SAFETY DATA SHEET

1. Identification

Product identifier **GASOLINE (UNBRANDED)**

Other means of identification

SDS number 6000

Synonyms APPLICABLE TO ALL OCTANE GRADES * BLUE PLANET® * CONVENTIONAL BLENDSTOCK * CONVENTIONAL BLENDSTOCK FOR OXYGENATE BLENDING (CBOB) * CONVENTIONAL GASOLINE * ETHANOL FLEX FUEL (EFF) * FINISHED GASOLINE * GASOHOL * MOTOR FUEL * NO LEAD GASOLINE * REFORMULATED GASOLINE (RFG) * REFORMULATED GASOLINE BLENDSTOCK * REFORMULATED BLENDSTOCK FOR OXYGENATE BLENDING (RBOB) * UNLEADED GASOLINE

Recommended use Motor fuel

Recommended restrictions Other uses are not recommended unless an assessment is completed, prior to commencement of that use, which demonstrates that the use will be controlled.

Manufacturer/Importer/Supplier/Distributor information

Supplier

Flint Hills Resources, LP
4111 E. 37th St. North
Wichita, KS 67220
67220-3203
United States

Telephone numbers – 24 hour emergency assistance

Chemtrec 800-424-9300 (CCN:8586)

Telephone numbers – general assistance

8-5 (M-F, CST) SDS Assistance 316-828-7988

Email: msdsrequest@fhr.com

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 2
Health hazards	Skin corrosion/irritation	Category 2
	Germ cell mutagenicity	Category 1B
	Carcinogenicity	Category 1B
	Reproductive toxicity	Category 2
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Aspiration hazard	Category 1
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 2
	Hazardous to the aquatic environment, long-term hazard	Category 2

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Highly flammable liquid and vapor. Causes skin irritation. May cause genetic defects. May cause cancer. Suspected of damaging fertility. May cause drowsiness or dizziness. May be fatal if swallowed and enters airways. Toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge.

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

Avoid breathing mist or vapor. Wash hands thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Avoid release to the environment.

Response IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention.

If swallowed: Immediately call a poison center/doctor. Do NOT induce vomiting.

If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.

Specific treatment (see first aid instructions on this label). Wash contaminated clothing before reuse. If exposed or concerned: Get medical advice/attention. In case of fire: Use water spray, dry chemical, carbon dioxide or fire-fighting foam to extinguish. Collect spillage.

Storage Keep container tightly closed. Keep cool. Store in a well-ventilated place. Store locked up.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment.

Supplemental information Sparks may ignite liquid and vapor. May cause flash fire or explosion. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Ground/bond container and receiving equipment. These alone may be insufficient to remove static electricity. Eliminate all ignition sources if safe to do so.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
GASOLINE		Mixture	100

Additional components

Chemical name	Common name and synonyms	CAS number	%
ETHYL ALCOHOL	ETHANOL	64-17-5	≤ 83
TOLUENE		108-88-3	1 - 15
XYLENE		1330-20-7	1 - 15
n-HEXANE		110-54-3	≤ 7
1,2,4-TRIMETHYLBENZENE	PSEUDOCUMENE	95-63-6	≤ 3
BENZENE		71-43-2	< 3
ETHYLBENZENE		100-41-4	≤ 2
NAPHTHALENE		91-20-3	≤ 1
CUMENE		98-82-8	≤ 1
CYCLOHEXANE		110-82-7	≤ 1

Composition comments Values do not reflect absolute minimums and maximums; these values are typical which may vary from time to time.

This Safety Data Sheet is intended to communicate potential health hazards and potential physical hazards associated with the product(s) covered by this sheet, and is not intended to communicate product specification information. For product specification information, contact your Flint Hills Resources, LP representative.

4. First-aid measures

Inhalation

Remove to fresh air. If not breathing, institute rescue breathing. If breathing is difficult, ensure airway is clear and give oxygen. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR).

Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

Skin contact

Immediately wash skin with plenty of soap and water after removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.

Place contaminated clothing in closed container for storage until laundered or discarded. If clothing is to be laundered, inform person performing operation of contaminant's hazardous properties. Discard contaminated leather goods.

Eye contact

Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. GET IMMEDIATE MEDICAL ATTENTION.

Ingestion

Do not induce vomiting because of danger of aspirating liquid into lungs, causing serious damage and chemical pneumonitis. If spontaneous vomiting occurs, keep head below hips to prevent aspiration and monitor for breathing difficulty.

Never give anything by mouth to an unconscious person. Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

Most important symptoms/effects, acute and delayed

INHALATION:
May cause central nervous system depression or effects. Symptoms may include headache, excitation, euphoria, dizziness, incoordination, drowsiness, light-headedness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death, depending on the concentration and duration of exposure.

Breathing high concentrations of this material, for example, in a confined space or by intentional abuse, can cause irregular heartbeats which can cause death.

SKIN:
Contact may cause reddening, itching and inflammation. Prolonged skin contact may defat the skin and cause drying, cracking and/or dermatitis.

EYES:
May cause slight to mild eye irritation with tearing, redness, or a stinging or burning sensation. May cause temporary swelling of the eyes with blurred vision. Effects may become more serious with repeated or prolonged contact.

