAEL Inhalation (mg/L/day) Reproductive Toxicity	No Data NOAEL = 10.1/LOAEL = 13.4 (RA)						
Developmental Toxicity NOAEC/LOAEC Inhalation (mg/L/day) Maternal Toxicity Developmental Toxicity	No Data NOAEC = 7.7/LOAEC = 13.4 NOAEC = 2.2/LOAEC = 6.2 (RA)						
Developmental Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day) Maternal Toxicity Developmental Toxicity	No Data NOAEL = 1000 NOAEL = 1000 (RA)						

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), solvent-refined light (64741-84-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), solvent-refined heavy (64741-92-0)**	**SPONSORED CHEMICAL Extracts, petroleum, light naphtha solvent (64741-99-7)**	**SPONSORED CHEMICAL Naphtha (petroleum), chemically neutralized heavy (64742-22-9)**	**SPONSORED CHEMICAL Naphtha (petroleum), chemically neutralized light (64742-23-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), hydrotreated light (64742-49-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), hydrodesulfurized light (64742-73-0)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Genetic Toxicity – Gene Mutation ***In vitro***	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations ***In vitro***	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations ***In vivo***	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)

Measured data in bold text; (RA) = read-across; N/A = not available; – indicates that endpoint was not evaluated for this substance

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Solvent naphtha (petroleum), light aliph. (64742-89-8)**	**SPONSORED CHEMICAL Distillates (petroleum), heavy aromatic (67891-79-6)**	**SPONSORED CHEMICAL Distillates (petroleum), light aromatic (67891-80-9)**	**SPONSORED CHEMICAL Residues, petroleum, light naphtha solvent extracts (68333-29-9)**	**SPONSORED CHEMICAL Distillates (petroleum), straight-run light (68410-05-9)**	**SPONSORED CHEMICAL Raffinates (petroleum), catalytic reformer ethylene glycol-water countercurrent exts. (68410-71-9)**	**SPONSORED CHEMICAL Distillates (petroleum), hydrotreated middle, intermediate boiling (68410-96-8)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Acute Oral Toxicity LD_{50} (mg/kg)	No Data 6620 (male) 5390 (female) (RA)						
Acute Inhalation Toxicity LC_{50} (mg/L)	No Data 1.1 – 1.9 (RA)						
Acute Dermal Toxicity LD_{50} (mg/kg)	No Data > ~ 3700 (RA)						
Repeated-Dose Toxicity NOAEL/LOAEL Oral (mg/kg-bw/day)	No Data NOAEL = 125/LOAEL = 500 (RA)						
Repeated-Dose Toxicity NOAEC/LOAEC Inhalation (mg/L/day)	No Data NOAEC (male) = Not established/ LOAEC (male) = 0.15 NOAEC(female) = 0.42//LOAEC (female) = 1.53 (RA)						

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Solvent naphtha (petroleum), light aliph. (64742-89-8)**	**SPONSORED CHEMICAL Distillates (petroleum), heavy aromatic (67891-79-6)**	**SPONSORED CHEMICAL Distillates (petroleum), light aromatic (67891-80-9)**	**SPONSORED CHEMICAL Residues, petroleum, light naphtha solvent extracts (68333-29-9)**	**SPONSORED CHEMICAL Distillates (petroleum), straight-run light (68410-05-9)**	**SPONSORED CHEMICAL Raffinates (petroleum), catalytic reformer ethylene glycol-water countercurrent exts. (68410-71-9)**	**SPONSORED CHEMICAL Distillates (petroleum), hydrotreated middle, intermediate boiling (68410-96-8)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Repeated-Dose Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)
Reproductive Toxicity NOAEL/LOAEL Inhalation (mg/L/day) Reproductive Toxicity	No Data NOAEC = 10.1/LOAEC = 13.4 (RA)						
Developmental Toxicity NOAEC/LOAEC Inhalation (mg/L/day) Maternal Toxicity Developmental Toxicity	No Data NOAEC = 7.7/LOAEC = 13.4 NOAEC= 2.2/LOAEC = 6.2 (RA)						
Developmental Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day) Maternal Toxicity Developmental Toxicity	No Data NOAEL = 1000 NOAEL = 1000 (RA)						

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Solvent naphtha (petroleum), light aliph. (64742-89-8)**	**SPONSORED CHEMICAL Distillates (petroleum), heavy aromatic (67891-79-6)**	**SPONSORED CHEMICAL Distillates (petroleum), light aromatic (67891-80-9)**	**SPONSORED CHEMICAL Residues, petroleum, light naphtha solvent extracts (68333-29-9)**	**SPONSORED CHEMICAL Distillates (petroleum), straight-run light (68410-05-9)**	**SPONSORED CHEMICAL Raffinates (petroleum), catalytic reformer ethylene glycol-water countercurrent exts. (68410-71-9)**	**SPONSORED CHEMICAL Distillates (petroleum), hydrotreated middle, intermediate boiling (68410-96-8)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Genetic Toxicity – Gene Mutation ***In vitro***	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations ***In vitro***	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations ***In vivo***	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)

Measured data in bold text; (RA) = read-across; N/A = not available; – indicates that endpoint was not evaluated for this substance

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Distillates (petroleum), light distillate hydrotreating process, low-boiling (68410-97-9)**	**SPONSORED CHEMICAL Distillates (petroleum), hydrotreated heavy naphtha, deisohexanizer overheads (68410-98-0)**	**SPONSORED CHEMICAL Gasoline, natural gas, natural (68425-31-0)**	**SPONSORED CHEMICAL Distillates (petroleum), catalytic reformed dependentanizer (68475-79-6)**	**SPONSORED CHEMICAL Hydrocarbons, C4 – 6, C5-rich (68476-43-7)**	**SPONSORED CHEMICAL Hydrocarbons, C3 – C11 catalytic cracker distillates (68476-46-0)**	**SPONSORED CHEMICAL Hydrocarbons, C5 and higher, C5 – 6-rich (68476-50-6)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Acute Oral Toxicity LD_{50} (mg/kg)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)
Acute Inhalation Toxicity LC_{50} (mg/L)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)
Acute Dermal Toxicity LD_{50} (mg/kg)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)
Repeated-Dose Toxicity NOAEL/LOAEL Oral (mg/kg-bw/day)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)
Repeated-Dose Toxicity NOAEC/LOAEC Inhalation (mg/L/day)	No Data NOAEC (male) = Not established/LOAEC (male) = 0.15 NOAEC(female) = 0.42/LOAEC (female) = 1.53 (RA)						

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Distillates (petroleum), light distillate hydrotreating process, low-boiling (68410-97-9)**	**SPONSORED CHEMICAL Distillates (petroleum), hydrotreated heavy naphtha, deisohexanizer overheads (68410-98-0)**	**SPONSORED CHEMICAL Gasoline, natural gas, natural (68425-31-0)**	**SPONSORED CHEMICAL Distillates (petroleum), catalytic reformed depentanizer (68475-79-6)**	**SPONSORED CHEMICAL Hydrocarbons, C4 – 6, C5-rich (68476-43-7)**	**SPONSORED CHEMICAL Hydrocarbons, C3 – C11 catalytic cracker distillates (68476-46-0)**	**SPONSORED CHEMICAL Hydrocarbons, C5 and higher, C5 – 6-rich (68476-50-6)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Repeated-Dose Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)
Reproductive Toxicity NOAEC/LOAEC Inhalation (mg/L/day) Reproductive Toxicity	No Data NOAEC = 10.1/LOAEC = 13.4 (RA)						
Developmental Toxicity NOAEC/LOAEC Inhalation (mg/L/day) Maternal Toxicity Developmental Toxicity	No Data NOAEC = 7.7/LOAEC = 13.4 NOAEC = 2.2/LOAEC = 6.2 (RA)						
Developmental Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day) Maternal Toxicity Developmental Toxicity	No Data NOAEL = 1000 NOAEL = 1000 (RA)						

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Distillates (petroleum), light distillate hydrotreating process, low-boiling (68410-97-9)**	**SPONSORED CHEMICAL Distillates (petroleum), hydrotreated heavy naphtha, deisohexanizer overheads (68410-98-0)**	**SPONSORED CHEMICAL Gasoline, natural gas, natural (68425-31-0)**	**SPONSORED CHEMICAL Distillates (petroleum), catalytic reformed depentanizer (68475-79-6)**	**SPONSORED CHEMICAL Hydrocarbons, C4 – 6, C5-rich (68476-43-7)**	**SPONSORED CHEMICAL Hydrocarbons, C3 – C11 catalytic cracker distillates (68476-46-0)**	**SPONSORED CHEMICAL Hydrocarbons, C5 and higher, C5 – 6-rich (68476-50-6)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Genetic Toxicity – Gene Mutation ***In vitro***	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations ***In vitro***	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations ***In vivo***	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)

Measured data in bold text; (RA) = read-across; N/A = not available; – indicates that endpoint was not evaluated for this substance

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Hydrocarbons, C5-rich (68476-55-1)**	**SPONSORED CHEMICAL Hydrocarbons, cyclic C5 and C6 (68476-56-2)**	**SPONSORED CHEMICAL Distillates (petroleum), C3 – C5, 2-methyl-2-butene-rich (68477-34-9)**	**SPONSORED CHEMICAL Extracts, petroleum, reformer recycle (68477-63-4)**	**SPONSORED CHEMICAL Distillates (petroleum), depentanizer overheads (68477-89-4)**	**SPONSORED CHEMICAL Residues (petroleum), butane splitter bottoms (68478-12-6)**	**SPONSORED CHEMICAL Residues (petroleum), C6 – 8, catalytic reformer (68478-15-9)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Acute Oral Toxicity LD_{50} (mg/kg)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)	No Data 6620 (male) 5390 (female) (RA)
Acute Inhalation Toxicity LC_{50} (mg/L)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)	No Data 1.1 – 1.9 (RA)
Acute Dermal Toxicity LD_{50} (mg/kg)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)	No Data > ~ 3700 (RA)
Repeated-Dose Toxicity NOAEL/LOAEL Oral (mg/kg-bw/day)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)	No Data NOAEL = 125 LOAEL = 500 (RA)
Repeated-Dose Toxicity NOAEC/LOAEC Inhalation (mg/L/day)	No Data NOAEC (male) = Not established/LOAEC (male) = 0.15 NOAEC (female) = 0.42/LOAEC (female) = 1.53 (RA)						

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Hydrocarbons, C5-rich (68476-55-1)**	**SPONSORED CHEMICAL Hydrocarbons, cyclic C5 and C6 (68476-56-2)**	**SPONSORED CHEMICAL Distillates (petroleum), C3 – C5, 2-methyl-2-butene-rich (68477-34-9)**	**SPONSORED CHEMICAL Extracts, petroleum, reformer recycle (68477-63-4)**	**SPONSORED CHEMICAL Distillates (petroleum), dependentanizer overheads (68477-89-4)**	**SPONSORED CHEMICAL Residues (petroleum), butane splitter bottoms (68478-12-6)**	**SPONSORED CHEMICAL Residues (petroleum), C6 – 8, catalytic reformer (68478-15-9)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Repeated-Dose Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)	No Data NOAEL = 38 LOAEL = 188 (RA)
Reproductive Toxicity NOAEC/LOAEC Inhalation (mg/L/day) Reproductive Toxicity	No Data NOAEL = 10.1/LOAEL = 13.4 (RA)						
Developmental Toxicity NOAEC/LOAEC Inhalation (mg/L/day) Maternal Toxicity Developmental Toxicity	No Data NOAEC = 7.7/LOAEC = 13.4 NOAEC = 2.2/LOAEC = 6.2 (RA)						
Developmental Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day) Maternal Toxicity Developmental Toxicity	No Data NOAEL = 1000 NOAEL = 1000 (RA)						

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Hydrocarbons, C5-rich (68476-55-1)**	**SPONSORED CHEMICAL Hydrocarbons, cyclic C5 and C6 (68476-56-2)**	**SPONSORED CHEMICAL Distillates (petroleum), C3 – C5, 2-methyl-2-butene-rich (68477-34-9)**	**SPONSORED CHEMICAL Extracts, petroleum, reformer recycle (68477-63-4)**	**SPONSORED CHEMICAL Distillates (petroleum), dependentanizer overheads (68477-89-4)**	**SPONSORED CHEMICAL Residues (petroleum), butane splitter bottoms (68478-12-6)**	**SPONSORED CHEMICAL Residues (petroleum), C6 – 8, catalytic reformer (68478-15-9)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Genetic Toxicity – Gene Mutation *In vitro*	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations *In vitro*	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations *In vivo*	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)

Measured data in bold text; (RA) = read-across; N/A = not available; – indicates that endpoint was not evaluated for this substance

