



SAFETY DATA SHEET

Flex Fuel

1. IDENTIFICATION

Product Identifier	Flex Fuel
Synonyms:	E85, Ethanol Flex Fuel, Flex Fuel 51% - 83%, Ethanol 85%, Ethanol/Gasoline Fuel, Fuel Ethanol, Gasohol
Intended use of the product:	Fuel
Contact:	Gulf Oil Limited Partnership 80 William Street Suite 400 Wellesley Hills, MA 02481 www.gulfoil.com (Non-emergency): 339-933-7200
Emergency Contact:	EMERGENCY TELEPHONE NUMBER (24 hrs): CHEMTREC (800) 424-9300

2. HAZARD IDENTIFICATION

Applicable Hazard Classifications and Hazard Statements (GHS-US):

Flammable Gas	Category 1A	H220 – Extremely Flammable Gas
Flammable Liquid	Category 2	H225– Highly flammable liquid and vapor
Flammable Liquid	Category 3	H226 – Flammable liquid and vapor
Flammable Liquid	Category 4	H227 – Combustible liquid
Acute Toxicity, Oral	Category 4	H302- Harmful if swallowed
Aspiration Hazard	Category 1	H304- May be fatal if swallowed and enters airways
Acute Toxicity, Dermal	Category 4	H312- Harmful on contact with skin
Skin Corrosion/Irritation	Category 2	H315- Causes skin irritation
Serious Eye Damage/ Eye Irritation	Category 2A	H319 – Causes serious eye irritation
Acute Toxicity, Inhalation	Category 4	H332- Harmful if inhaled
STOT ¹ SE ² , Respiratory Tract Irritation	Category 3	H335 – May cause respiratory irritation
STOT SE, Narcotic Effects	Category 3	H336 – May cause drowsiness or dizziness
Germ Cell Mutagenicity	Category 1B	H340– May cause genetic defects
Carcinogenicity	Category 1A	H350– May cause cancer
Carcinogenicity	Category 2	H351 - Suspected of causing cancer
Reproductive Toxicity	Category 2	H361– Suspected of damaging fertility or the unborn child
STOT RE ³	Category 1	H372– Causes damage to organs through prolonged or repeated exposure
STOT RE	Category 2	H373 – Causes damage to organs through prolonged or repeated exposure
Acute Aquatic Hazard	Category 2	H401- Toxic to aquatic life
Acute Aquatic Hazard	Category 1	H410 – Very toxic to aquatic life with long lasting effects
Chronic Aquatic Hazard	Category 2	H411-Toxic to aquatic life with long lasting effects
Hazard Not Otherwise Classified		Static accumulating flammable liquid

Labeling Elements



Flammable
Irritant
Health Hazard
Environmental Toxicity

Signal Word (GHS-US): **Danger**

¹ STOT – Specific Target Organ Toxicity

² SE – Single Exposure

³ RE – Repeated Exposure



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Precautionary Statements (GHS-US)

P201 - Obtain special instructions before use.
P202 – Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 - Keep container tightly closed.
P240 – Ground/bond container and receiving equipment.
P241 – Use explosion-proof electrical/ventilating/lighting equipment pursuant to applicable electrical code.
P242 – Use only non-sparking tools.
P243 – Take precautionary measures against static discharge.
P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
P261 – Avoid breathing fume/gas/mist/vapors/spray.
P264 – Wash thoroughly after handling.
P270 – DO not eat drink or smoke when using this product.
P271 – Use only outdoors or in a well-ventilated area.
P273 – Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P281 – Use personal protective equipment as required.
P301+P310 - If swallowed: Immediately call a poison center/doctor.
P301+P312 – If Swallowed, call a Poison Center/Doctor if you feel unwell.
P302+P352 – If on skin, wash with plenty of water.
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P312 – If inhaled, call a Poison Center/Doctor if you feel unwell.
P304+P340 – If Inhaled: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 – If in Eyes: rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.
P308+P311 - If exposed or concerned: Call a Poison Center/Doctor.
P308+P313 - If exposed or concerned: get medical attention/advice.
P312 – Call a Poison Center or Doctor if you feel unwell.
P314 – Get medical attention/advice if you feel unwell.
P321 - Specific treatment, see Section 4 – First Aid.
P322 – Specific measures, see Section 4 – First Aid.
P330 – Rinse mouth.
P331 - Do NOT induce vomiting.
P332+P313 – If skin irritation occurs: get medical advice/attention.
P337+P313 – If eye irritation persists; get medical advice/attention.
P362 – Take off contaminated clothing.
P363 – Wash contaminated clothing before reuse.
P370+P378 – In case of fire use firefighting foam or other appropriate media for Class B fires to extinguish.
P377 – Leaking gas fire. Do not extinguish unless leak can be stopped safely.
P381 – In case of leakage, eliminate all ignition sources.
P391 – Collect spillage.
P403 – Store in a well-ventilated place.
P403+P233 – Store in a well-ventilated place. Keep container tightly closed.
P403+P235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.
P501 – Dispose of contents/container in accordance with local/regional/national/international regulation.