INGESTION:
May cause irritation of the mouth, throat and gastrointestinal tract. Symptoms may include salivation, pain, nausea, vomiting and diarrhea.

Aspiration into lungs may cause chemical pneumonia and lung damage.

Exposure may also cause central nervous system symptoms similar to those listed under "Inhalation" (see Inhalation section).

Indication of immediate medical attention and special treatment needed

INHALATION: This material (or a component) sensitizes the myocardium to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material. Administration of sympathomimetic drugs should be avoided.

INGESTION: If ingested this material represents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended.

5. Fire-fighting measures

Suitable extinguishing media

Use water spray, dry chemical, carbon dioxide or fire-fighting foam for Class B fires to extinguish fire.

Unsuitable extinguishing media

Do not use a solid water stream as it may scatter and spread fire.

Specific hazards arising from the chemical	Combustion may produce COx, reactive hydrocarbons, irritating vapors, and other decomposition products in the case of incomplete combustion. Extremely flammable. Vapors form flammable or explosive mixtures with air at room temperature. Vapor or gas may spread to distant ignition sources and flash back. Static accumulator (nonconductive) flammable or combustible material may form ignitable vapor-air mixtures in storage tanks and other confined spaces. Bonding and grounding may be insufficient to eliminate the hazard from static accumulation. Explosion hazard if exposed to extreme heat.
Special protective equipment and precautions for firefighters	Shut off source of flow, if possible. Evacuate area and fight fire from a safe distance. If leak or spill has not ignited, ventilate area and use water spray to disperse gas or vapor, cool adjacent structures, and to protect personnel attempting to stop a leak. Containers can build up pressure if exposed to heat (fire). Stay away from storage tank ends. Withdraw immediately in case of rising sound from venting safety device or any discoloration of storage tank due to fire. Always stay away from tanks engulfed in flame. Firefighters must wear NIOSH approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Eliminate and/or shut off ignition sources and keep ignition sources out of the area. Keep unnecessary people away; isolate hazard area and deny entry. For spills in confined areas, ensure adequate ventilation. For spills outdoors, stay upwind. IF TANK, RAILCAR OR TANK TRUCK IS INVOLVED IN A FIRE, isolate for 800 meters (1/2 mile) in all directions. Evacuate area endangered by release as required. Wear appropriate personal protective equipment. See Exposure Controls/Personal Protection (Section 8).
Methods and materials for containment and cleaning up	Keep unnecessary people away. Isolate area for at least 50 meters (164 feet) in all directions to preserve public safety. For large spills, if downwind consider initial evacuation for at least 300 meters (1000 feet). Keep ignition sources out of area and shut off all ignition sources. Use non-sparking tools and grounded equipment for clean-up. Small Spills: Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Large Spills: Dike far ahead of liquid spill for later disposal. Use vapor supressing foam to reduce vapors. Avoid clean up procedures that may result in water pollution. Do not touch or walk through spilled material. Stop leak when safe to do so. See Exposure Controls/Personal Protection (Section 8).
Environmental precautions	Prevent entry into water ways, sewers, basements or confined areas. Notify local authorities and National Response Center, if required.

7. Handling and storage

Precautions for safe handling

Electrostatic charge may accumulate and create a hazardous condition when handling this material.

Static accumulator (nonconductive) flammable or combustible material may form ignitable vapor-air mixtures in storage tanks. Bond and ground lines and equipment (tank, transfer lines, pump, floats, etc.) used during transfer to reduce the possibility of static spark-initiated fire or explosion.

Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (such as tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate procedures to mitigate the hazard.

Bonding and grounding may be insufficient to eliminate the hazard from static accumulation. Additional precautions should be considered consistent with the current NFPA 77, Recommended Practice on Static Electricity, the current API Recommended Practice 2003, Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents and OSHA Standard 29 CFR 1910.106, Flammable and Combustible Liquids.

Use non-sparking tools. Do not cut, grind, drill, weld (or introduce any other ignition source) on empty containers. Do not reuse containers unless adequate precautions are taken. Do not use electronic devices while handling, unless the device is certified as intrinsically safe as they could present ignition sources.

Avoid contact with strong oxidizers. Prevent small spills to minimize slip hazard or release to the environment.

Avoid personal contact with this material. Always observe good personal hygiene measures, such as removing contaminated clothing and protective equipment, washing after handling the material and before entering public areas. Restrict eating, drinking and smoking to designated areas to prevent personal chemical contamination. Routinely wash work clothing and protective equipment to remove contaminants. Do not breathe mist or vapor.

Conditions for safe storage, including any incompatibilities

Store in tightly closed containers in a cool, dry, isolated, well-ventilated area away from heat, sources of ignition and incompatibles. Ground/bond container and equipment. Avoid contact with strong oxidizers. Empty containers may contain material residue. Do not reuse without adequate precautions.