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Residual oils (petroleum), deisobutanizer tower (68478-16-0)**	**SPONSORED CHEMICAL Naphtha, petroleum, light catalytic reformed, aromatic-free (68513-03-1)**	**SPONSORED CHEMICAL Distillates (petroleum), catalytic reformed straight-run naphtha overheads (68513-63-3)**	**SPONSORED CHEMICAL Gasoline, vapour-recovery (68514-15-8)**	**SPONSORED CHEMICAL Hydrocarbons, C4 – 10 unsatd. (68514-38-5)**	**SPONSORED CHEMICAL Petroleum products, hydrofiner-powerformer reformates (68514-79-4)**	**SPONSORED CHEMICAL Alkenes, C8 – 10, C9-rich (68526-55-6)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Acute Oral Toxicity LD_{50} (mg/kg)	No Data 6620 (male)/5390 (female) (RA)						
Acute Inhalation Toxicity LC_{50} (mg/L)	No Data 1.1 – 1.9 (RA)						
Acute Dermal Toxicity LD_{50} (mg/kg)	No Data > ~ 3700 (RA)						
Repeated-Dose Toxicity NOAEL/LOAEL Oral (mg/kg-bw/day)	No Data NOAEL = 125/LOAEL = 500 (RA)						
Repeated-Dose Toxicity NOAEC/LOAEC Inhalation (mg/L/day)	No Data NOAEC (male) = Not established/LOAEC (male) = 0.15 NOAEC (female) = 0.42/LOAEC (female) = 1.53 (RA)						
Repeated-Dose Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day)	No Data NOAEL = 38/LOAEL = 188 (RA)						

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Residual oils (petroleum), deisobutanizer tower (68478-16-0)**	**SPONSORED CHEMICAL Naphtha, petroleum, light catalytic reformed, aromatic-free (68513-03-1)**	**SPONSORED CHEMICAL Distillates (petroleum), catalytic reformed straight-run naphtha overheads (68513-63-3)**	**SPONSORED CHEMICAL Gasoline, vapour-recovery (68514-15-8)**	**SPONSORED CHEMICAL Hydrocarbons, C4 – 10 unsatd. (68514-38-5)**	**SPONSORED CHEMICAL Petroleum products, hydrofiner-powerformer reformates (68514-79-4)**	**SPONSORED CHEMICAL Alkenes, C8 – 10, C9-rich (68526-55-6)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Reproductive Toxicity NOAEL/LOAEL Inhalation (mg/L/day) Reproductive Toxicity	No Data NOAEC = 10.1 LOAEC = 13.4 (RA)						
Developmental Toxicity NOAEC/LOAEC Inhalation (mg/L/day) Maternal Toxicity Developmental Toxicity	No Data NOAEC = 7.7/LOAEC= 13.4 NOAEC = 2.2/LOAEC = 6.2 (RA)						
Developmental Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day) Maternal Toxicity Developmental Toxicity	No Data NOAEL = 1000 NOAEL = 1000 (RA)						

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Residual oils (petroleum), deisobutanizer tower (68478-16-0)**	**SPONSORED CHEMICAL Naphtha, petroleum, light catalytic reformed, aromatic-free (68513-03-1)**	**SPONSORED CHEMICAL Distillates (petroleum), catalytic reformed straight-run naphtha overheads (68513-63-3)**	**SPONSORED CHEMICAL Gasoline, vapour-recovery (68514-15-8)**	**SPONSORED CHEMICAL Hydrocarbons, C4 – 10 unsatd. (68514-38-5)**	**SPONSORED CHEMICAL Petroleum products, hydrofiner-powerformer reformates (68514-79-4)**	**SPONSORED CHEMICAL Alkenes, C8 – 10, C9-rich (68526-55-6)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Genetic Toxicity – Gene Mutation *In vitro*	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations *In vitro*	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations *In vivo*	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)

Measured data in bold text; (RA) = read-across; N/A = not available; – indicates that endpoint was not evaluated for this substance

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), clay-treated full-range straight-run (68527-21-9)**	**SPONSORED CHEMICAL Naphtha (petroleum), light steam-cracked, debenzenized (68527-26-4)**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range alkylate, butane-containing (68527-27-5)**	**SPONSORED CHEMICAL Distillates, (petroleum), benzene unit hydrotreater depentanizer overheads (68602-79-9)**	**SPONSORED CHEMICAL Distillates (petroleum), thermal cracked naphtha and gas oil, C5-dimer-containing (68603-01-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), arom.-contg (68603-08-7)**	**SPONSORED CHEMICAL Gasoline, straight-run, topping-plant (68606-11-1)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Acute Oral Toxicity LD_{50} (mg/kg)	No Data 6620 (male)/5390 (female) (RA)						
Acute Inhalation Toxicity LC_{50} (mg/L)	No Data 1.1 – 1.9 (RA)						
Acute Dermal Toxicity LD_{50} (mg/kg)	No Data > ~ 3700 (RA)						
Repeated-Dose Toxicity NOAEL/LOAEL Oral (mg/kg-bw/day)	No Data NOAEL = 125/LOAEL = 500 (RA)						
Repeated-Dose Toxicity NOAEC/LOAEC Inhalation (mg/L/day)	No Data NOAEC (male) = Not established/ LOAEC (male) = 0.15 NOAEC (female) = 0.42/LOAEC (female) = 1.53 (RA)						
Repeated-Dose Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day)	No Data NOAEL = 38/LOAEL = 188 (RA)						

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), clay-treated full-range straight-run (68527-21-9)**	**SPONSORED CHEMICAL Naphtha (petroleum), light steam-cracked, debenzenized (68527-26-4)**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range alkylate, butane-containing (68527-27-5)**	**SPONSORED CHEMICAL Distillates, (petroleum), benzene unit hydrotreater depentanizer overheads (68602-79-9)**	**SPONSORED CHEMICAL Distillates (petroleum), thermal cracked naphtha and gas oil, C5-dimer-containing (68603-01-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), arom.-contg (68603-08-7)**	**SPONSORED CHEMICAL Gasoline, straight-run, topping-plant (68606-11-1)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Reproductive Toxicity NOAEL/LOAEL Inhalation (mg/L/day) Reproductive Toxicity	No Data NOAEC = 10.1/LOAEC = 13.4 (RA)						
Developmental Toxicity NOAEC/LOAEC Inhalation (mg/L/day) Maternal Toxicity Developmental Toxicity	No Data NOAEC = 7.7/LOAEC = 13.4 NOAEC = 2.2/LOAEC~ 6.2 (RA)						
Developmental Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day) Maternal Toxicity Developmental Toxicity	No Data NOAEL = 1000 NOAEL = 1000 (RA)						

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Naphtha (petroleum), clay-treated full-range straight-run (68527-21-9)**	**SPONSORED CHEMICAL Naphtha (petroleum), light steam-cracked, debenzenized (68527-26-4)**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range alkylate, butane-containing (68527-27-5)**	**SPONSORED CHEMICAL Distillates, (petroleum), benzene unit hydrotreater depentanizer overheads (68602-79-9)**	**SPONSORED CHEMICAL Distillates (petroleum), thermal cracked naphtha and gas oil, C5-dimer-containing (68603-01-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), arom.-contg (68603-08-7)**	**SPONSORED CHEMICAL Gasoline, straight-run, topping-plant (68606-11-1)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Genetic Toxicity – Gene Mutation *In vitro*	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations *In vitro*	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations *In vivo*	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)

Measured data in bold text; (RA) = read-across; N/A = not available; – indicates that endpoint was not evaluated for this substance

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Naphtha, petroleum, light polymn. (68783-11-9)**	**SPONSORED CHEMICAL Naphtha (petroleum), unsweetened (68783-12-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), light, sweetened (68783-66-4)**	**SPONSORED CHEMICAL Hydrocarbons, C6 – 12, benzene-recovery (68919-15-3)**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range reformed (68919-37-9)**	**SPONSORED CHEMICAL Natural gas condensate (68919-39-1)**	**SPONSORED CHEMICAL Hydrocarbons, C7 – 9 (68920-06-9)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Acute Oral Toxicity LD_{50} (mg/kg)	No Data 6620 (male)/5390 (female) (RA)						
Acute Inhalation Toxicity LC_{50} (mg/L)	No Data 1.1 – 1.9 (RA)						
Acute Dermal Toxicity LD_{50} (mg/kg)	No Data > ~ 3700 (RA)						
Repeated-Dose Toxicity NOAEL/LOAEL Oral (mg/kg-bw/day)	No Data NOAEL = 125/LOAEL = 500 (RA)						
Repeated-Dose Toxicity NOAEC/LOAEC Inhalation (mg/L/day)	No Data NOAEC (male) = Not established/LOAEC (male) = 0.15 NOAEC (female) = 0.42/LOAEC (female) = 1.53 (RA)						
Repeated-Dose Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day)	No Data NOAEL = 38/LOAEL = 188 (RA)						

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Naphtha, petroleum, light polymn. (68783-11-9)**	**SPONSORED CHEMICAL Naphtha (petroleum), unsweetened (68783-12-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), light, sweetened (68783-66-4)**	**SPONSORED CHEMICAL Hydrocarbons, C6 – 12, benzene-recovery (68919-15-3)**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range reformed (68919-37-9)**	**SPONSORED CHEMICAL Natural gas condensate (68919-39-1)**	**SPONSORED CHEMICAL Hydrocarbons, C7 – 9 (68920-06-9)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Reproductive Toxicity NOAEL/LOAEL Inhalation (mg/L/day) Reproductive Toxicity	No Data NOAEC = 10.1/LOAEC = 13.4 (RA)						
Developmental Toxicity NOAEC/LOAEC Inhalation (mg/L/day) Maternal Toxicity **Developmental Toxicity**	No Data NOAEC = 7.7/LOAEC = 13.4 NOAEC = 2.2/LOAEC = 6.2 (RA)						
Developmental Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day) Maternal/Developmental Toxicity	No Data NOAEL = 1000 (RA)						

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Naphtha, petroleum, light polymn. (68783-11-9)**	**SPONSORED CHEMICAL Naphtha (petroleum), unsweetened (68783-12-0)**	**SPONSORED CHEMICAL Naphtha (petroleum), light, sweetened (68783-66-4)**	**SPONSORED CHEMICAL Hydrocarbons, C6 – 12, benzene-recovery (68919-15-3)**	**SPONSORED CHEMICAL Naphtha (petroleum), full-range reformed (68919-37-9)**	**SPONSORED CHEMICAL Natural gas condensate (68919-39-1)**	**SPONSORED CHEMICAL Hydrocarbons, C7 – 9 (68920-06-9)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Genetic Toxicity – Gene Mutation ***In vitro***	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations ***In vitro***	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations ***In vivo***	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)

Measured data in bold text; (RA) = read-across; N/A = not available; – indicates that endpoint was not evaluated for this substance

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Distillates (petroleum), light straight-run gasoline fractionation stabilizer overheads (68921-08-4)**	**SPONSORED CHEMICAL Distillates (petroleum), naphtha unifiner stripper (68921-09-5)**	**SPONSORED CHEMICAL Distillates (petroleum), light thermal cracked, debutanized aromatic (68955-29-3)**	**SPONSORED CHEMICAL Alkanes, C4 – 6 (70955-08-7)**	**SPONSORED CHEMICAL Gasoline, natural (8006-61-9)**	**SPONSORED CHEMICAL Naphtha (8030-30-6)**	**SPONSORED CHEMICAL Naphtha, petroleum, isomerization, C6-fraction (92045-58-4)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Acute Oral Toxicity LD_{50} (mg/kg)	No Data 6620 (male) 5390 (female) (RA)						
Acute Inhalation Toxicity LC_{50} (mg/L)	No Data 1.1 – 1.9 (RA)						
Acute Dermal Toxicity LD_{50} (mg/kg)	No Data > ~ 3700 (RA)						
Repeated-Dose Toxicity NOAEL/LOAEL Oral (mg/kg-bw/day)	No Data NOAEL = 125 LOAEL = 500 (RA)						
Repeated-Dose Toxicity NOAEC/LOAEC Inhalation (mg/L/day)	No Data NOAEC (male) = Not established/ NOAEC (female) = 0.42 LOAEC (male) = 0.15/ LOAEC(female) = 1.53 (RA)						

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Distillates (petroleum), light straight-run gasoline fractionation stabilizer overheads (68921-08-4)**	**SPONSORED CHEMICAL Distillates (petroleum), naphtha unifiner stripper (68921-09-5)**	**SPONSORED CHEMICAL Distillates (petroleum), light thermal cracked, debutanized aromatic (68955-29-3)**	**SPONSORED CHEMICAL Alkanes, C4 – 6 (70955-08-7)**	**SPONSORED CHEMICAL Gasoline, natural (8006-61-9)**	**SPONSORED CHEMICAL Naphtha (8030-30-6)**	**SPONSORED CHEMICAL Naphtha, petroleum, isomerization, C6-fraction (92045-58-4)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Repeated-Dose Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day)	No Data NOAEL = 38/LOAEL = 188 (RA)						
Reproductive Toxicity NOAEC/LOAEC Inhalation (mg/L/day) Reproductive Toxicity	No Data NOAEC = 10.1/LOAEC = 13.4 (RA)						
Developmental Toxicity NOAEC/LOAEC Inhalation (mg/L/day) Maternal Toxicity Developmental Toxicity	No Data NOAEC = 7.7/LOAEC = 13.4 NOAEC = 2.2/LOAEC = 6.2 (RA)						
Developmental Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day) Maternal/Developmental Toxicity	No Data NOAEL = 1000 (RA)						