Other information:

NFPA 704

Health: 1 – Can cause significant irritation

Fire: 3 – Can be ignited under almost all ambient temperatures

Reactivity: 0 – Stable



Under normal conditions, this product is not a gas under pressure, explosive, self-heating, pyrophoric, an oxidizer, an organic peroxide, self-reactive, a combustible dust or corrosive to metal. It does not emit flammable gas in contact with water.



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3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Composition Information

Name	Product Identifier (CAS#)	Concentration*	Classification
Ethyl Alcohol (Ethanol)	64-17-5	51-83	Flam Liq 2 H225
Gasoline	8006-61-9	17-49	Flam Liq 2, H225; Asp 1, H304; Muta 1B, H340; Carc 1A, H350; Aquatic Haz 2, H401 & H411
Hazardous Constituents			
Benzene	71-43-2	0.1 - 0.8	Flam Liq 2, H225; Asp 1, H304; Skin Irrit 2, H315; Eye Irrit 2A, H319; Muta 1B H340; Carc 1A, H350; STOT RE 1, H372
Butane	106-97-8	0.1 – 7.5	Flam Gas 1A, H220
Cumene	98-82-8	0 – 2	Flam Liq 3, H226; Asp 1, H304; STOT SE Resp. 3, H335; Carc 2, H351
Cyclohexane	110-82-7	0 – 1.5	Flam Liq 2, H225; Asp 1, H304; Skin Irrit 2, H315; STOT SE CNS 3, H336
Ethylbenzene	100-41-4	0.5 – 1.5	Flam Liq 2, H225; Asp 1, H304; Acute Tox 4, H332; STOT RE 2, H373
N-Hexane	110-54-3	0.1 – 2.5	Flam Liq 2, H225; Asp 1, H304; Skin Irrit 2, H315; STOT SE CNS 3, H336; Repro 2, H361; STOT RE 2, H373
Naphthalene	91-20-3	0 - 0.3	Flam Liq 4, H227; Acute Tox 4, H302; Carc 2, H351; Aquatic Acute 1, H410; Aquatic Long-Term 2, H411
Toluene	108-88-3	2.5 - 5	Flam Liq 2, H225; Asp1, H304; Skin Irrit 2, H315; STOT SE CNS 3, H336; Repro 2, H361; STOT RE 2, H373
Xylenes	1330-20-7	3 - 5	Flam Liq 3, H226; Acute Tox 4, H312; Skin Irrit 2, H315; Acute Tox 4, H332
1,2,4- Trimethylbenzene	95-63-6	1 - 2	Flam Liq 3, H226; Acute Tox 4, H312; Skin Irrit 2, H315; Eye Irrit 2A, H319; Acute Tox 4, H332; STOT SE 3, H335; Acute Aquatic 2, H411

*Ethyl alcohol and gasoline concentrations are percent by volume. All other concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

Additional Formulation Information

Flex Fuel is a mixture of ethyl alcohol and gasoline. It may contain small amounts of dye or multifunctional additives (>0.02%) which are not considered hazardous at the concentrations used. Butane may be added to increase volatility, especially in winter. Gasoline is a complex blend of petroleum-derived normal and branched-chain alkane, cycloalkane, alkene and aromatic hydrocarbons. Its exact composition depends on the source of the crude oil from which it was produced and the refining methods used. Because of volatility considerations, vapors may have concentrations of components very different from those of the liquid product. Motor gasoline is considered a mixture by EPA under the Toxic Substance Control Act (TSCA). See Section 15 for list of SARA Section 313 toxic chemicals.