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Additional components	Type	Value
BENZENE (CAS 71-43-2)	STEL	5 ppm
	TWA	1 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Additional components	Type	Value
CUMENE (CAS 98-82-8)	TWA	50 ppm
CYCLOHEXANE (CAS 110-82-7)	PEL	300 ppm
NAPHTHALENE (CAS 91-20-3)	PEL	10 ppm
ETHYLBENZENE (CAS 100-41-4)	PEL	100 ppm
n-HEXANE (CAS 110-54-3)	TWA	500 ppm
XYLENE (CAS 1330-20-7)	TWA	100 ppm
ETHYL ALCOHOL (CAS 64-17-5)	PEL	1000 ppm

US. OSHA Table Z-2 (29 CFR 1910.1000)

Additional components	Type	Value
BENZENE (CAS 71-43-2)	TWA	10 ppm
TOLUENE (CAS 108-88-3)	Ceiling	300 ppm
	TWA	200 ppm

ACGIH

Components	Type	Value	Form
GASOLINE	STEL	500 ppm	Bulk handling
	TWA	300 ppm	Bulk handling

US. ACGIH Threshold Limit Values

Additional components	Type	Value	Form
CUMENE (CAS 98-82-8)	TWA	50 ppm	
CYCLOHEXANE (CAS 110-82-7)	TWA	100 ppm	
NAPHTHALENE (CAS 91-20-3)	TWA	10 ppm	Skin
ETHYLBENZENE (CAS 100-41-4)	TWA	20 ppm	
BENZENE (CAS 71-43-2)	STEL	2.5 ppm	Skin
	TWA	0.5 ppm	Skin
1,2,4-TRIMETHYLBENZENE (CAS 95-63-6)	TWA	25 ppm	
n-HEXANE (CAS 110-54-3)	TWA	50 ppm	Skin
TOLUENE (CAS 108-88-3)	TWA	20 ppm	
XYLENE (CAS 1330-20-7)	STEL	150 ppm	
	TWA	100 ppm	
ETHYL ALCOHOL (CAS 64-17-5)	STEL	1000 ppm	

US. NIOSH: Pocket Guide to Chemical Hazards

Additional components	Type	Value
CUMENE (CAS 98-82-8)	TWA	50 ppm
CYCLOHEXANE (CAS 110-82-7)	TWA	300 ppm
NAPHTHALENE (CAS 91-20-3)	STEL	15 ppm
	TWA	10 ppm
ETHYLBENZENE (CAS 100-41-4)	STEL	125 ppm
	TWA	100 ppm
BENZENE (CAS 71-43-2)	STEL	1 ppm
	TWA	0.1 ppm
1,2,4-TRIMETHYLBENZENE (CAS 95-63-6)	TWA	25 ppm
n-HEXANE (CAS 110-54-3)	TWA	50 ppm
TOLUENE (CAS 108-88-3)	STEL	150 ppm
	TWA	100 ppm
XYLENE (CAS 1330-20-7)	STEL	150 ppm
	TWA	100 ppm
ETHYL ALCOHOL (CAS 64-17-5)	TWA	1000 ppm

Biological limit values

ACGIH Biological Exposure Indices

Additional components	Value	Determinant	Specimen	Sampling Time
ETHYLBENZENE (CAS 100-41-4)	0.15 g/g	Sum of mandelic acid and phenylglyoxylic acid	Creatinine in urine	*
BENZENE (CAS 71-43-2)	25 µg/g	S-Phenylmercapturic acid	Creatinine in urine	*
n-HEXANE (CAS 110-54-3)	0.5 mg/l	2,5-Hexanedione, without hydrolysis	Urine	*
TOLUENE (CAS 108-88-3)	0.3 mg/g	o-Cresol, with hydrolysis	Creatinine in urine	*
	0.03 mg/l	Toluene	Urine	*
	0.02 mg/l	Toluene	Blood	*
XYLENE (CAS 1330-20-7)	1.5 g/g	Methylhippuric acids	Creatinine in urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

BENZENE (CAS 71-43-2)	Can be absorbed through the skin.
CUMENE (CAS 98-82-8)	Can be absorbed through the skin.
NAPHTHALENE (CAS 91-20-3)	Can be absorbed through the skin.
n-HEXANE (CAS 110-54-3)	Can be absorbed through the skin.
TOLUENE (CAS 108-88-3)	Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

CUMENE (CAS 98-82-8)	Skin designation applies.
TOLUENE (CAS 108-88-3)	Skin designation applies.

US - Tennessee OELs: Skin designation

CUMENE (CAS 98-82-8)	Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

BENZENE (CAS 71-43-2)	Can be absorbed through the skin.
NAPHTHALENE (CAS 91-20-3)	Can be absorbed through the skin.
n-HEXANE (CAS 110-54-3)	Can be absorbed through the skin.

US NIOSH Pocket Guide to Chemical Hazards: Skin designation

CUMENE (CAS 98-82-8)	Can be absorbed through the skin.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

CUMENE (CAS 98-82-8)	Can be absorbed through the skin.

Appropriate engineering controls

Consider the following when employing engineering controls and selecting personal protective equipment: potential hazards of the material, applicable exposure limits, job activities, and other substances in the work place. Explosion-proof ventilation and other forms of engineering controls are the preferred means for controlling exposures below occupational exposure limits and guidelines.

Individual protection measures, such as personal protective equipment

Eye/face protection

Keep away from eyes and face. Contact can be avoided by using chemical safety glasses, goggles and/or face shield. Have eye washing facilities readily available where eye contact can occur.