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Not Specified**						
Chemical	**SPONSORED CHEMICAL Distillates (petroleum), light straight-run gasoline fractionation stabilizer overheads (68921-08-4)**	**SPONSORED CHEMICAL Distillates (petroleum), naphtha unifiner stripper (68921-09-5)**	**SPONSORED CHEMICAL Distillates (petroleum), light thermal cracked, debutanized aromatic (68955-29-3)**	**SPONSORED CHEMICAL Alkanes, C4 – 6 (70955-08-7)**	**SPONSORED CHEMICAL Gasoline, natural (8006-61-9)**	**SPONSORED CHEMICAL Naphtha (8030-30-6)**	**SPONSORED CHEMICAL Naphtha, petroleum, isomerization, C6-fraction (92045-58-4)**
PONA Composition	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Genetic Toxicity – Gene Mutation ***In vitro***	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations ***In vitro***	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)
Genetic Toxicity – Chromosomal Aberrations ***In vivo***	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)	No Data Positive (RA)

Measured data in bold text; (RA) = read-across; N/A = not available; – indicates that endpoint was not evaluated for this substance

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Paraffinic**	**Gasoline[a]**					
Chemical	**SUPPORTING CHEMICAL Light naphtha, n-hexane rich (F-186; no CASRN)**	**SUPPORTING CHEMICAL Gasoline (86290-81-5)**		**SUPPORTING CHEMICAL Unleaded gasoline (no CASRN)**			
PONA Composition	**P: 94.5% O: 0.03% N: 3.2% A: 2.3%**	**P: 79.5% O: 14.1% N: 2.3% A: 4.0%**	**N/A**	**P: 57.8% O: 9.9% N: 3.9% A: 28.1%**	**P: 77.4% O: 15.2% N: 3.3% A: 4.2%**	**P + N: 61.7% O: 8.2% A: 30.1%**	**P: 48.7% O: 9.0% N: 6.3% A: 36.0%**
Acute Oral Toxicity LD_{50} (mg/kg-bw)	–	–	–	**~ 13,875**	–	–	–
Acute Inhalation Toxicity LC_{50} (mg/L)	–	–	–	–	–	–	–
Acute Dermal Toxicity LD_{50} (mg/kg-bw)	–	–	–	**> ~ 3700**	–	–	–
Repeated-Dose Toxicity NOAEC/LOAEC Inhalation (mg/L/day)	–	–	–	–	**NOAEC = 20.3 (highest concentration tested)**	**NOAEC = 1.57 LOAEC = 6.35**	–
Repeated-Dose Toxicity NOAEL/LOAEL Dermal (mg/kg-bw/day)	**NOAEL ~ 665**	–	–	–	–	–	–
Reproductive Toxicity NOAEC/LOAEC Inhalation (mg/L/day) Reproductive Toxicity	–	–	–	–	–	–	**NOAEC = 20 (highest concentration tested)**
Developmental Toxicity NOAEC/LOAEC Inhalation (mg/L/day)	–	**NOAEC = 24 (highest concentration**	**NOAEC ~ 6.2 (highest concentration**	–	–	–	**NOAEC = 20.6 (highest concentration**

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Paraffinic**	**Gasoline[a]**					
Chemical	**SUPPORTING CHEMICAL Light naphtha, n-hexane rich (F-186; no CASRN)**	**SUPPORTING CHEMICAL Gasoline (86290-81-5)**		**SUPPORTING CHEMICAL Unleaded gasoline (no CASRN)**			
PONA Composition	**P: 94.5% O: 0.03% N: 3.2% A: 2.3%**	**P: 79.5% O: 14.1% N: 2.3% A: 4.0%**	**N/A**	**P: 57.8% O: 9.9% N: 3.9% A: 28.1%**	**P: 77.4% O: 15.2% N: 3.3% A: 4.2%**	**P + N: 61.7% O: 8.2% A: 30.1%**	**P: 48.7% O: 9.0% N: 6.3% A: 36.0%**
Maternal Toxicity Developmental Toxicity		**tested) NOAEC = 24 (highest concentration tested)**	**tested) NOAEC ~ 1.7 LOAEC ~ 6.2**				**tested) NOAEC = 20.6 (highest concentration tested)**
Genetic Toxicity – Chromosomal Aberrations *In vivo*	–	–	–	**Negative**	–	–	**Positive**
Additional Information							
Skin Irritation	**Moderately**	–	–	**Slightly irritating**	–	–	–
Eye Irritation	**irritating**	–	–	**Not irritating**	–	–	–
Skin Sensitization	**–**	–	–	**Not sensitizing**	–	–	–
Carcinogenicity	**–**	–	–	**Positive**	–	–	–
Neurotoxicity	**–**	**Positive[b]**	**Positive[b]**	**Positive[b]**	**Negative[c]**	**Positive[b]**	**Positive[b]**
	–						

Measured data in bold text; (RA) = read-across; N/A = not available; – indicates that endpoint was not evaluated for this substance

[a]The toxicity data for gasoline presented here are limited to data submitted by the sponsor. Further information regarding the toxicity of gasoline is available in the ATSDR profile for automotive gasoline (http://www.atsdr.cdc.gov/ToxProfiles/tp72.pdf).

[b]Gasoline has been shown to be neurotoxic, as described in the ATSDR profile for automotive gasoline (http://www.atsdr.cdc.gov/ToxProfiles/tp72.pdf).

[c]The neurotoxicity study submitted by the sponsor found no positive evidence of neurotoxicity for this gasoline sample, even though gasoline has previously been shown to be neurotoxic, as described above.

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Gasoline[a]**		
Chemical	**SUPPORTING CHEMICAL Unleaded gasoline (no CASRN)**	**SUPPORTING CHEMICAL Unleaded gasoline blend (no CASRN)**	**SUPPORTING CHEMICAL Leaded gasoline (no CASRN)**
PONA Composition	**N/A**	**P + N: 45% O: 12% A: 43%**	**P + N: 64.8% O: 7.8% A: 27.4%**
Acute Oral Toxicity LD_{50} (mg/kg)	–	–	–
Acute Inhalation Toxicity LC_{50} (mg/L)	–	–	–
Repeated-Dose Toxicity NOAEC/LOAEC Inhalation (mg/L/day)	–	**NOAEC (male) =Not established LOAEC (male) =0.15 NOAEC(female) = 14.7 (highest concentration tested)**	**NOAEC = 0.42 LOAEC = 1.53**
Reproductive Toxicity NOAEC/LOAEC Inhalation (mg/L/day) Reproductive Toxicity	**NOAEC = 20.2 (highest concentration tested)**	–	–
Developmental Toxicity NOAEC/LOAEC Inhalation (mg/L/day) Maternal/Developmental Toxicity	–	–	–

Table 3. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program – Human Health Data

Type of Naphtha	**Gasoline[a]**		
Chemical	**SUPPORTING CHEMICAL Unleaded gasoline (no CASRN)**	**SUPPORTING CHEMICAL Unleaded gasoline blend (no CASRN)**	**SUPPORTING CHEMICAL Leaded gasoline (no CASRN)**
PONA Composition	**N/A**	**P + N: 45% O: 12% A: 43%**	**P + N: 64.8% O: 7.8% A: 27.4%**
Genetic Toxicity – Gene Mutation *In vitro*	**Negative**	–	–
Genetic Toxicity – Chromosomal Aberrations *In vitro*	–	–	–
Genetic Toxicity – Chromosomal Aberrations *In vivo*	–	–	–
Additional Information			
Skin Irritation	–	–	–
Eye Irritation	–	–	–
Skin Sensitization	–	–	–
Carcinogenicity	–	–	–
Neurotoxicity	**Postive[b]**	**Positive[b]**	**Positive[b,c]**

Measured data in bold text; (RA) = read-across; N/A = not available; – indicates that endpoint was not evaluated for this substance

[a]The toxicity data for gasoline presented here are limited to data submitted by the sponsor. Further information regarding the toxicity of gasoline is available in the ATSDR profile for automotive gasoline (http://www.atsdr.cdc.gov/ToxProfiles/tp72.pdf).

[b]Gasoline has been shown to be neurotoxic, as described in the ATSDR profile for automotive gasoline (http://www.atsdr.cdc.gov/ToxProfiles/tp72.pdf).

[c]Lead from a variety of sources, including gasoline, has been shown to be neurotoxic, as described in the ATSDR profile for lead (http://www.atsdr.cdc.gov/ToxProfiles/tp13.pdf).

4. Hazard to the Environment

A summary of aquatic toxicity data submitted for SIDS endpoints is provided in Table 4. The table also indicates where data for tested category members are read across (RA) to untested members of the category.

Although the submitter listed the 14-day fish studies as chronic studies in the dossiers, EPA considers a 14-day test as acute test rather than a chronic test.

Detailed information on the composition of the tested substances is listed in Section 1.1.1 of each dossier.

Acute Toxicity to Fish

Paraffinic Naphthas

Naphtha (petroleum), light alkylate (CASRN 64741-66-8)
Fathead minnow (*Pimephales promelas*) were exposed to CASRN 64741-66-8 as WAFs in sealed test vessels under static renewal conditions for 96 hours. The loading rates were 0, 1.1, 5.2, 9.7, 19 and 74 mg/L and analytical measurements were made on the WAFs for components comprising ~ 68% of the test substance. Mortality was observed at ≥ 9.7 mg/L. Exposures occurred at a pH of 7.8 – 8.2, a dissolved oxygen concentration of 7.7 – 8.6 mg/L and a temperature of 21.2 °C.
96-h LL_{50} = 8.2 mg/L
96-h LC_{50} = 0.305 mg/L

Naphtha (petroleum), light alkylate (CASRN 64741-66-8)
Fathead minnow (*Pimephales promelas*) were exposed to CASRN 64741-66-8 as WAFs under static renewal conditions in sealed test vessels for 14 days. The loading rates were 0, 0.44, 1.0, 2.6, 6.4, 16 and 40 mg/L and analytical measurements were made on the WAFs for a subset of components of the test substance. Mean measured concentrations were 0.005, 0.011, 0.021, 0.041, 0.10, 0.38 and 0.62 mg/L. Treatment-related mortality and effects on growth were observed at ≥ 6.4 mg/L. Exposures occurred at a pH of 7.3 – 8.2, a dissolved oxygen concentration of 5.7 – 8.9 mg/L and a temperature of 24 – 26 °C.
14-d LL_{50} = 8 mg/L
14-d LC_{50} = 0.15 mg/L

Olefinic Naphthas

Naphtha (petroleum), light catalytic cracked (CASRN 64741-55-5)
Fathead minnow (*Pimephales promelas*) were exposed to CASRN 64741-55-5 as WAFs under static renewal conditions in sealed test vessels for 96 hours. The loading rates were 0, 3, 7.4, 15, 37 and 74 mg/L and analytical measurements were made on the WAFs for components comprising ~ 13% of the test substance. Treatment-related mortality was observed at ≥ 37 mg/L. Exposures occurred at a pH of 7.6 – 8.2, a dissolved oxygen concentration of 5.2 – 8.6 mg/L and a temperature of 21.4 – 21.8 °C.

96-h LL_{50} = 46 mg/L
96-h LC_{50} = 4.1 mg/L

Naphtha (petroleum), light catalytic cracked (CASRN 64741-55-5)
Fathead minnow (*Pimephales promelas*) were exposed to CASRN 64741-55-5 as WAFs under static renewal conditions in sealed test vessels for 14 days. The loading rates were 0, 0.38, 0.99, 2.6, 6.4, 16 and 40 mg/L and analytical measurements were made on the WAFs for a subset of components of the test substance. Mean measured concentrations were 0.004, 0.009, 0.024, 0.12, 0.28, 0.64 and 3.4 mg/L. Treatment-related mortality and effects on growth were observed at ≥ 16 mg/L. Exposures occurred at a pH of 7.2 – 8.3, a dissolved oxygen concentration of 3.7 – 8.5 mg/L and a temperature of 24 – 26 °C.
14-d LL_{50} = 23 mg/L
14-d LC_{50} = 1.5 mg/L

Naphthenic Naphthas

Naphtha (petroleum), light straight-run (CASRN 64741-46-4)
Fathead minnow (*Pimephales promelas*) were exposed to CASRN 64741-46-4 as WAFs in sealed test vessels under static renewal conditions for 96 hours. The loading rates were 0, 3.1, 6.3, 13, 25 and 50 mg/L and analytical measurements were made on the WAFs for a subset of components of the test substance. Mortality was observed at ≥ 13 mg/L. Exposures occurred at a pH of 8.1 – 8.3, a dissolved oxygen concentration of 7.3 – 8.8 mg/L and a temperature of 21 – 22 °C.
96-h LL_{50} = 15 mg/L
96-h LC_{50} = 0.689 mg/L

Aromatic Naphthas

Naphtha (petroleum), light catalytic reformed (CASRN 64741-63-5)
Fathead minnow (*Pimephales promelas*) were exposed to CASRN 64741-63-5 as WAFs under static renewal conditions in sealed test vessels for 96 hours. The loading rates were 0, 3.1, 6.3, 13, 25 or 50 mg/L and analytical measurements were made on the WAFs for a subset of components of the test substance. Treatment-related mortality was observed at 50 mg/L. Exposures occurred at a pH of 7.7 – 8.5, a dissolved oxygen concentration of 6.0 – 8.5 mg/L and a temperature of 21 – 22 °C.
96-h LL_{50} = 34 mg/L
96-h LC_{50} = 11 mg/L