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4. FIRST AID MEASURES

Route	Measures
Inhalation	For those providing assistance, avoid exposure to yourself or others. Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so and seek medical attention immediately. If respiratory irritation, dizziness, nausea or unconsciousness occurs seek medical attention immediately.
Ingestion	Aspiration Hazard: DO NOT INDUCE VOMITING. Do not give liquids. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspirating liquids into lungs, causing serious damage and chemical pneumonitis. If patient is lying down, turn body and head to side to prevent aspiration and monitor for breathing difficulty. If the victim is conscious, small amounts of material which enter the mouth should be rinsed out until the taste is dissipated. Seek medical attention immediately.
Eye Contact	In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 minutes. Hold eyelids open to ensure adequate flushing. Check for and gently remove contact lenses while flushing. Seek medical attention immediately.
Skin Contact	Remove contaminated clothing and shoes. Wash contaminated areas thoroughly with soap and water. Obtain medical attention if irritation or redness develops. Any injection injury from high pressure equipment should be evaluated immediately by a physician as potentially serious. Launder contaminated clothing before re-use.
Absorption	May be absorbed through the skin in harmful amounts. As with skin contact, remove contaminated clothing and flush with copious amounts of water. Flush affected area for at least 15 minutes to minimize potential for further absorption. Seek medical attention if significant portions of skin have been exposed.

Most Important Symptoms

Irritating to the skin and mucous membranes. Symptoms may include redness, itching and inflammation. May cause nausea, vomiting, diarrhea and signs of nervous system depression: headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue. Aspiration hazard. May cause coughing, chest pains, shortness of breath, pulmonary edema and/or chemical pneumonitis. Repeated or prolonged skin contact may cause drying, reddening, itching and cracking.

Long-term exposure may cause effects to specific organs, such as to the liver, kidneys, blood, nervous system and skin. Contains benzene, which can cause blood disease, including anemia and leukemia. Urine samples may be obtained to determine biological effects of benzene exposure and should be collected in accordance with the medical surveillance criteria in 29 CFR 1910.1028.

Notes to Medical Professionals

INHALATION: The priority in treatment should be the establishment of adequate ventilation and the administration of 100% oxygen. Monitor for respiratory distress and anticipate seizures. If cough or difficulty in breathing develops, evaluate for upper respiratory tract inflammation, bronchitis and pneumonitis. 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. Consider orotracheal or nasotracheal intubation of airway if patient is unconscious or is in severe respiratory distress.

SKIN or EYES: Accidents involving high-pressure equipment may inject a stream of material through the skin and initially produce an injury that may not appear serious. Only a small puncture wound may appear on the skin surface but, without proper treatment and depending on the nature, original pressure, volume and location of the injected material, can compromise blood supply to an affected body part. Prompt surgical debridement of the wound may be necessary to prevent irreversible loss of function and/or the affected body part. Immediately wash or flush contaminated eyes with gently flowing water. If possible, irrigate each eye continuously with 0.9% saline (NS).

INGESTION: This material represents a significant aspiration and chemical pneumonitis hazard. If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs). Consider activated charcoal and/or gastric lavage. If patient is obtunded, protect the airway by cuffed endotracheal intubation or by placement of the body in the Trendelenburg position or left lateral decubitus position.

Medical Conditions Aggravated by Exposure

Irritation from skin exposure may aggravate existing open wounds, skin disorders or dermatitis (rash). Chronic respiratory disease, liver or kidney dysfunction or pre-existing central nervous system disorders may be aggravated by exposure.

5. FIRE-FIGHTING MEASURES

Firefighting should be attempted only by those who are adequately trained and equipped with proper protective equipment. For additional fire related information, see NFPA 30 or the Emergency Response Guidebook 127.



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Extinguishing Media

SMALL FIRES: Small fires in the incipient (beginning) stage may be extinguished using handheld portable fire extinguishers. Any extinguisher suitable for Class B fires, dry chemical, CO₂, alcohol-resistant foam or Halon.

LARGE FIRES: Alcohol-resistant foam. Water may be ineffective for fighting the fire, but may be used to cool fire exposed containers. Do not use straight water streams as this may spread the fire.

Firefighting foam suitable for polar solvents is recommended for fuel with greater than 10% oxygenate concentration - refer to NFPA 11 "Standard for Low-, Medium- and High-Expansion Foam -2016 (or current) Edition."

Specific Hazards / Products of Combustion

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other sources of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

Combustion may produce smoke, carbon monoxide and other products of incomplete combustion.