Skin protection

Hand protection

Avoid skin contact with this material. Use chemical resistant gloves when handling this material. Contact the glove manufacturer for specific advice on glove selection regarding permeability and breakthrough times for your use conditions. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Other

Dermal exposure to this chemical may add to the overall exposure.

Avoid skin contact with this material. Additional protective clothing may be necessary.

Respiratory protection	A NIOSH approved air purifying respirator with an appropriate cartridge or canister, such as an organic vapor cartridge, may be used in circumstances where airborne organic vapor concentrations may exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection. See OSHA 29 CFR 1910.134 for more information regarding respiratory protection and Assigned Protection Factors (APFs).
Thermal hazards	No special precautions required.

9. Physical and chemical properties

Appearance	
Physical state	Liquid.
Form	Not applicable
Color	Clear, colorless to light colored
Odor	Aromatic
Odor threshold	Not available.
pH	Essentially Neutral
Melting point/freezing point	-130 °F (-90 °C) / Not available
Initial boiling point and boiling range	> 100 °F (> 37.8 °C) @ 10% Evap. (D86) - Summer; >90 °F (32.22 °C) @ 10% Evap. (D86) - Winter
Flash point	< 73 °F (< 22.78 °C)
Evaporation rate	Moderately Fast
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	1.2 % (as gasoline), 1.4 % (as ethanol)
Flammability limit - upper (%)	7.6 % (as gasoline), 19 % (as ethanol)
Explosive limit - lower (%)	See flammability limit
Explosive limit - upper (%)	See flammability limit
Vapor pressure	5.2 - 15 psi at 100 °F (38 °C)
Vapor density	3 - 4 (Air=1)
Relative density	0.69 - 0.77 at 60/60 °F (15.6/15.6 °C)
Solubility(ies)	
Solubility (water)	Negligible
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	536 - 853 °F (280 - 456.11 °C)
Decomposition temperature	Not available.
Viscosity	Not available
Other information	
Chemical family	Hydrocarbon and Hydrocarbon/Alcohol Mixtures
Dropping point	12345
Dust explosion properties	
Kst	123456
Minimum explosible concentration (MEC)	12345
Minimum ignition energy (MIE) - dust cloud	12345
Minimum ignition energy (MIE) - dust layer	12345

Electrostatic properties

Conductivity	< 50 pS/m (Gasoline without Ethanol) > 2000 pS/m (Gasoline with >=10% Ethanol)
Percent volatile	100 %

10. Stability and reactivity

Reactivity	See statements below.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Not anticipated under normal conditions.
Conditions to avoid	Avoid unventilated areas, heat, open flames, sparks and ungrounded electrical equipment.
Incompatible materials	Incompatible with oxidizing agents. See precautions under Handling & Storage (Section 7).
Hazardous decomposition products	Not anticipated under normal conditions.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Likely route of exposure
Skin contact	Likely route of exposure
Eye contact	Likely route of exposure
Ingestion	Likely route of exposure

Symptoms related to the physical, chemical and toxicological characteristics

INHALATION:
May cause central nervous system depression or effects. Symptoms may include headache, excitation, euphoria, dizziness, incoordination, drowsiness, light-headedness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death, depending on the concentration and duration of exposure.

Breathing high concentrations of this material, for example, in a confined space or by intentional abuse, can cause irregular heartbeats which can cause death.

SKIN:
Contact may cause reddening, itching and inflammation. Prolonged skin contact may defat the skin and cause drying, cracking and/or dermatitis.

EYES:
May cause slight to mild eye irritation with tearing, redness, or a stinging or burning sensation. May cause temporary swelling of the eyes with blurred vision. Effects may become more serious with repeated or prolonged contact.

INGESTION:
May cause irritation of the mouth, throat and gastrointestinal tract. Symptoms may include salivation, pain, nausea, vomiting and diarrhea.

Aspiration into lungs may cause chemical pneumonia and lung damage.

Exposure may also cause central nervous system symptoms similar to those listed under "Inhalation" (see Inhalation section).

Information on toxicological effects

Acute toxicity Not classified.

Components	Species	Test Results
GASOLINE		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg
Inhalation		
LC50	Rat	> 5.2 mg/l
Oral		
LD50	Rat	> 5000 mg/kg

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Not classified.

Respiratory or skin sensitization

Respiratory sensitization Not classified.

Skin sensitization Not classified.

Germ cell mutagenicity May cause genetic defects.

Carcinogenicity May cause cancer.

ACGIH Carcinogens

BENZENE (CAS 71-43-2)	A1 Confirmed human carcinogen.
ETHYL ALCOHOL (CAS 64-17-5)	A3 Confirmed animal carcinogen with unknown relevance to humans.
ETHYLBENZENE (CAS 100-41-4)	A3 Confirmed animal carcinogen with unknown relevance to humans.
NAPHTHALENE (CAS 91-20-3)	A3 Confirmed animal carcinogen with unknown relevance to humans.
TOLUENE (CAS 108-88-3)	A4 Not classifiable as a human carcinogen.
XYLENE (CAS 1330-20-7)	A4 Not classifiable as a human carcinogen.