Solvent naphtha (petroleum), light arom. (CASRN 64742-95-6)
Rainbow trout (*Oncorhynchus mykiss*) were exposed to CASRN 64742-95-6 at 2.2, 4.4, 8.8, 17.5 and 35% of the water soluble fraction (WSF) under flow-through conditions for 96 hours. Mean measured concentrations were below detection limit (BDL), 0.36, 0.77, 1.94 and 4.38 mg/L, respectively. There were minimal volatility losses. One hundred percent water solubility was noted as 18.1 mg/L. Mortalities were observed at ≥ 8.8% WSF. Exposures occurred at a temperature of 12.1 – 13.2 °C, a pH of 8.11 – 8.38 and a dissolved oxygen concentration of 9.1 – 10.7 mg/L. The 96-hour LC_{50} was 10.9% WSF based on nominal exposure concentrations and

1.03 mg/L based on calculated mean total monoaromatic exposure concentrations. Additional details are from TSCATS (OTS0556723).
96-h LC_{50} = 1.03 mg/L

Naphtha (petroleum), light catalytic reformed (CASRN 64741-63-5)
Fathead minnow (*Pimephales promelas*) were exposed to CASRN 64741-63-5 as WAFs under static renewal conditions in sealed test vessels for 14 days. The loading rates were 0, 0.39, 1.0, 2.6, 6.3, 16 and 40 mg/L and analytical measurements were made on the WAFs for a subset of components of the test substance. Mean measured concentrations were 0.030, 0.079, 0.15, 0.38, 0.80, 5.2 and 15 mg/L. Treatment-related mortality and effects on growth were observed at ≥ 6.3 mg/L. Exposures occurred at a pH of 7.3 – 8.2, a dissolved oxygen concentration of 3.6 – 8.9 mg/L and a temperature of 24 – 26 °C.
14-d LL_{50} = 5.2 mg/L
14-d LC_{50} = 0.67 mg/L

Acute Toxicity to Aquatic Invertebrates

<u>Paraffinic Naphthas</u>

Naphtha (petroleum), light alkylate (CASRN 64741-66-8)
Daphnia magna were exposed to CASRN 64741-66-8 as WAFs under static renewal conditions in sealed test vessels for 48 hours. The loading rates were 0, 9, 18, 35, 70 and 140 mg/L and analytical measurements were made on the WAFs for components comprising ~ 68% of the test substance. Treatment-related effects were observed at ≥ 35 mg/L. Exposures occurred at a pH of 8 – 8.2, a dissolved oxygen concentration of 8.0 – 8.5 and a temperature of 19.1 – 21 °C.
48-h EL_{50} = 32 mg/L
48-h EC_{50} = 0.556 mg/L

<u>Olefinic Naphthas</u>

Naphtha (petroleum), light catalytic cracked (CASRN 64741-55-5)
Daphnia magna were exposed to CASRN 64741-55-5 as WAFs under static renewal conditions in sealed test vessels for 48 hours. The loading rates were 0, 6.4, 13, 25, 51 and 102 mg/L and analytical measurements were made on the WAFs for components comprising ~ 13% of the test substanceTreatment-related effects were observed at 25 mg/L. Exposures occurred at a pH of 7.94 – 8.4, a dissolved oxygen concentration of 8.06 and a temperature of 19.1 – 20.2 °C.
48-h EL_{50} = 18 mg/L
48-h EC_{50} = 1.4 mg/L

<u>Naphthenic Naphthas</u>

Naphtha (petroleum), light straight-run (CASRN 64741-46-4)
Daphnia magna were exposed to CASRN 64741-46-4 as WAFs under semi-static conditions in sealed test vessels for 48 hours. The loading rates were 0, 3.0, 6.0, 12, 24 and 48 mg/L and analytical measurements were made on the WAFs for a subset of components of the test

substance. Treatment-related effects were observed at ≥ 24 mg/L. Exposures occurred at a pH of 8.3 – 8.4, a dissolved oxygen concentration of 8.0 – 8.5 mg/L and a temperature of 20 – 21 °C.
48-h EL_{50} = 18 mg/L
48-h EC_{50} = 0.65 mg/L

Aromatic Naphthas

Naphtha (petroleum), light catalytic reformed (CASRN 64741-63-5)
Daphnia magna were exposed to CASRN 64741-63-5 as WAFs under static renewal conditions in sealed test vessels for 48 hours. The loading rates were 0, 3.0, 6.0, 12, 24 and 48 mg/L and analytical measurements were made on the WAFs for components comprising > 50% of the test substanceTreatment-related effects were observed at ≥ 12 mg/L. Exposures occurred at a pH of 8.2 – 8.4, a dissolved oxygen concentration of 8.0 – 8.5 mg/L and a temperature of 20 – 21 °C.
48-h EL_{50} = 10 mg/L
48-h EC_{50} = 2.6 mg/L

Solvent naphtha (petroleum), light arom. (CASRN 64742-95-6)
Daphnia magna were exposed to CASRN 64742-95-6 at 2.2, 4.4, 8.8, 17.5 and 35% of the WSF under flow-through conditions for 48 hours. Mean measured concentrations were BDL, 0.15, 0.52, 1.06 and 2.24 mg/L, respectively. There were minimal volatility losses. One hundred percent water solubility was noted as 18.1 mg/L. Immobility was observed at ≥ 4.4% WSF concentrations. Exposures occurred at a temperature of 21.2°C, a pH of 8.44 – 8.46 and a dissolved oxygen concentration of 8.6 – 9.0 mg/L. The 48-hour EC_{50} was 19.8% WSF based on nominal exposure concentrations and 1.21 mg/L based on calculated mean total mono-aromatic exposure concentrations. Additional details are available from TSCATS (OTS0556722).
48-h EC_{50} = 1.2 mg/L

Toxicity to Aquatic Plants

Paraffinic Naphthas

Naphtha (petroleum), light alkylate (CASRN 64741-66-8)
Green algae (*Pseudokirchneriella subcapitata*) were exposed CASRN 64741-66-8 as WAFs under static conditions in sealed test vessels for 96 hours. The loading rates were 0, 18, 70, 146, 292 and 1157 mg/L and analytical measurements were made on the WAFs for components comprising ~ 68% of the test substance. Mean measured concentrations were 0, 0.11, 0.31, 0.50, 0.61 and 0.61 mg/L. Exposures occurred at a pH of 7.5 and a temperature of 22 – 26 °C. Growth was inhibited at concentrations ≥ 70 mg/L.
96-h EL_{50} (biomass) = 45 mg/L
96-h EC_{50} (biomass) = 0.741 mg/L

Olefinic Naphthas

Naphtha (petroleum), light catalytic cracked (CASRN 64741-55-5)
Green algae (*Pseudokirchneriella subcapitata*) were exposed to CASRN 64741-55-5 as WAFs under static conditions in sealed test vessels for 96 hours. The loading rates were 0, 6.4, 13, 25, 51 and 102 mg/L and analytical measurements were made on the WAFs for components comprising ~ 13% of the test substance. Measured concentrations were not provided. Exposures occurred at an average pH of 7.5 and a temperature of 22 – 26 °C. Inhibition of growth was observed at ≥ 51 mg/L.
96-h EL_{50} (biomass) = 64 mg/L
96-h EC_{50} (biomass) = 4.6 mg/L

Naphthenic Naphthas

Naphtha (petroleum), light straight-run (CASRN 64741-46-4)
Green algae (*Pseudokirchneriella subcapitata*) were exposed to CASRN 64741-46-4 as WAFs under static conditions in sealed test vessels for 96 hours. The loading rates were 0, 1.9, 4.0, 7.8, 16 and 31 mg/L and analytical measurements were made on the WAFs for a subset of components of the test substance. Measured concentrations were 0, 0.03, 0.13, 0.33, 0.70 and 1.3 mg/L. Exposures occurred at a pH of 8 – 8.5 and a temperature of 24 – 26°C. Growth was inhibited at concentrations ≥ 4 mg/L
96-h EL_{50} (biomass) = 6.4 mg/L
96-h EC_{50} (biomass) = 0.26 mg/L

Aromatic Naphthas

Naphtha (petroleum), light catalytic reformed (CASRN 64741-63-5)
Green algae (*Pseudokirchneriella subcapitata*) were exposed to CASRN 64741-63-5 as WAFs under static conditions in sealed test vessels for 96 hours. The loading rates were 0, 1.3, 2.5, 5.0, 10, 20 and 40 mg/L and analytical measurements were made on the WAFs for components comprising > 50% of the test substance. Measured concentrations were 0, 0.13, 0.21, 0.87, 2.1, 5.3 and 13 mg/L. Growth was inhibited at nominal concentrations ≥ 10 mg/L. Exposures occurred at a pH of 7.5 – 8.9 and a temperature of 24 – 25 °C.
96-h EL_{50} (biomass) = 8.5 mg/L
96-h EC_{50} (biomass) = 1.7 mg/L

Chronic Toxicity to Aquatic Invertebrates

Paraffinic Naphthas

Naphtha (petroleum), light alkylate (CASRN 64741-66-8)
Daphnia magna were exposed CASRN 64741-66-8 as WAFs under static renewal conditions in sealed test vessels for 21 days. The loading rates were 0, 0.44, 1.0, 2.6, 6.4, 16 and 40 mg/L and

analytical measurements were made on the WAFs for a subset of components of the test substance. Mean measured concentrations were 0.005, 0.010, 0.016, 0.032, 0.084, 0.23 and 0.46 mg/L. Effects on survival and reproduction were observed at 40 and ≥ 6.4 mg/L, respectively. Exposures occurred at a pH of 7.5 – 8.5, a dissolved oxygen concentration of 8.7 – 9.4 mg/L and a temperature of 19 – 21 °C.

21-d EL_{50} (survival) > 40 mg/L
21-d EC_{50} (survival) > 0.46 mg/L
21-d NOEL (survival) = 16 mg/L
21-d NOEC (survival) = 0.23 mg/L

21-d EL_{50} (reproduction) = 10 mg/L
21-d EC_{50} (reproduction) = 0.14 mg/L
21-d NOEL (reproduction) = 2.6 mg/L
21-d NOEC (reproduction) = 0.032 mg/L

Olefinic Naphthas

Naphtha (petroleum), light catalytic cracked (CASRN 64741-55-5)
Daphnia magna were exposed to CASRN 64741-55-5 as WAFs under static renewal conditions in sealed test vessels for 21 days. The loading rates were 0, 0.38, 0.99, 2.6, 6.4, 16 and 40 mg/L and analytical measurements were made on the WAFs for a subset of components of the test substance. Mean measured concentrations were 0.004, 0.007, 0.022, 0.11, 0.27, 0.68 and 3.1 mg/L. Effects on survival and reproduction were observed at 40 and ≥ 6.4 mg/L, respectively. Exposures occurred at a pH of 7.2 – 8.2, a dissolved oxygen concentration of 8.4 – 9.1 mg/L and a temperature of 19 – 21 °C.

21-d EL_{50} (survival) = 27 mg/L
21-d EC_{50} (survival) = 1.9 mg/L
21-d NOEL (survival) = 16 mg/L
21-d NOEC (survival) = 0.68 mg/L

21-d EL_{50} (reproduction) = 13 mg/L
21-d EC_{50} (reproduction) = 0.55 mg/L
21-d NOEL (reproduction) = 2.6 mg/L
21-d NOEC (reproduction) = 0.11 mg/L

Aromatic Naphthas

Naphtha (petroleum), light catalytic reformed (CASRN 64741-63-5)
Daphnia magna were exposed to CASRN 64741-63-5 as WAFs under static renewal conditions in sealed test vessels for 21 days. The loading rates were 0, 0.39, 1.0, 2.6, 6.3, 16 and 40 mg/L and analytical measurements were made on the WAFs for a subset of components of the test substance. Mean measured concentrations were 0.026, 0.069, 0.15, 0.36, 0.80, 3.8 and 13 mg/L. Effects on survival and reproduction were observed at 40 and ≥ 0.39 mg/L, respectively. Exposures occurred at a pH of 7.1 – 8.4 and a dissolved oxygen concentration of 8.4 – 10 mg/L.

21-d EL_{50} (survival) = 26 mg/L
21-d EC_{50} (survival) = 7.5 mg/L

21-d NOEL (survival) = 16 mg/L
21-d NOEC (survival) = 3.8 mg/L

21-d EL_{50} (reproduction) = 14 mg/L
21-d EC_{50} (reproduction) = 3.2 mg/L
21-d NOEL (reproduction) = <0.39 mg/L
21-d NOEC (reproduction) = <0.069 mg/L

Conclusion: Based on data for the category member CASRN 64741-66-8, the 96-h LC_{50} for fish is 0.31 mg/L (lowest value) and the 48-h EC_{50} value to aquatic invertebrates is 0.556 mg/L (lowest value). Based on data for the category member CASRN 64741-46-4, the 96-h EC_{50} for algae is0.26 mg/L (lowest value) for biomass. Based on data for the category member CASRN 64741-66-8, the lowest values for the chronic aquatic invertebrates 21-d EC_{50} are 1.9 mg/L (based on survival), and 0.14 mg/L (based on reproduction), and the lowest 21-d chronic NOEC values are 0.23 mg/L (based on survival), and 0.03 mg/L (based on reproduction).

5. References

Van Wezel, A.P. and Opperhuizen, A. 1995. Narcosis Due to Environmental Pollutants in Aquatic Organisms: Residue-Based Toxicity, Mechanisms, and Membrane Burdens. Critical Reviews in Toxicology 25:255-279.