Special Precautions and Protective Equipment for Firefighters

Isolate area around container involved in fire. Consider initial downwind evacuation for at least 1,000 feet. If tank, rail car or tank truck is involved in a fire, consider evacuation for 1 mile in all directions.

Fight the fire from the maximum distance. Cool burning tanks, shells or containers exposed to fire and excessive heat with water until well after the fire is out. For massive fires, the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied firefighting foam. Withdraw immediately in case of rising sound from venting safety devices or discoloration the tank.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus (SCBA) with full face piece and full protective clothing.

Refer to Section 9 for fire properties of this chemical including flash point, auto ignition temperature and explosive limits.

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY SPCC, SPILL CONTINGENCY or EMERGENCY PLAN.

Personal Precautions

Only properly trained personnel should respond to spills. Depending on the size of the spill, downwind or down water receptors may need to be notified.

Evacuate nonessential personnel and remove or secure all ignition sources (flame, spark, hot work, hot metal, etc.). The proper use of alcohol-resistant foam spray may effectively disperse product vapors, preventing contact with ignition sources or areas/equipment that require protection.

Consider wind direction; stay upwind and uphill, if possible. Avoid inhaling vapors. Evaluate the direction of product travel, diking, sewers, etc. to identify the extent of the spill area. Do not touch or walk-through spilled material.

Highly flammable material, even small spills may pose a fire danger for emergency responders. Due to high vapor density, flammable / toxic vapors may be present in low lying areas, dikes, pits, drains or trenches. Ventilate the area. Use of non-sparking tools and intrinsically safe equipment is recommended. Potential for flammable atmosphere should be monitored using a combustible gas indicator positioned downwind of the spill area. See Sections 2 and 7 for further hazard warnings and handling instructions.

Use appropriate personal protective equipment to prevent eye/skin contact and absorption. Use NIOSH approved respiratory protection, if warranted, to prevent exposures above permissible limits (see Section 8). Contaminated clothing should not be worn near sources of ignition.

Environmental Precautions

The ethanol component of this product is totally miscible in water. The gasoline component will separate out from the mixture and float on water.

Control the source of the spill to prevent or minimize environmental impact if it can be done safely. Keep on impervious surface if possible. Foam and absorbents may be used to reduce/prevent airborne release. Product is toxic to aquatic life. Biodegradation of ethanol in surface water can result in complete depletion of dissolved oxygen. Isolate environmental receptors including drains, storm sewers and natural water bodies if safe to do so, to prevent the spill from reaching a waterbody. Water intakes on waterways that may be impacted by spills should be closed or protected. Environmentally sensitive areas on waterways that may be impacted by spills should be protected.

Spills to land may infiltrate subsurface soil and impact groundwater; professional assistance may be necessary to determine the



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extent of subsurface impact.

Follow federal, state and local requirements for reporting environmental release where necessary (see Section 15 for further information).

Containment and Clean-Up Methods

Identify the source of the spill and stop the leak, if safe to do so. Protect bodies of water by creating dams to divert the flow away from the waterbody using soil, granular absorbents, absorbent boom or pads or by closing valves on lines that drain to the waterbody. Prevent the spill from running off impervious surfaces if possible. Do not flush down sewer or drainage systems, unless the system is designed and permitted to handle such material. If water is used to prevent product from spreading, use sparingly.

Wind and water current speed and direction and wave action may influence the response actions for a spill to water. It may not be advisable to use boom to collect and confine a gasoline spill to water to a limited area due to the potential accumulation of vapors within the flammable range and the possible exposure of responders to the hazards of inhalation of the concentrated vapors. It may be best to allow the liquid to evaporate from the surface of the water. Local specialists should be consulted.

Granular absorbents, dry earth, sand or other non-combustible, inert oil absorbing materials may be used to take up spills to land. Carefully shovel, scoop or sweep up into a waste container with clean, non-sparking tools for reclamation or disposal. Response and clean-up crews must be properly trained and must utilize proper personal protective equipment (see Section 8). Licensed waste disposal contactors should be used to transport the waste material generated by cleanup activities to the disposal site.