IARC Monographs. Overall Evaluation of Carcinogenicity

BENZENE (CAS 71-43-2)	1 Carcinogenic to humans.
CUMENE (CAS 98-82-8)	2B Possibly carcinogenic to humans.
ETHYLBENZENE (CAS 100-41-4)	2B Possibly carcinogenic to humans.
NAPHTHALENE (CAS 91-20-3)	2B Possibly carcinogenic to humans.
TOLUENE (CAS 108-88-3)	3 Not classifiable as to carcinogenicity to humans.
XYLENE (CAS 1330-20-7)	3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

BENZENE (CAS 71-43-2)	Cancer

US. National Toxicology Program (NTP) Report on Carcinogens

BENZENE (CAS 71-43-2)	Known To Be Human Carcinogen.
CUMENE (CAS 98-82-8)	Reasonably Anticipated to be a Human Carcinogen.
NAPHTHALENE (CAS 91-20-3)	Reasonably Anticipated to be a Human Carcinogen.

Reproductive toxicity Suspected of damaging fertility or the unborn child.

Specific target organ toxicity - single exposure May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard May be fatal if swallowed and enters airways.

Toxicological data

GASOLINE: Wholly vaporized unleaded gasoline produced an increased incidence of liver cancers in female mice and kidney cancers in male rats following a two-year inhalation period. Subsequent investigations indicate that kidney damage, linked to kidney cancer, may be specific to the male rat. Neither result is considered by the U.S. EPA to be useful for assessing human health risk. Gasoline was negative in both in vitro and in vivo mutagenicity assays, and was negative in inhalation developmental and reproductive toxicity studies. IARC has determined that there is limited evidence for the carcinogenicity of unleaded gasoline in experimental animals and inadequate evidence in humans. (IARC Class-2B) Solvent extracts of gasoline exhaust particles produced skin cancer in laboratory animals leading IARC to categorize gasoline engine exhaust as a possible human cancer hazard. (IARC Class 2B).

NAPHTHAS: In a large epidemiological study on over 15,000 employees at several petroleum refineries and amongst residents located near these refineries, no increased risk of kidney cancer was observed in association with gasoline exposures (a similar material). In a similar study, no increased risk of kidney cancer was observed among petroleum refinery workers, but there was a slight trend in the incidence of kidney cancers among service station employees, especially after a 30-year latency period. A two year study using fully vaporized gasoline resulted in kidney damage and kidney cancer in male laboratory rats. However, in depth research indicates that these findings are unique to the male rat, and that these effects are not relevant to humans.

ISOPARAFFINS: Studies in laboratory animals have shown that long-term exposure to similar materials (isoparaffins) can cause kidney damage and kidney cancer in male laboratory rats. However, in depth research indicates that these findings are unique to the male rat, and that these effects are not relevant to humans.

Altered mental state, drowsiness, peripheral motor neuropathy, irreversible brain damage (so-called "petrol sniffers encephalopathy"), delirium, seizures, and sudden death have been reported from repeated overexposure to some hydrocarbon solvents, naphthas, and gasoline.

1,2,4-TRIMETHYLBENZENE: Inhalation exposure to an aromatic hydrocarbon solvent mixture which contained approximately 40% 1,2,4-trimethylbenzene resulted in developmental effects in rats at maternally toxic doses. In another inhalation study in rats on 1,2,4-trimethylbenzene, fetal body weight was reduced at inhalation levels of 2950 mg/m3, but there was no evidence of embryolethal or teratogenic effects. No effects were observed at the 1470 mg/m3 level.

BENZENE: Studies of workers exposed to benzene show clear evidence that overexposure can cause cancer of the blood forming organs (acute myelogenous leukemia) and aplastic anemia, an often fatal disease. Some studies suggest overexposure to benzene may also be associated with other blood disorders including myelodysplastic syndrome. Some studies of workers exposed to benzene have shown an association with increased rates of chromosome aberrations in circulating lymphocytes. One study of women workers exposed to benzene suggested a weak association with irregular menstruation. However, other studies of workers exposed to benzene have not demonstrated clear evidence of an effect on fertility or reproductive outcome in humans. Benzene can cross the placenta and affect the developing fetus. Cases of aplastic anemia have been reported in the offspring of persons severely overexposed to benzene. Animal studies indicate that prolonged, repeated exposure to high levels of benzene vapor can cause bone marrow suppression and cancer in multiple organ systems. Studies in laboratory animals also show evidence of adverse effects on male reproductive organs following high levels of exposure but no significant effects on reproduction have been observed. Embryotoxicity has been reported in studies of laboratory animals but effects were limited to reduced fetal weight and skeletal variations has been classified as a known human carcinogen by OSHA and a Group 1 (carcinogenic to Humans) material by IARC, the International Agency for Research on Cancer.

CUMENE: Chronic studies in laboratory animals indicate evidence of respiratory tract hyperplasia, and adverse effects on the liver, kidney and adrenal glands following high levels of exposure. The relevance of these findings to humans is not clear at this time. Findings from National Toxicology Program (NTP) lifetime inhalation studies in rats showed an increased incidence of renal carcinomas and adenomas, respiratory epithelial adenomas, and interstitial cell adenomas of the testes. In mice, an increased incidence of carcinomas and adenomas of the bronchi and lung, liver neoplasms, hemangiosarcomas of the spleen, and adenomas of the thyroid were observed. NTP classified it as “reasonably anticipated to be a human carcinogen” and the International Agency for Cancer Research (IARC) has classified cumene as "possibly carcinogenic to humans" (Group 2B).