Table 4. Summary Table of the Screening Information Data Set as Submitted under the U.S. HPV Challenge Program - Aquatic Toxicity Data						
Type of Naphtha	**Paraffinic**	**Olefinic**	**Naphthenic**	**Aromatic**		**Chemicals in this Category**
Endpoint	**SPONSORED CHEMICAL Naphtha (petroleum), light alkylate (64741-66-8)**	**SPONSORED CHEMICAL Naphtha (petroleum), light catalytic cracked (64741-55-5)**	**SPONSORED CHEMICAL Naphtha (petroleum), light straight-run (64741-46-4)**	**SPONSORED CHEMICAL Naphtha (petroleum), light catalytic reformed (64741-63-5)**	**SPONSORED CHEMICAL Solvent naphtha (petroleum), light arom. (64742-95-6)**	*
Fish 96-h LL50 or LC50 (mg/L)	**LL50 = 8.2 LC50 = 0.305**	**LL50 = 46 LC50 = 4.1**	**LL50 = 15 LC50 = 0.689**	**LL50 = 34 LC50 = 11**	**LL50 = N/A LC50 = 1.03**	No Data LL50 = 8.2 LC50 = 0.305 (RA)
Aquatic Invertebrates 48-h EL50 or EC50 (mg/L)	**EL50 = 32 EC50 = 0.556**	**EL50 = 18 EC50 = 1.4**	**EL50 = 18 EC50 = 0.65**	**EL50 = 10 EC_{50} = 2.6**	**EL_{50} = N/A EC_{50} = 1.2**	No Data EL_{50} = 10 EC_{50} = 0.556 (RA)
Aquatic Plants 96-h EL_{50} or EC_{50} (mg/L) biomass	**EL_{50} = 45 EC_{50} = 0.741**	**EL_{50} = 64 EC_{50} = 4.6**	**EL_{50} = 6.4 EC_{50} = 0.26**	**EL_{50} = 8.5 EC_{50} = 1.7**	No Data EL_{50} = 6.4 EC_{50} = 0.26 (RA)	No Data EL_{50} = 6.4 EC_{50} = 0.26 (RA)
Chronic Toxicity to Invertebrates **21-d EL_{50} or EC_{50} 21-d NOEL or NOEC Survival and reproduction (mg/L)**	**Survival EL_{50} > 40 EC_{50} > 0.46 NOEL = 16 NOEC = 0.23** **Reproduction EL_{50} = 10 EC_{50} = 0.14 NOEL = 2.6 NOEC = 0.032**	**Survival EL_{50} = 27 EC_{50} = 1.9 NOEL = 16 NOEC = 0.68** **Reproduction EL_{50} = 13 EC_{50} = 0.55 NOEL = 2.6 NOEC = 0.11**	No Data Survival EL_{50} = 26 EC_{50} = 1.9 NOEL = 16 NOEC = 0.23 Reproduction EL_{50} = 10 EC_{50} = 0.14 NOEL = 2.6 NOEC = 0.032 (RA)	**Survival EL_{50} = 26 EC_{50} = 7.5 NOEL = 16 NOEC = 3.8** **Reproduction EL_{50} = 14 EC_{50} = 3.2 NOEL = <0.39 NOEC = <0.069**	No Data Survival EL_{50} = 26 EC_{50} = 1.9 NOEL = 16 NOEC = 0.23 Reproduction EL_{50} = 10 EC_{50} = 0.14 NOEL = 2.6 NOEC = 0.032 (RA)	No Data Survival EL_{50} = 26 EC_{50} = 1.9 NOEL = 16 NOEC = 0.23 Reproduction EL_{50} = 10 EC_{50} = 0.14 NOEL = 2.6 NOEC = 0.032 (RA)

Measured data in bold text; (RA) = read-across; N/A = not available; ***** 81 petroleum refinery streams in the gasoline blending streams category

APPENDIX

The following pages show:

- Table 5 with a list of representative structures

Notes on Table 5.

Notes on representative structures: Limited compositional data were provided for the majority of category members. For these cases, the structures chosen in the table below were based on the partial information provided by the CAS definitions. GC/MS compositional data were available for nine of the category members as well as for the supporting substance gasoline; these data identified the hydrocarbon compounds which were the most predominant in the compositions, though each individual compound often makes up only 3–10% of the total composition. For 11 of the category members, the PONA percentages were available, which refers to the paraffin (P), olefin (O), naphthene (N) and aromatic (A) content.

It should be understood that each of these category members contains many more compounds than those shown in the table below. The available GC/MS results demonstrate that there can be approximately 100 to 200 individual hydrocarbons present in a single category member. For gasoline, which is blended from any number of the category members, GC/MS data show that upwards of 200+ hydrocarbon compounds are present in the final fuel product. Moreover, the compositions of the category members are not static, but may vary over time, and may also vary from one petroleum refinery to another.

Many of the category members have CAS definitions that are purposely broad, covering a wide range of carbon numbers. GC/MS data often show that the individual hydrocarbon compounds at the lower and upper carbon numbers of a range are present in very low amounts, generally at 0.1% or lower. Hence, representative structures have often been chosen which do not span the entire carbon number range as stated in a definition.

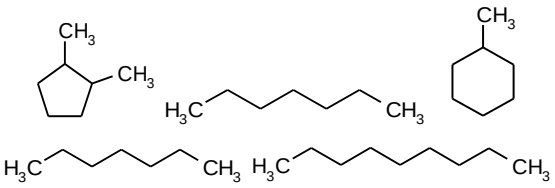
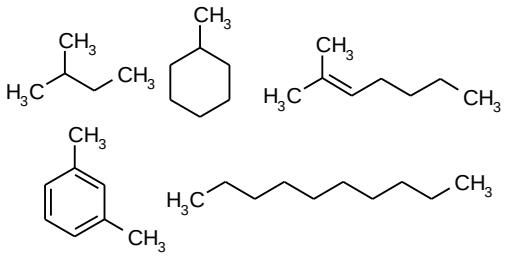
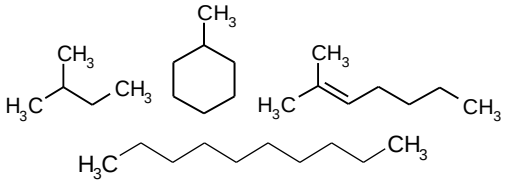
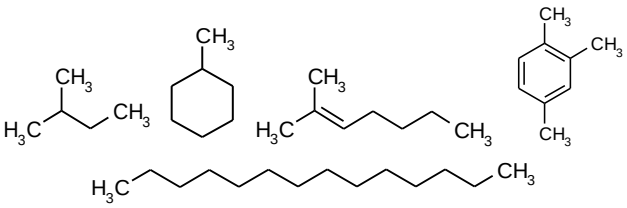
Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Sponsored Chemicals			
Naphtha (petroleum), heavy straight-run	64741-41-9	 A complex combination of hydrocarbons produced by distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C6 through C12 and boiling in the range of approximately 65–230°C.	48% Paraffin; 1% olefin; 40% naphthene; 11% aromatic From GC/MS data
Naphtha (petroleum), full-range straight-run	64741-42-0	 A complex combination of hydrocarbons produced by distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C4 through C11 and boiling in the range of approximately -20 to 220°C.	
Naphtha (petroleum), light straight-run	64741-46-4	 A complex combination of hydrocarbons produced by distillation of crude oil. It consists of aliphatic hydrocarbons having carbon numbers predominantly in the range of C4 through C10 and boiling in the range of approximately -20 to 180°C.	
Natural gas condensates (petroleum)	64741-47-5	 A complex combination of hydrocarbons separated as a liquid from natural gas in a surface separator by retrograde condensation. It consists mainly of hydrocarbons having carbon numbers predominantly in the range of C2 to C20. It is a liquid at atmospheric temperature and pressure.	

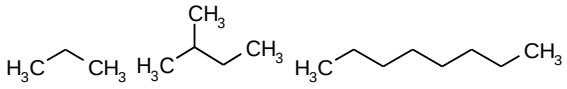
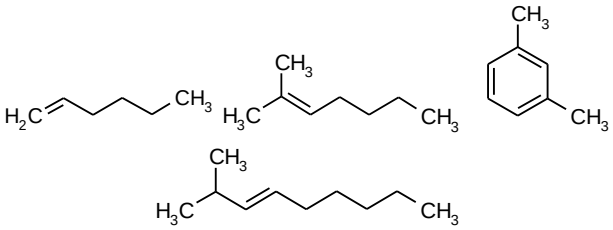
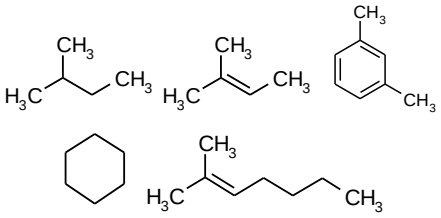
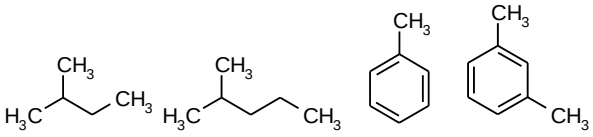
Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Natural gas (petroleum), raw liq. mix	64741-48-6	 A complex combination of hydrocarbons separated as a liquid from natural gas in a gas recycling plant by processes such as refrigeration or absorption. It consists mainly of saturated aliphatic hydrocarbons having carbon numbers in the range of C2 through C8.	
Naphtha (petroleum), heavy catalytic cracked	64741-54-4	 A complex combination of hydrocarbons produced by a distillation of products from a catalytic cracking process. It consists of hydrocarbons having carbon numbers predominantly in the range of C6 through C12 and boiling in the range of approximately 65–230°C. It contains a relatively large proportion of unsaturated hydrocarbons.	
Naphtha (petroleum), light catalytic cracked	64741-55-5	 A complex combination of hydrocarbons produced by the distillation of products from a catalytic cracking process. It consists of hydrocarbons having carbon numbers predominantly in the range of C4 through C11 and boiling in the range of approximately -20 to 190°C. It contains a relatively large proportion of unsaturated hydrocarbons.	34% Paraffin; 40% olefin; 11% naphthene; 15% aromatic From GC/MS data
Naphtha (petroleum), light catalytic reformed	64741-63-5	 A complex combination of hydrocarbons produced from the distillation of products from a catalytic reforming process. It consists of hydrocarbons having carbon numbers predominantly in the range of C5 through C11 and boiling in the range of approximately 35–190°C. It contains a relatively large proportion of aromatic and branched chain hydrocarbons. This stream may contain 10 % vol. or more benzene.	52% Paraffin; 1% olefin; 5% naphthene; 42% aromatic From GC/MS data

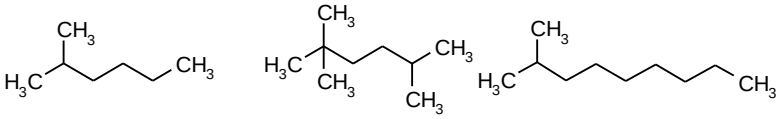
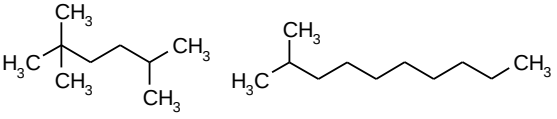
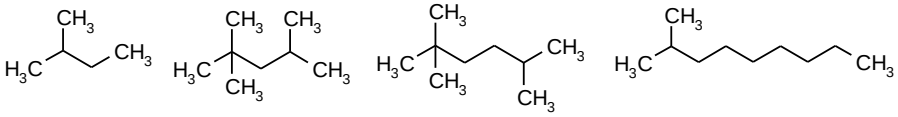
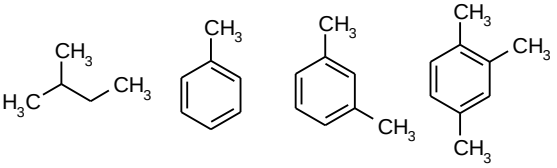
Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Naphtha (petroleum), full-range alkylate	64741-64-6	 A complex combination of hydrocarbons produced by distillation of the reaction products of isobutane with monoolefinic hydrocarbons usually ranging in carbon numbers from C3 through C5. It consists predominantly of branched chain saturated hydrocarbons having carbon numbers predominantly in the range of C7 through C12 and boiling in the range of approximately 90–220°C.	
Naphtha (petroleum), heavy alkylate	64741-65-7	 A complex combination of hydrocarbons produced by distillation of the reaction products of isobutane with monoolefinic hydrocarbons usually ranging in carbon numbers from C3 to C5. It consists predominantly of branched chain saturated hydrocarbons having carbon numbers predominantly in the range of C9 through C12 and boiling in the range of approximately 150–220°C.	
Naphtha (petroleum), light alkylate	64741-66-8	 A complex combination of hydrocarbons produced by distillation of the reaction products of isobutane with monoolefinic hydrocarbons usually ranging in carbon numbers from C3 through C5. It consists predominantly of branched chain saturated hydrocarbons having carbon numbers predominantly in the range of C7 through C10 and boiling in the range of approximately 90–160°C.	99% Paraffin; 0% olefin; 1% naphthene; 0% aromatic From GC/MS data
Naphtha (petroleum), heavy catalytic reformed	64741-68-0	 A complex combination of hydrocarbons produced from the distillation of products from a catalytic reforming process. It consists of predominantly aromatic hydrocarbons having carbon numbers predominantly in the range of C7 through C12 and boiling in the range of approximately 90–230°C.	10–30% Paraffin; 0% olefin 0% naphthene; 60–90% aromatic From GC/MS data