7. HANDLING AND STORAGE

USE ONLY AS A FUEL
DO NOT SIPHON BY MOUTH

Handling Precautions

Handle as a flammable liquid. Keep away from heat, sparks and open flame. No smoking. Electrical equipment should be approved for classified area. Bond and ground containers during product transfer pursuant to NFPA 70 and API RP 2003 to reduce the possibility of static-initiated fire or explosion. Use only non-sparking tools. Follow precautions to prevent static initiated fire. Portable containers should never be filled while in or on a motor vehicle or marine craft. Containers should be placed on the ground. Static electric discharge can ignite fuel vapors when filling non-grounded containers or vehicles on trailers. The nozzle spout must be kept in contact with the container before and during the entire filling operation. Only use approved containers. Cellular phones and other electronic devices may have the potential to emit electrical charges (sparks). Sparks in potentially explosive atmospheres (including fueling areas such as gas stations) could cause an explosion if sufficient flammable vapors are present. Therefore, turn off cellular phones and other electronic devices when working in potentially explosive atmospheres.

Use only with personal protective equipment specified in Section 8. Avoid repeated and/or prolonged skin exposure. Use only outdoors or in well ventilated areas. Wash hands before eating, drinking, smoking or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves. Emergency eye wash capability should be available in the proximity of operations presenting a potential splash exposure.

Vapors are heavier than air and can accumulate in low lying areas (e.g., tanks, pits, vaults, dikes, drains, etc.) Follow specific procedures for confined space entry in areas where product may be present pursuant to OSHA requirements in 29 CFR 1910.146. Atmospheric testing using a combustible gas indicator may be necessary in confined areas where liquid product or vapors may be present.

Procedures such as reduced loading rates and increased monitoring should be followed during "switch loading" operations to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising out of Static, Lightning and Stray Currents".

Storage

Store in accordance with local regulations. Storage areas should comply with NFPA 30 "Flammable and Combustible Liquid Code". Use approved vented containers. Store in a well-ventilated area. Separate this product from incompatible materials such as oxidizers and strong acids (see Section 10) by distance or secondary containment. Protect containers from damage and vehicular traffic. Keep away from flame, sparks, excessive temperatures and open flame. Post "No Smoking" signs in product storage areas. Keep containers closed and clearly labeled. Label all secondary containers that this material is transferred into with the chemical name and associated hazard(s). Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks in Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".



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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational Exposure Limits

Component	CAS #	List	Value
Ethyl Alcohol (Ethanol)	64-17-5	ACGIH STEL OSHA TWA Cal OSHA TWA	1000 ppm 1000 ppm 1000 ppm
Gasoline	8006-61-9	ACGIH TWA ACGIH STEL	300 ppm 500 ppm
Benzene	71-43-2	ACGIH TLV-TWA ACGIH STEL OSHA AL OSHA TWA OSHA STEL Cal OSHA TWA Cal OSHA STEL	0.5 ppm, Skin* 2.5 ppm, Skin* 0.5 ppm 1 ppm 5 ppm 1 ppm 5 ppm
Butane	106-97-8	ACGIH TLV-STEL NIOSH TWA Cal Osha TWA	1000 ppm 800 ppm (Recommended) 800 ppm
Cumene	98-82-8	ACGIH TWA OSHA TWA	50 ppm 50 ppm Skin*
Cyclohexane	110-82-7	ACGIH TWA OSHA TWA Cal OSHA TWA	100 ppm 300 ppm 300 ppm
Ethylbenzene	100-41-4	ACGIH TWA OSHA TWA NIOSH STEL Cal OSHA TWA Cal OSHA STEL	20 ppm 100 ppm 125 ppm 5 ppm 30 ppm
Naphthalene	91-20-3	ACGIH TLV-TWA OSHA TWA Cal OSHA TWA Cal OSHA STEL	10 ppm 10 ppm 0.1 ppm 15 ppm
N-hexane	110-54-3	ACGIH TWA OSHA TWA Cal OSHA	50 ppm 500 ppm 50 ppm
Toluene	108-88-3	ACGIH TWA OSHA TWA OSHA Ceiling OSHA Peak Cal OSHA TWA Cal OSHA STEL Cal OSHA Ceiling	20 ppm 200 ppm 300 ppm 500 ppm (10 min) 10 ppm 150 ppm 500 ppm
Xylene, mixed isomers	1330-20-7	ACGIH TWA ACGIH STEL OSHA TWA Cal OSHA TWA Cal OSHA STEL Cal OSHA Ceiling	100 ppm 150 ppm 100 ppm 100 ppm 150 ppm 300 ppm
1,2,4- Trimethylbenzene	95-63-6	ACGIH TWA OSHA TWA (Construction) Cal OSHA TWA	25 ppm 25 ppm 25 ppm

*Skin designation indicates the chemical is skin absorbable



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Engineering Controls

Use explosion-proof ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces or other areas where vapors may accumulate. Intrinsically safe equipment and non-sparking tools shall be used in circumstances where concentrations may exceed lower flammable limits. Grounding and bonding shall be used to prevent accumulation and discharge of static electricity.