CYCLOHEXANE: Cyclohexane has been the focus of substantial testing in laboratory animals. Cyclohexane tested negative in various genotoxicity tests including unscheduled DNA synthesis, bacterial and mammalian cell mutation assays, and in vivo chromosomal aberration. An increase in chromosomal aberrations in bone marrow cells of rats exposed to cyclohexane was reported in the 1980's but a careful re-evaluation of slides from this study by the laboratory which conducted the study indicates these findings were in error, and that no significant chromosomal effects were observed in animals exposed to cyclohexane. Findings indicate long-term exposure to cyclohexane does not promote dermal tumorigenesis.

ETHYL ALCOHOL: Repeated ingestion of ethanol can result in alcohol abuse, causing behavioral changes, memory loss, impaired judgement, decreased appetite, irregular heartbeats, and decreased fertility. Prolonged and repeated ingestion of ethanol has also been associated with cancers of the mouth, pharynx, esophagus and liver. Ethanol ingestion by pregnant women can cause miscarriage, low birth weight, premature birth and fetal alcohol syndrome. In males, acute and chronic alcohol ingestion may affect gonadal hormone levels. It may also affect the liver, kidney, brain, blood and cardiovascular system.

ETHYLBENZENE: Findings from National Toxicology Program (NTP) lifetime inhalation studies in rats showed an increased incidence of renal tumors in male rats (tubular carcinomas) and female rats (tubular adenomas) only at the highest exposure level (750 ppm). At this exposure level the incidence of tumors also was elevated in male mice (alveolar and bronchiolar carcinomas) and female mice (hepatocellular carcinomas). IARC has classified ethyl benzene as "possibly carcinogenic to humans" (Group 2B). Studies in laboratory animals report some evidence of renal malformations, resorptions, and developmental delays following high levels of maternal exposure to ethylbenzene. However, a two generation reproduction study conducted by NIOSH found no adverse effects on reproductive performance or developmental landmarks. Ototoxicity (hearing loss) in rats was reported following exposure levels as low as 300 ppm for 5 days. In contrast, guinea pigs showed no hearing loss after exposure to much higher ethyl benzene levels (2500 ppm, 5 days). There are other studies in laboratory animals that indicate some evidence of adverse effects on the liver, kidney, thyroid, and pituitary gland. The relevance of these findings to humans is not clear at this time.

NAPHTHALENE: Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants as a result of hemolytic anemia from overexposure to naphthalene. Persons with Glucose 6-phosphate dehydrogenase (G6PD) deficiency are more prone to the hemolytic effects of naphthalene. Adverse effects on the kidney have been reported in persons overexposed to naphthalene but these effects are believed to be a consequence of hemolytic anemia, and not a direct effect. Hemolytic anemia has been observed in laboratory animals exposed to naphthalene. Laboratory rodents exposed to naphthalene vapor for 2 years (lifetime studies) developed non-neoplastic and neoplastic tumors and inflammatory lesions of the nasal and respiratory tract. Cataracts and other adverse effects on the eye have also been observed in laboratory animals exposed to high levels of naphthalene. Findings from a large number of bacterial and mammalian cell mutation assays were negative. A few studies have shown chromosomal effects (elevated levels of sister chromatid exchanges or chromosomal aberrations) in vitro. Naphthalene has been classified as possibly carcinogenic to humans (Group 2B) by IARC, the International Agency for Research on Cancer, based on findings from studies in laboratory animals.

N-HEXANE: Long-term or repeated exposure to n-hexane can cause peripheral nerve damage. Initial symptoms are numbness of the fingers and toes. Also, motor weakness can occur in the digits, but may also involve muscles of the arms, thighs and forearms. The onset of these symptoms may be delayed for several months to a year after the beginning of exposure. It has been observed to cause damage to the testes and fetal effects in a two generation animal study after prolonged exposure to elevated concentrations.

TOLUENE: Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. Several studies of workers suggest that chronic exposure may be related to small increases in spontaneous abortions and changes in some gonadotropic hormones. Abuse of toluene at high concentrations (e.g., glue sniffing and solvent abuse) has been associated with adverse effects on the liver, kidney and nervous system, and can cause CNS depression, cardiac arrhythmias, and death. Studies of workers indicate long-term exposure may be related to impaired color vision and hearing. Some studies suggest that these may be related to neurobehavioral and cognitive changes. Some of the same adverse effects have been observed in laboratory animals following repeated exposure to high levels of toluene. Studies in rodents indicate some changes in reproductive organs following high levels of exposure, but no significant effects on mating performance or reproduction. Other findings include small increases in minor skeletal and visceral malformations and developmental delays following very high levels of maternal exposure. The relevance of these findings to humans is not clear at this time.