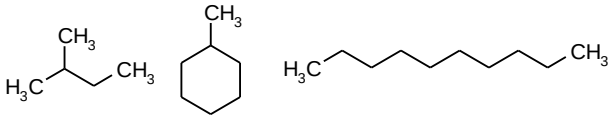
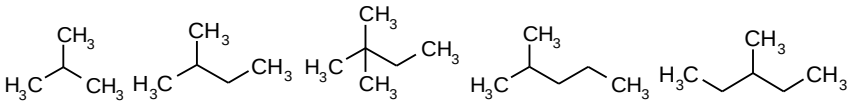
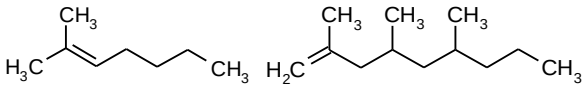
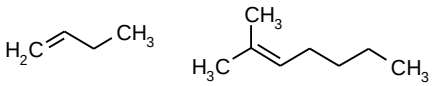
Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Naphtha (petroleum), light hydrocracked	64741-69-1	 A complex combination of hydrocarbons from distillation of the products from a hydrocracking process. It consists predominantly of saturated hydrocarbons having carbon numbers predominantly in the range of C4 through C10, and boiling in the range of approximately -20 to 180°C.	
Naphtha (petroleum), isomerization	64741-70-4	 A complex combination of hydrocarbons obtained from catalytic isomerization of straight chain paraffinic C4 through C6 hydrocarbons. It consists predominantly of saturated hydrocarbons such as isobutane, isopentane, 2,2-dimethylbutane, 2-methylpentane, and 3-methylpentane.	
Naphtha (petroleum), polymn.	64741-72-6	 A complex combination of hydrocarbons produced by the catalytic polymerization of a mixture rich in propylene or butylene. It consists predominantly of monoolefinic hydrocarbons having carbon numbers predominantly in the range of C6 through C12 and boiling in the range of approximately 65–220°C.	
Naphtha (petroleum), light thermal cracked	64741-74-8	 A complex combination of hydrocarbons from distillation of products from a thermal cracking process. It consists predominantly of unsaturated hydrocarbons having carbon numbers predominantly in the range of C4 through C8 and boiling in the range of approximately -10 to 130°C.	

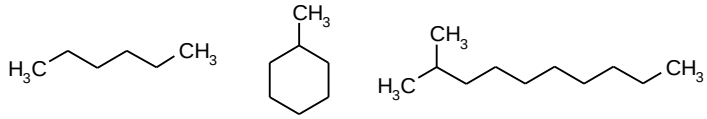
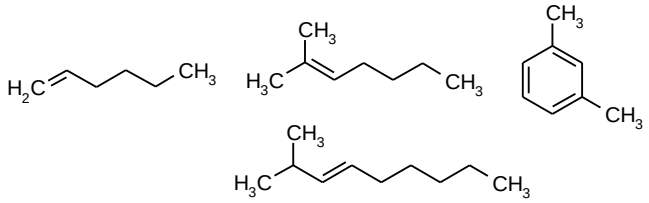
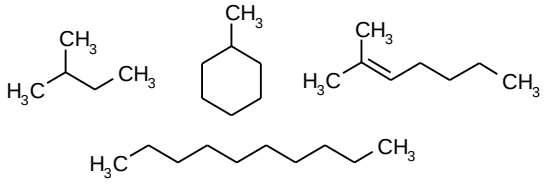
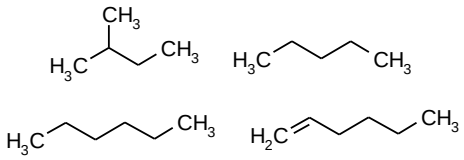
Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Naphtha (petroleum), heavy hydrocracked	64741-78-2	 A complex combination of hydrocarbons from distillation of the products from a hydrocracking process. It consists predominantly of saturated hydrocarbons having carbon numbers predominantly in the range of C6 through C12, and boiling in the range of approximately 65–230°C.	
Naphtha (petroleum), heavy thermal cracked	64741-83-9	 A complex combination of hydrocarbons from distillation of the products from a thermal cracking process. It consists predominantly of unsaturated hydrocarbons having carbon numbers predominantly in the range of C6 through C12 and boiling in the range of approximately 65–220°C.	
Naphtha (petroleum), solvent-refined light	64741-84-0	 A complex combination of hydrocarbons obtained as the raffinate from a solvent extraction process. It consists of aliphatic hydrocarbons having carbon numbers predominantly in the range of C5 through C11 and boiling in the range of approximately 35–190°C.	
Naphtha (petroleum), sweetened	64741-87-3	 A complex combination of hydrocarbons obtained by subjecting a petroleum naphtha to a sweetening process to convert mercaptans or to remove acidic impurities. It consists of hydrocarbons having carbon numbers predominantly in the range of C4 through C12 and boiling in the range of approximately -10 to 230°C.	48% Paraffin; 44% olefin; 6% naphthene; 1% aromatic From GC/MS data

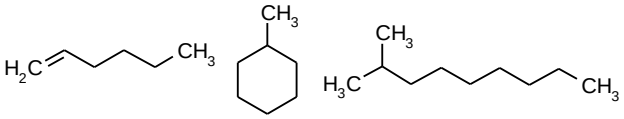
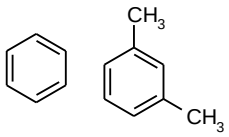
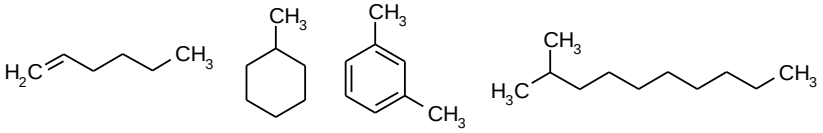
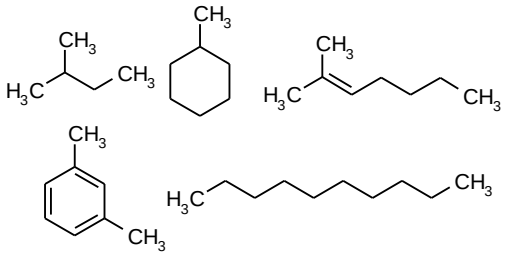
Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Naphtha (petroleum), solvent-refined heavy	64741-92-0	 A complex combination of hydrocarbons obtained as the raffinate from a solvent extraction process. It consists predominantly of aliphatic hydrocarbons having carbon numbers predominantly in the range of C7 through C12 and boiling in the range of approximately 90–230°C.	
Extracts (petroleum), light naphtha solvent	64741-99-7	 A complex combination of hydrocarbons obtained as the extract from a solvent extraction process. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C6 through C8 and boiling in the range of approximately 80–145°C. This stream is likely to contain 10 % vol. or more benzene.	
Naphtha (petroleum), chem. neutralized heavy	64742-22-9	 A complex combination of hydrocarbons produced by a treating process to remove acidic materials. It consists of hydrocarbons having carbon numbers predominantly in the range of C6 through C12 and boiling in the range of approximately 65–230°C.	
Naphtha (petroleum), chem.. neutralized light	64742-23-0	 A complex combination of hydrocarbons produced by a treating process to remove acidic materials. It consists of hydrocarbons having carbon numbers predominantly in the range of C4 through C11 and boiling in the range of approximately -20 to 190°C.	

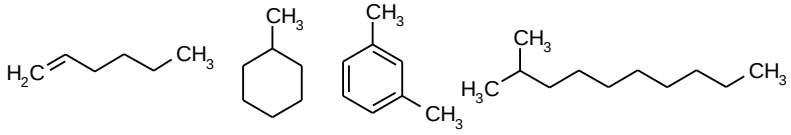
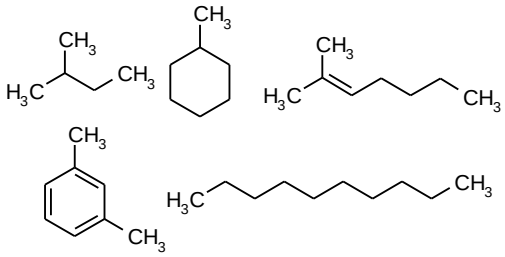
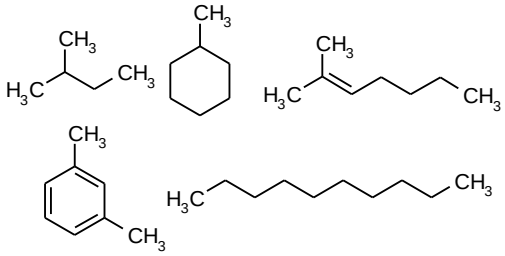
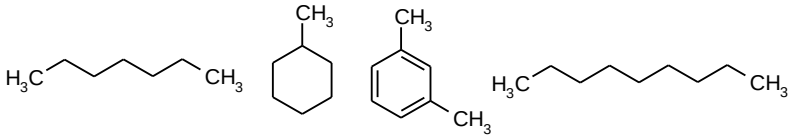
Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Naphtha (petroleum), hydrotreated heavy	64742-48-9	 A complex combination of hydrocarbons obtained by treating a petroleum fraction with hydrogen in the presence of a catalyst. It consists of hydrocarbons having carbon numbers predominantly in the range of C6 through C13 and boiling in the range of approximately 65–230°C.	
Naphtha (petroleum), hydrotreated light	64742-49-0	 A complex combination of hydrocarbons obtained by treating a petroleum fraction with hydrogen in the presence of a catalyst. It consists of hydrocarbons having carbon numbers predominantly in the range of C4 through C11 and boiling in the range of approximately -20 to 190°C.	
Naphtha (petroleum), hydrodesulfurized light	64742-73-0	 A complex combination of hydrocarbons obtained from a catalytic hydrodesulfurization process. It consists of hydrocarbons having carbon numbers predominantly in the range of C4 through C11 and boiling in the range of approximately -20 to 190°C.	
Naphtha (petroleum), hydrodesulfurized heavy	64742-82-1	 A complex combination of hydrocarbons obtained from a catalytic hydrodesulfurization process. It consists of hydrocarbons having carbon numbers predominantly in the range of C7 through C12 and boiling in the range of approximately 90–230°C.	51% Paraffin; 0% olefin; 27% naphthene; 22% aromatic From GS/MS data

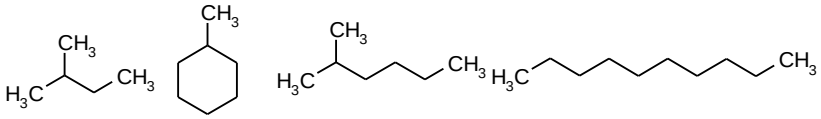
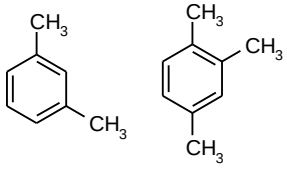
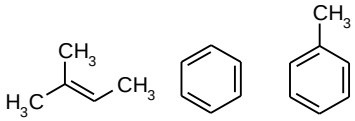
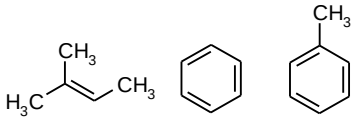
Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Solvent naphtha (petroleum), light aliph.	64742-89-8	 A complex combination of hydrocarbons obtained from the distillation of crude oil or natural gasoline. It consists predominantly of saturated hydrocarbons having carbon numbers predominantly in the range of C5 through C10 and boiling in the range of approximately 35–160°C.	
Solvent naphtha (petroleum), light arom.	64742-95-6	 A complex combination of hydrocarbons obtained from distillation of aromatic streams. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C8 through C10 and boiling in the range of approximately 135–210°C.	
Distillates (petroleum), heavy arom.	67891-79-6	 The complex combination of hydrocarbons from the distillation of the products from the thermal cracking of ethane and propane. This higher boiling fraction consists predominantly of C5–C7 aromatic hydrocarbons with some unsaturated aliphatic hydrocarbons having carbon number predominantly of C5. This stream may contain benzene.	
Distillates (petroleum), light arom.	67891-80-9	 The complex combination of hydrocarbons from the distillation of the products from the thermal cracking of ethane and propane. This lower boiling fraction consists predominantly of C5–C7 aromatic hydrocarbons with some unsaturated aliphatic hydrocarbons having a carbon number predominantly of C5. This stream may contain benzene.	