Emergency decontamination shower and eyewash should be provided in proximity to handling areas in the event of exposure.

Personal Protective Equipment

Personal protective equipment (PPE) that meets regulatory requirements or recommended national standards is required.

Exposure	Equipment
Eye / Face	Safety glasses with side shields should be worn as a minimum. Safety glasses or goggles and face shield are recommended where there is a possibility of splashing or spraying. Eyewash stations and shower facilities should be located near potential exposure locations.
Skin	Wear appropriate personal protective clothing to prevent skin contact. Gloves constructed of Viton, nitrile, neoprene or PVC are recommended when handling this material. Chemical protective clothing such as of E.I. DuPont TyChem®, Barricade® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.
Respiratory	<p>No respiratory protection is required under typical operating conditions with adequate ventilation. Respiratory protection is required when airborne exposures exceed or are expected to exceed permissible exposure limits. A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be required under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, ANSI Z88.2-1992, NIOSH Respirator Decision Logic and the manufacturer for additional guidance on respiratory protection selection and limitations.</p> <p>Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres or any other circumstance where an air-purifying respirator may not provide adequate protection. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor or if air-purifying filter capacity/rating may be exceeded.</p> <p>Specific requirements under the OSHA occupational exposure to Benzene may apply if concentrations exceed the action level or permissible limits. Consult 29 CFR 1910.1028 for further information.</p>
Personal Hygiene	Always observe good personal hygiene measures such as washing after handling the material and before eating, drinking, smoking or using the lavatory. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned.
Thermal	Product is stored at ambient temperature. No thermal protection is required except for emergency operations involving actual or potential for fire. Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	A clear, water-like liquid
Odor	A strong, characteristic aromatic hydrocarbon odor. Gasoline oxygenated with Ethanol may have an alcohol-like odor.
Odor Threshold	Gasoline: 0.25 ppm Ethyl Alcohol: 84 ppm
pH	Not applicable
Melting / Freeze Point	Gasoline: -150 °F (-101 °C) Generally proportional to the % of each component in the blend. Ethyl Alcohol: -173 °F (-114 °C)
Boiling Point	Gasoline: 102 to 410 °F (24 to 210 °C) Generally proportional to the % of each component in the blend. Ethyl Alcohol: 173 °F (78 °C)
Flash Point	Gasoline: -45 °F (-43 °C) Generally proportional to the % of each component in the blend. Ethyl Alcohol: 55 °F (13 °C)



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Evaporation Rate	Gasoline: >10 (n-butyl acetate = 1) Ethyl Alcohol: 2 (n-butyl acetate = 1)
Flammability (solid/gas)	Not Applicable
Flammability Limits	Gasoline: 1.4 – 7.6% Ethyl Alcohol: 3 - 19%
Vapor Pressure	275-475mm Hg @ 68 °F (20 °C)
Vapor Density	Gasoline: >3 Air = 1 Generally proportional to the % of each component in the blend. Ethyl Alcohol: 1.59 Air = 1
Specific Gravity	0.70 – 0.79 (water =1)
Solubility	Gasoline-negligible (<0.1% @77°F). Ethanol is 100% soluble in water and has greater solubility than other oxygenates.
Partition Coefficient	No data available
Autoignition Temperature	Gasoline: >530 °F (>276.6 °C) Ethyl Alcohol: 685 °F (363 °C)
Decomposition Temperature	Evaporation or ignition will likely occur before decomposition
Viscosity	0.64 – 0.88 mm ² /sec @ 60° F
Percent Volatiles	100%

10. STABILITY AND REACTIVITY

Stability

Stable under recommended storage, transport and usage conditions. A fire may result if an ignition source is present.

Reactivity

Material is not self-reacting. Flammable concentrations may be present in air. May react with oxidizing materials.

Possibility of Hazardous Reactions

None under normal processing.

Hazardous Polymerization

Will not occur.

Incompatibility

Keep away from halogens, strong acids, alkalis and strong oxidizers such as nitric and sulfuric acids.

Conditions to Avoid

Avoid high temperatures, open flames, sparks, static electricity, welding, smoking and other ignition sources.