XYLENES, ALL ISOMERS: Acute effects of xylene may be increased by the use of alcoholic beverages. Evidence of liver and kidney impairment were reported in workers recovering from a gross overexposure. Prolonged or repeated exposure to xylene was reported to cause impaired neurological function in workers exposed to solvents (including xylene). Studies in rats have shown evidence of impaired hearing following prolonged exposure to high concentrations of paraxylene. Studies in laboratory animals also suggest some changes in reproductive organs following high levels of exposure but no significant effects on reproduction were observed. Developmental toxicity studies in laboratory animals indicate skeletal and visceral malformations, developmental delays, and increased fetal resorptions following extremely high levels of maternal exposure. The relevance of these observations to humans is not clear at this time. In addition, adverse effects on the liver, kidney, bone marrow (changes in blood cell parameters) were observed in laboratory animals following high levels of exposure. The relevance of these observations to humans is not clear at this time.

12. Ecological information

Ecotoxicity Toxic to aquatic life with long lasting effects.

Components		Species	Test Results
GASOLINE			
Aquatic			
Acute			
Algae	EC50	Pseudokirchnerella subcapitata	3.1 mg/l, 72 hr
Crustacea	EC50	Daphnia magna	4.5 mg/l, 48 hr
Fish	LC50	Fathead minnow (Pimephales promelas)	8.2 mg/l, 96 hr
Chronic			
Crustacea	NOEC	Daphnia magna	2.6 mg/l, 21 d
Fish	NOEC	Fish	2.6 - 6.4 mg/l, 21 d

Persistence and degradability Not readily biodegradable. Inherently biodegradable.

The presence of ethanol in this product may impede the biodegradation of benzene, toluene, ethylbenzene and xylene in groundwater, resulting in elongated plumes of these constituents.

Bioaccumulative potential May bioaccumulate in aquatic organisms.

Mobility in soil May move through soil and reach groundwater. May partition into air, soil and water. This material evaporates readily.

Other adverse effects No other adverse effects expected.

13. Disposal considerations

Disposal instructions This material, as supplied, when discarded or disposed of, may be a hazardous waste according to Federal regulations (40 CFR 261).

The transportation, storage, treatment and disposal of waste material must be conducted in compliance with federal, state, and local regulations. Under RCRA it is the responsibility of the user of the material to determine, at the time of disposal, whether this material meets RCRA criteria for hazardous waste. For additional handling information and protection of employees, see Section 7 (Handling and Storage) and Section 8 (Exposure Controls/Personal Protection).

Hazardous waste code The proper waste code must be evaluated at the time of disposal and should be determined by the user and waste disposal company.

Waste from residues / unused products	Dispose of this material in accordance with all applicable local and national regulations.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal in accordance with government regulations. Packaging may contain residue that can be hazardous.

14. Transport information

General information	This description may not cover shipping in all cases, please consult 49 CFR 100-185 for specific shipping information or Transport Compliance Specialist (CSO).

DOT

UN number	UN1203
UN proper shipping name	Gasoline
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	Flammable Liquid
Packing group	II
Special precautions for user	Not available.

IATA

UN number	UN1993
UN proper shipping name	Flammable liquid, n.o.s.
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	3H
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

IMDG

UN number	UN1993
UN proper shipping name	FLAMMABLE LIQUID, N.O.S., MARINE POLLUTANT, MARINE POLLUTANT (GASOLINE - GHS INGREDIENT)
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	Yes
EmS	F-E, S-E
Special precautions for user	Not available.

GASOLINE - GHS INGREDIENT

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not classified for MARPOL. Please contact the Transportation Compliance CSO if transportation mode is ship or vessel to determine the need for a MARPOL classification.

DOT

IATA; IMDG

Marine pollutant

15. Regulatory information

US federal regulations

All ingredients are on the active TSCA inventory, or are not required to be listed on the active TSCA inventory.

Consult OSHA's Benzene standard 29 CFR 1910.1028 for provisions on air monitoring, employee training, medical monitoring, etc.

A release of this material, as supplied, may be exempt from reporting under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA - 40 CFR 302) by the petroleum exclusion. Releases may be reportable to the National Response Center (800-424-8802) under the Clean Water Act, 33 U.S.C. 1321(b)(3) and (5).

This material contains toxic chemical(s) in excess of the applicable de minimis concentration that are subject to the annual toxic chemical release reporting requirements of the Superfund Amendments and Reauthorization Act (SARA) Section 313 (40 CFR 372). This information must be included in all SDSs that are copied and distributed for this material.

Check local, regional or state/provincial regulations for any additional requirements as these may be more restrictive than federal laws and regulations. Failure to comply may result in substantial civil and criminal penalties.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

BENZENE (CAS 71-43-2)	Listed.
CUMENE (CAS 98-82-8)	Listed.
CYCLOHEXANE (CAS 110-82-7)	Listed.
ETHYL ALCOHOL (CAS 64-17-5)	Listed.
ETHYLBENZENE (CAS 100-41-4)	Listed.
NAPHTHALENE (CAS 91-20-3)	Listed.
n-HEXANE (CAS 110-54-3)	Listed.
TOLUENE (CAS 108-88-3)	Listed.
XYLENE (CAS 1330-20-7)	Listed.