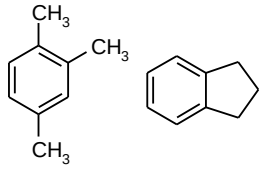
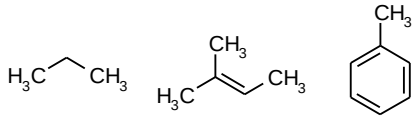
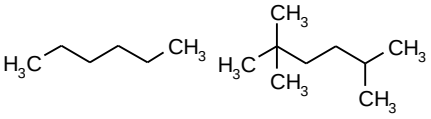
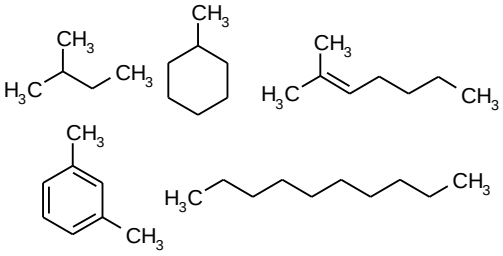
Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Residues (petroleum), light naphtha solvent extracts	68333-29-9	 A complex residuum from the distillation of light naphtha solvent extract. It consists predominantly of aromatic hydrocarbons having a carbon number of C9, predominantly trimethylbenzenes and indan and boiling in the range of approximately 143–260°C.	
Distillates (petroleum), straight-run light	68410-05-9	 A complex combination of hydrocarbons produced by the distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C2 through C7 and boiling in the range of approximately -88 to 99°C.	
Raffinates (petroleum), catalytic reformer ethylene glycol-water countercurrent exts.	68410-71-9	 A complex combination of hydrocarbons obtained as the raffinate from the UDEX extraction process on the catalytic reformer stream. It consists of saturated hydrocarbons having carbon numbers predominantly in the range of C6 through C9.	
Distillates (petroleum), hydrotreated middle, intermediate boiling	68410-96-8	 A complex combination of hydrocarbons obtained by the distillation of products from a middle distillate hydrotreating process. It consists of hydrocarbons having carbon numbers predominantly in the range of C5 through C10 and boiling in the range of approximately 127–188°C.	

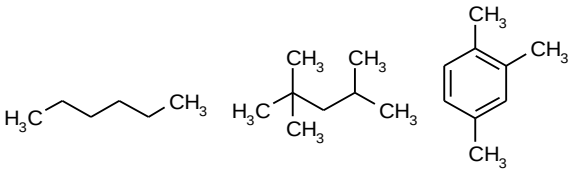
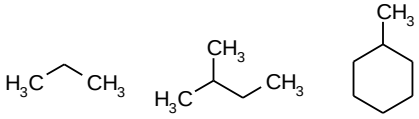
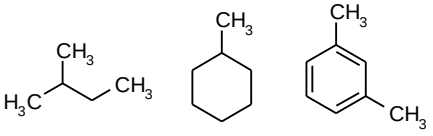
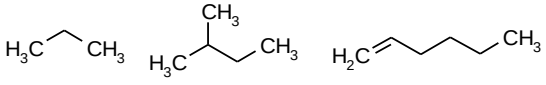
Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Distillates (petroleum), light distillate hydrotreating process, low-boiling	68410-97-9	 A complex combination of hydrocarbons obtained by the distillation of products from the light distillate hydrotreating process. It consists of hydrocarbons having carbon numbers predominantly in the range of C6 through C9 and boiling in the range of approximately 3–194°C.	
Distillates (petroleum), hydrotreated heavy naphtha, deisohexanizer overheads	68410-98-0	 A complex combination of hydrocarbons obtained by distillation of the products from a heavy naphtha hydrotreating process. It consists of hydrocarbons having carbon numbers predominantly in the range of C3 through C6 and boiling in the range of approximately -49 to 68°C.	
Gasoline, natural gas, natural	68425-31-0	 A complex combination of hydrocarbons separated as a liquid from natural gas liquids and/or natural gas condensates from which ethane, propane, butane, and possibly pentane have been extracted. It consists of hydrocarbons having carbon numbers predominantly in the range of C5 through C8. It is a liquid at atmospheric temperature and pressure.	
Distillates (petroleum), catalytic reformed depentanizer	68475-79-6	 A complex combination of hydrocarbons from the distillation of products from a catalytic reforming process. It consists predominantly of aliphatic hydrocarbons having carbon numbers predominantly in the range of C3 through C6 and boiling in the range of approximately -49 to 63°C.	

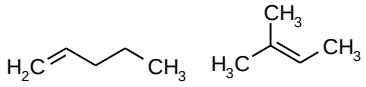
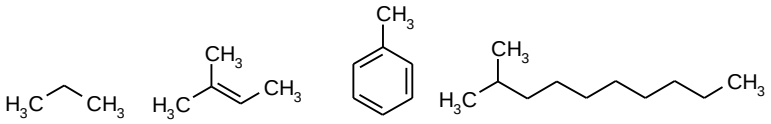
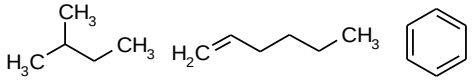
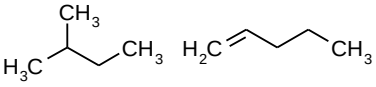
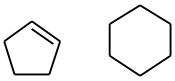
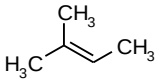
Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Hydrocarbons, C4-6, C5-rich	68476-43-7	 A complex combination of hydrocarbons produced by distillation of products from a catalytic cracking process. It consists predominantly of hydrocarbons having carbon numbers predominantly in the range of C4 through C6, rich in C5. It contains a large proportion of unsaturated hydrocarbons.	
Hydrocarbons, C3-C11 catalytic cracker distillates	68476-46-0	 A complex combination of hydrocarbons produced by the distillations of products from a catalytic cracking process. It consists of hydrocarbons having carbon numbers predominantly in the range of C3 through C11 and boiling in a range approximately up to 204°C.	
Hydrocarbons, C5 and higher, C5-6-rich	68476-50-6		
Hydrocarbons, C5-rich	68476-55-1		
Hydrocarbons, cyclic C5 and C6	68476-56-2		
Distillates (petroleum), C3-C5, 2-methyl-2-butene-rich	68477-34-9	 A complex combination of hydrocarbons from the distillation of hydrocarbons usually ranging in carbon numbers from C3 through C5, predominantly isopentane and 3-methyl-1-butene. It consists of saturated and unsaturated hydrocarbons having carbon numbers in the range of C3 through C5, predominantly 2-methyl-2-butene.	

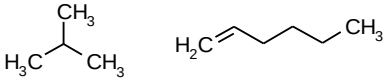
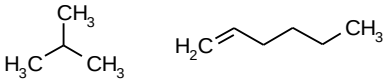
Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Extracts (petroleum), reformer recycle	68477-63-4	 The complex combination of hydrocarbons obtained from recycling of an extract from a reforming process. It consists predominantly of hydrocarbons having carbon numbers predominantly in the range of C5 through C8, primarily benzene.	
Distillates (petroleum), depentanizer overheads	68477-89-4	 A complex combination of hydrocarbons obtained from a catalytic cracked gas stream. It consists of aliphatic hydrocarbons having carbon numbers predominantly in the range of C4 through C6.	
Residues (petroleum), butane splitter bottoms	68478-12-6	 A complex residuum from the distillation of butane stream. It consists of aliphatic hydrocarbons having carbon numbers predominantly in the range of C4 through C6.	

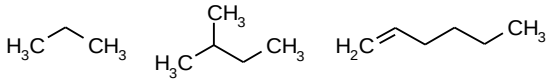
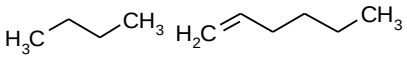
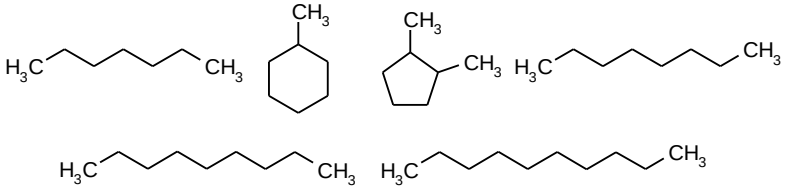
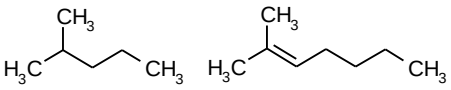
Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Residues (petroleum), C6-8, catalytic reformer	68478-15-9	 A complex residuum from the catalytic reforming of C6-8 feed. It consists of hydrocarbons having carbon numbers predominantly in the range of C2 through C6.	
Residual oils (petroleum), deisobutanizer tower	68478-16-0	 A complex residuum from the atmospheric distillation of the butane-butylene stream. It consists of aliphatic hydrocarbons having carbon numbers predominantly in the range of C4 through C6.	
Naphtha (petroleum), full-range coker	68513-02-0	 A complex combination of hydrocarbons produced by the distillation of products from a fluid coker. It consists predominantly of unsaturated hydrocarbons having carbon numbers predominantly in the range of C4 through C15 and boiling in the range of approximately 43–250°C.	45% Paraffin; 1% olefin; 40% naphthene; 14% aromatic From GC/MS data. Note: CAS def. does not agree with analytical data.
Naphtha (petroleum), light catalytic reformed, arom.-free	68513-03-1	 A complex combination of hydrocarbons obtained from distillation of products from a catalytic reforming process. It consists predominantly of hydrocarbons having carbon numbers predominantly in the range of C5 through C8 and boiling in the range of approximately 35–120°C (95–248°F). It contains a relatively large proportion of branched chain hydrocarbons with the aromatic components removed.	

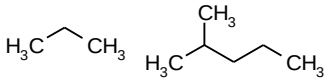
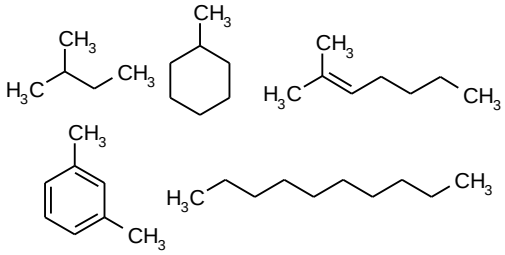
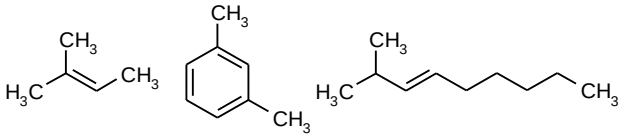
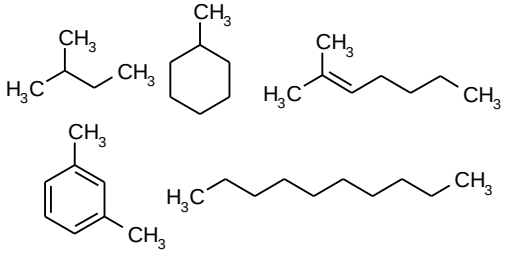
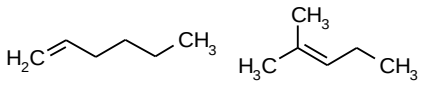
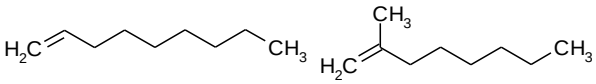
Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Distillates (petroleum), catalytic reformed straight-run naphtha overheads	68513-63-3	 A complex combination of hydrocarbons obtained by the catalytic reforming of straight-run naphtha followed by the fractionation of the total effluent. It consists of saturated aliphatic hydrocarbons having carbon numbers predominantly in the range of C2 through C6.	
Gasoline, vapour-recovery	68514-15-8	 A complex combination of hydrocarbons separated from the gases from vapor recovery systems by cooling. It consists of hydrocarbons having carbon numbers predominantly in the range of C4 through C11 and boiling in the range of approximately -20 to 196°C.	
Hydrocarbons, C4-10 unsatd.	68514-38-5		
Petroleum products, hydrofiner-powerformer reformates	68514-79-4	 The complex combination of hydrocarbons obtained in a hydrofiner-powerformer process and boiling in a range of approximately 27–210°C.	
Alkenes, C6	68526-52-3		
Alkenes, C8-10, C9-rich	68526-55-6		

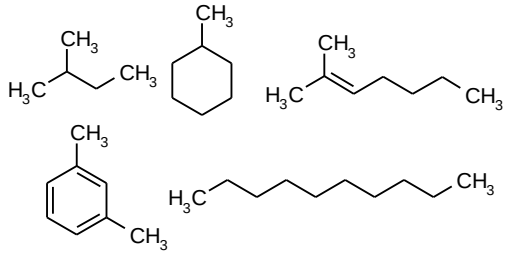
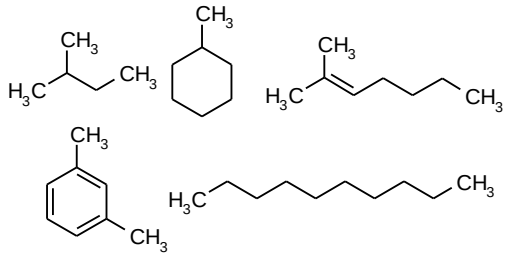
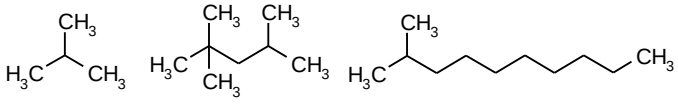
Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Naphtha (petroleum), clay-treated full-range straight-run	68527-21-9	 A complex combination of hydrocarbons resulting from treatment of full-range straight-run naphtha with natural or modified clay, usually in a percolation process to remove the trace amounts of polar compounds and impurities present. It consists of hydrocarbons having carbon numbers predominantly in the range of C4 through C11 and boiling in the range of approximately -20 to 220°C.	
Naphtha (petroleum), light steam-cracked, debenzenized	68527-26-4	 A complex combination of hydrocarbons produced by distillation of products from a steam-cracking process. It consists predominantly of hydrocarbons having carbon numbers predominantly in the range of C4 through C12 and boiling in the range of approximately 80–218°C.	
Naphtha (petroleum), full-range alkylate, butane-contg.	68527-27-5	 A complex combination of hydrocarbons produced by the distillation of the reaction products of isobutane with monoolefinic hydrocarbons usually ranging in carbon numbers from C3 through C5. It consists predominantly of branched chain saturated hydrocarbons having carbon numbers predominantly in the range of C7 through C12 with some butanes and boiling in the range of approximately 35–220°C.	

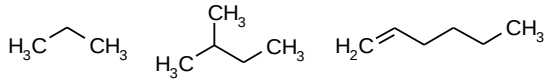
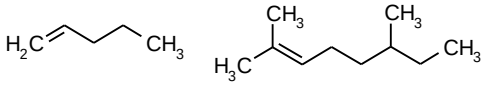
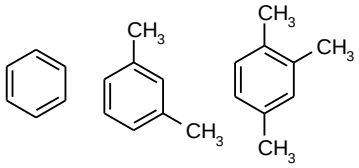
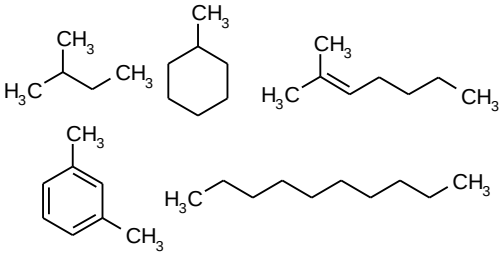
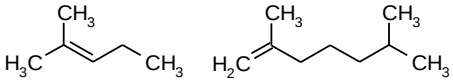
Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Distillates, (petroleum), benzene unit hydrotreater depentanizer overheads	68602-79-9	 A complex combination of hydrocarbons produced by treating the feed from the benzene unit with hydrogen in the presence of a catalyst followed by depentanizing. It consists of hydrocarbons having carbon numbers predominantly in the range of C2 through C6.	
Distillates (petroleum), thermal cracked naphtha and gas oil, C5-dimer-contg.	68603-01-0	 A complex combination of hydrocarbons produced by the extractive distillation of thermal cracked naphtha and/or gas oil. It consists predominantly of hydrocarbons having a carbon number of C5 with some dimerized C5 olefins and boiling in the range of approximately 33–184°C.	
Naphtha (petroleum), arom.-contg.	68603-08-7		
Gasoline, straight-run, topping-plant	68606-11-1	 A complex combination of hydrocarbons produced from the topping plant by the distillation of crude oil. It boils in the range of approximately 36–193°C.	
Naphtha (petroleum), light polymn.	68783-11-9	 A complex combination of hydrocarbons produced by the catalytic polymerization of a mixture rich in propylene. It consists predominantly of olefinic hydrocarbons having carbon numbers predominantly in the range of C5 through C11 and boiling in the range of approximately 25–185°C.	

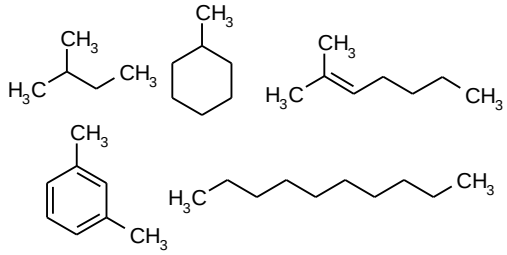
Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Naphtha (petroleum), unsweetened	68783-12-0	 A complex combination of hydrocarbons produced from the distillation of naphtha streams from various refinery processes. I t consists of hydrocarbons having carbon numbers predominantly in the range of C5 through C12 and boiling in the range of approximately 0–230°C.	

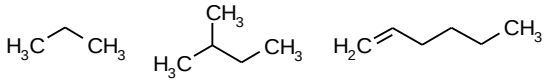
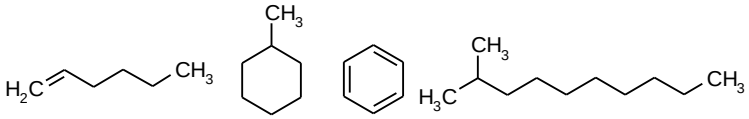
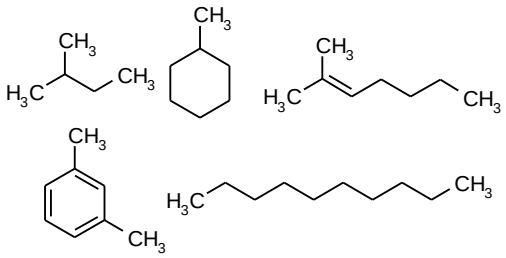
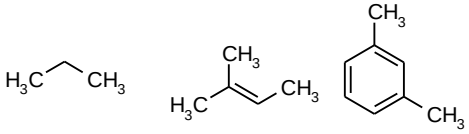
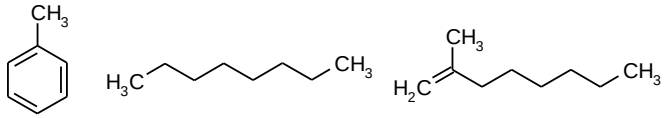
Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Naphtha (petroleum), light, sweetened	68783-66-4	 A complex combination of hydrocarbons obtained by subjecting a petroleum distillate to a sweetening process to convert mercaptans or to remove acidic impurities. It consists predominantly of saturated and unsaturated hydrocarbons having carbon numbers predominantly in the range of C3 through C6 and boiling in the range of approximately -20 to 100°C.	
Hydrocarbons, C6-12, benzene-recovery	68919-15-3	 The complex combination of hydrocarbons obtained from a benzene recovery unit. It consists of hydrocarbons having carbon numbers predominantly in the range of C6 through C12 and boiling in the range of approximately 65–230°C. This stream may contain 3% vol. or more benzene.	
Naphtha (petroleum), full-range reformed	68919-37-9	 A complex combination of hydrocarbons produced by the distillation of the products from a catalytic reforming process. It consists of hydrocarbons having carbon numbers predominantly in the range of C5 through C12 and boiling in the range of approximately 35–230°C.	31% Paraffin; 2% olefin; 3% naphthene; 64% aromatic From Robust Summary
Natural gas condensates	68919-39-1	 A complex combination of hydrocarbons separated and/or condensed from natural gas during transportation and collected at the wellhead and/or from the production, gathering, transmission, and distribution pipelines in deeps, scrubbers, etc. It consists predominantly of hydrocarbons having carbon numbers predominantly in the range of C2 through C8.	
Hydrocarbons, C7-9	68920-06-9		

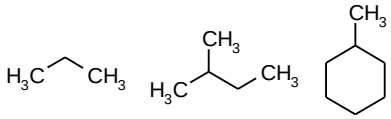
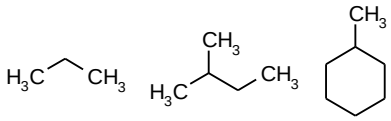
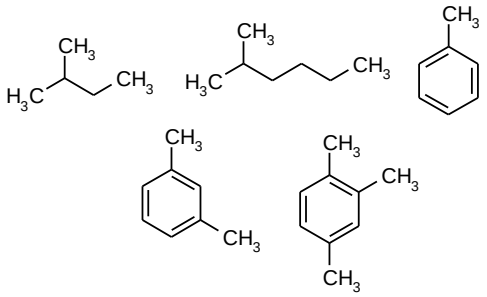
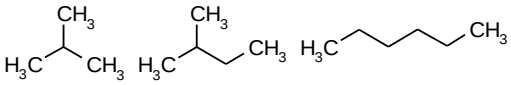
Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Distillates (petroleum), light straight-run gasoline fractionation stabilizer overheads	68921-08-4	 A complex combination of hydrocarbons obtained by the fractionation of light straight-run gasoline. It consists of saturated aliphatic hydrocarbons having carbon numbers predominantly in the range of C3 through C6.	
Distillates (petroleum), naphtha unifiner stripper	68921-09-5	 A complex combination of hydrocarbons produced by stripping the products from the naphtha unifiner. It consists of saturated aliphatic hydrocarbons having carbon numbers predominantly in the range of C2 through C6.	
Distillates (petroleum), light thermal cracked, debutanized arom.	68955-29-3	 A complex combination of hydrocarbons produced by the distillation of products from a thermal cracking process. It consists predominantly of aromatic hydrocarbons, primarily benzene.	
Naphtha (petroleum), catalytic reformed	68955-35-1	 A complex combination of hydrocarbons produced by the distillation of products from a catalytic reforming process. It consists of hydrocarbons having carbon numbers predominantly in the range of C4 through C12 and boiling in the range of approximately 32–211°C. It contains a relatively large proportion of aromatic and branched chain hydrocarbons. This stream may contain 10% vol. or more benzene.	32% Paraffin; 1% olefin; 4% naphthene; 63% aromatic From GC/MS data
Alkanes, C4-6	70955-08-7		

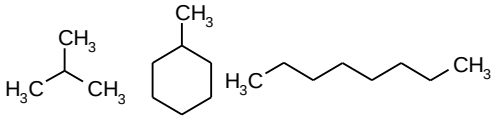
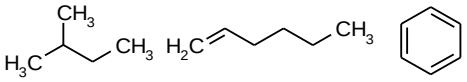
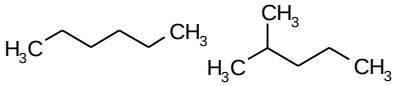
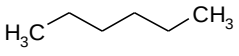
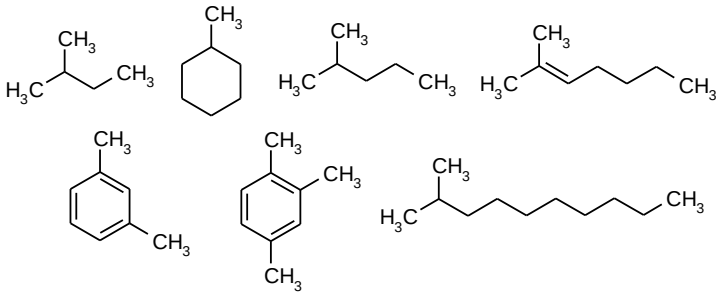
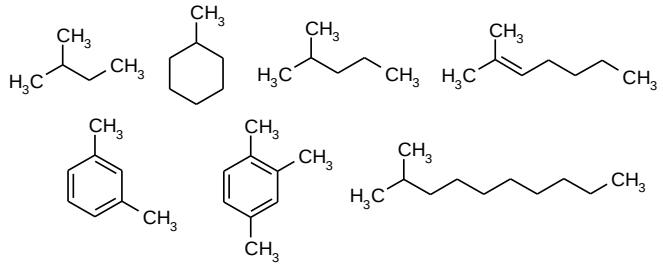
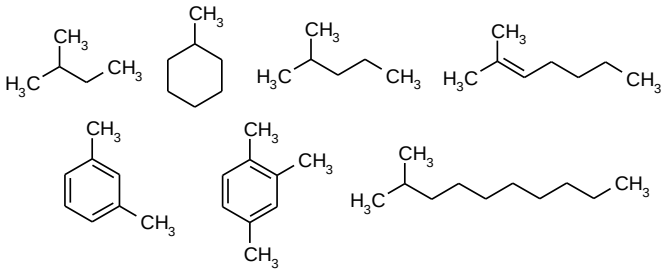
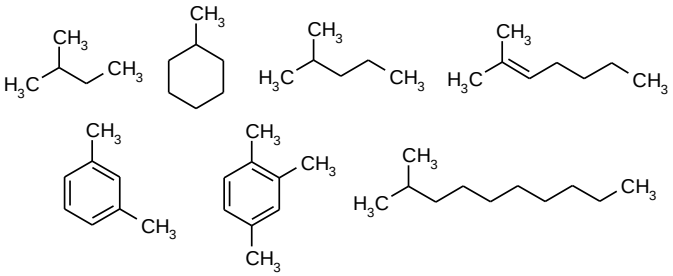
Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Gasoline, natural	8006-61-9	 A complex combination of hydrocarbons separated from natural gas by processes such as refrigeration or absorption. It consists predominantly of saturated aliphatic hydrocarbons having carbon numbers predominantly in the range of C4 through C8 and boiling in the range of approximately -20 to 120°C.	
Naphtha	8030-30-6	 Refined, partly refined, or unrefined petroleum products produced by the distillation of natural gas. It consists of hydrocarbons having carbon numbers predominantly in the range of C5 through C6 and boiling in the range of approximately 38–93°C.	
Naphtha (petroleum), isomerization, C6-fraction	92045-58-4	 A complex combination of hydrocarbons obtained by distillation of a gasoline which has been catalytically isomerized. It consists predominantly of hexane isomers boiling in the range of approximately 60–66°C.	
Supporting Chemicals			
Light naphtha n-hexane rich	None		
Gasoline[1]	86290-81-5	 A complex combination of hydrocarbons consisting primarily of paraffins, cycloparaffins, aromatic and olefinic hydrocarbons having carbon numbers predominantly greater than C3 and boiling in the range of 30–260°C.	47–58% Paraffin; 9–13% olefin; 4–7% naphthene; 28–35% aromatic From GC/MS data

Table 5. Representative Structures of the Gasoline Blending Streams Category			
CA Index Name	**CASRN**	**Representative Structures and CAS Definition**	**PONA composition**
Unleaded gasoline	None		
Unleaded gasoline blend	None		
Leaded gasoline[2]	None		

[1] In the U.S., gasoline, including unleaded and leaded gasoline, is not sold under a single CASRN, since this fuel product is a physical blend of numerous petroleum naphtha streams. In Europe, gasoline is sold under the CASRN of 86290-81-5.
[2] The assessment of leaded gasoline in this document does not cover the tetraethyl lead or similar lead compounds blended into this fuel product.