SARA 304 Emergency release notification

Not regulated.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

1,2,4-TRIMETHYLBENZENE (CAS 95-63-6)	1.0 %
BENZENE (CAS 71-43-2)	0.1 %
CUMENE (CAS 98-82-8)	1.0 %
CYCLOHEXANE (CAS 110-82-7)	1.0 %
ETHYLBENZENE (CAS 100-41-4)	0.1 %
NAPHTHALENE (CAS 91-20-3)	0.1 %

n-HEXANE (CAS 110-54-3)	1.0 %
TOLUENE (CAS 108-88-3)	1.0 %
XYLENE (CAS 1330-20-7)	1.0 %

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

BENZENE (CAS 71-43-2)	Cancer Central nervous system Blood Aspiration Skin Eye respiratory tract irritation Flammability

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

Classified hazard categories
Flammable (gases, aerosols, liquids, or solids)
Skin corrosion or irritation
Germ cell mutagenicity
Carcinogenicity
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)
Aspiration hazard
Hazard not otherwise classified (HNOC)

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
1,2,4-TRIMETHYLBENZENE	95-63-6	≤ 3
BENZENE	71-43-2	< 3
CUMENE	98-82-8	≤ 1
CYCLOHEXANE	110-82-7	≤ 1
ETHYLBENZENE	100-41-4	≤ 2
NAPHTHALENE	91-20-3	≤ 1
n-HEXANE	110-54-3	≤ 7
TOLUENE	108-88-3	1 - 15
XYLENE	1330-20-7	1 - 15

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

BENZENE (CAS 71-43-2)
CUMENE (CAS 98-82-8)
ETHYLBENZENE (CAS 100-41-4)
NAPHTHALENE (CAS 91-20-3)
n-HEXANE (CAS 110-54-3)
TOLUENE (CAS 108-88-3)
XYLENE (CAS 1330-20-7)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130) Hazardous substance

US state regulations

California Proposition 65

WARNING: This product can expose you to chemicals including BENZENE, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California Proposition 65 - CRT: Listed date/Carcinogenic substance

BENZENE (CAS 71-43-2)	Listed: February 27, 1987
CUMENE (CAS 98-82-8)	Listed: April 6, 2010
ETHYLBENZENE (CAS 100-41-4)	Listed: June 11, 2004
NAPHTHALENE (CAS 91-20-3)	Listed: April 19, 2002

California Proposition 65 - CRT: Listed date/Developmental toxin

BENZENE (CAS 71-43-2)	Listed: December 26, 1997
TOLUENE (CAS 108-88-3)	Listed: January 1, 1991

California Proposition 65 - CRT: Listed date/Male reproductive toxin

BENZENE (CAS 71-43-2)	Listed: December 26, 1997
n-HEXANE (CAS 110-54-3)	Listed: December 15, 2017

16. Other information, including date of preparation or last revision

Issue date	11-11-2014
Revision date	11-13-2018
Version #	05
Further information	WARNING -- WARNING: THIS PRODUCT, AS INDICATED, CONTAINS ETHANOL. ETHANOL, OR FUELS BLENDED WITH ETHANOL, MAY DAMAGE OR HARM FUEL STORAGE TANKS, PIPING, METERS, ENGINES AND/OR RELATED FUEL SYSTEMS (INCLUDING, BUT NOT LIMITED TO MARINE EQUIPMENT). IT IS IMPERATIVE THAT BEFORE YOU USE OR STORE THIS PRODUCT YOU CONDUCT AN ASSESSMENT TO DETERMINE WHETHER THIS FUEL IS COMPATIBLE WITH YOUR PARTICULAR EQUIPMENT/MACHINERY IN WHICH THIS FUEL MIGHT BE STORED, TRANSPORTED OR COMBUSTED. DISCLAIMER OF ALL WARRANTIES: FLINT HILLS RESOURCES MAKES NO WARRANTY EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR WARRANTY FOR FITNESS FOR ANY PARTICULAR PURPOSE AND HEREBY DISCLAIMS ALL SUCH WARRANTIES REGARDING THIS PRODUCT.
HMIS® ratings	Health: 2* Flammability: 3 Physical hazard: 0 * Indicates chronic health hazard
NFPA ratings	Health: 1 Flammability: 3 Instability: 0
Disclaimer	THIS SDS HAS BEEN PREPARED TO COMPLY WITH FEDERAL REGULATIONS THAT ARE INTENDED TO QUICKLY PROVIDE USEFUL INFORMATION TO THE USER(S) OF THIS MATERIAL OR PRODUCT - IT IS NOT INTENDED TO SERVE AS A COMPREHENSIVE DISCUSSION OF ALL POSSIBLE RISKS OF HAZARDS, BUT RATHER PROVIDES INFORMATION GENERALLY ACCEPTED IN THE SCIENTIFIC COMMUNITY AS RELEVANT REGARDING THE POTENTIAL HAZARDS OF THIS PRODUCT. ADEQUATE TRAINING, INSTRUCTION, WARNINGS AND SAFE HANDLING PROCEDURES SHOULD BE PROVIDED TO HANDLERS AND USERS. USERS SHOULD REVIEW THE INFORMATION IN THE SDS, AND SATISFY THEMSELVES AS TO ITS SUITABILITY AND COMPLETENESS, INCLUDING ENSURING THAT THIS IS THE MOST CURRENT SDS.
Revision information	Physical & Chemical Properties: Multiple Properties
Completed by	Flint Hills Resources, LP - Operations EH&S