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric or sulfuric acids will form nitroresols that can decompose violently.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity (Inhalation LC50):

Ethanol (64-17-5)	
LC50 Inhalation Rat	124.7 mg/L /4 hr
Gasoline (8006-61-9)	
LC50 Inhalation Rat	5.2 mg/L/4 hr
Benzene (71-43-2)	
LC50 Inhalation Rat	>20 mg/L/4 hr
Butane (106-97-8)	
LC50 Inhalation Rat	658 mg/L/4 hr
Cumene (98-82-8)	
LC50 Inhalation Rat	>20 mg/L /6 hr
Cyclohexane (110-82-7)	
LC50 Inhalation Rat	13.9 mg/L /4 hr
Naphthalene (91-20-3)	
LC50 Inhalation Rat	>340 mg/m ³ /1 hr



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N-Hexane (110-54-3)	
LC50 Inhalation Rat	48,000 ppm /4 hr
Toluene (108-88-3)	
LC50 Inhalation Rat	12.5 mg/L /4 hr
1,2,4 Trimethylbenzene (95-63-6)	
LC50 Inhalation Rat	18,000 mg/m ³ /4 hr
Xylene (1330-20-7)	
LC50 Inhalation Rat	5.04 mg/L /4 hr

Acute Toxicity (Oral LD50)

Ethanol (64-17-5)	
LD50 Oral Rat	>5000mg/kg
Gasoline (8006-61-9)	
LD50 Oral Rat	14,000 mg/kg
Benzene (71-43-2)	
LD50 Oral Rat	>2000 mg/kg
Butane (106-97-8)	
LD50 Oral Rat	-----
Cumene (98-82-8)	
LD50 Oral Rat	2000 mg/kg
Cyclohexane (110-82-7)	
LD50 Oral Rat	>5000 mg/kg
N-Hexane (110-54-3)	
LD50 Oral Rat	15,000 mg/kg
Naphthalene (91-20-3)	
LD50 Oral Rat	490 mg/kg
Toluene (108-88-3)	
LD50 Oral Rat	>2000 mg/kg
1,2,4 Trimethylbenzene (95-63-6)	
LD50 Oral Rat	3280 mg/kg
Xylene (1330-20-7)	
LD50 Oral Rat	>2000 mg/kg
Ethylbenzene (100-41-4)	
LD50 Oral Rat	>2000 mg/kg

Acute Toxicity (Dermal LD50)

Gasoline (8006-61-9)	
LD50 Dermal Rabbit	>2000 mg/kg
Benzene (71-43-2)	
LD50 Dermal Rabbit	>8260 mg/kg
Butane (106-97-8)	
LD50 Dermal Rabbit	_____
Cumene (98-82-8)	
LD50 Dermal Rabbit	>2000 mg/kg
Cyclohexane (110-82-7)	
LD50 Dermal Rabbit	>2000 mg/kg
N-Hexane (110-54-3)	
LD50 Dermal Rabbit	3000 mg/kg
Naphthalene (91-20-3)	
LD50 Dermal Rabbit	>2000 mg/kg
Toluene (108-88-3)	
LD50 Dermal Rabbit	12,200 mg/kg
1,2,4 Trimethylbenzene (95-63-6)	
LD50 Dermal Rabbit	>3160 mg/kg
Xylene (1330-20-7)	
LD50 Dermal Rabbit	>43 g/kg
Ethylbenzene (100-41-4)	
LD50 Dermal Rabbit	17,800 mg/kg



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Delayed and immediate effects as well as chronic effects from short and long-term exposure

MIDDLE DISTILLATES, PETROLEUM: Altered mental state, drowsiness, peripheral motor neuropathy, irreversible brain damage (so-called Petrol Sniffer's Encephalopathy), delirium, seizures, and sudden death have been reported from repeated overexposure to some hydrocarbon solvents, naphthas and gasoline.

ETHANOL: 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.

BUTANES: Studies in laboratory animals indicate exposure to extremely high levels of butanes (1-10 or higher vol.% in air) may cause cardiac arrhythmias (irregular heartbeats) which may be serious or fatal.

TOLUENE: Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. 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 of workers suggest long-term exposure may be related to neurobehavioral and cognitive changes. Several studies of workers suggest long-term exposure may be related to small increases in spontaneous abortions and changes in some gonadotropic hormones. Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. Studies of workers indicate long-term exposure may be related to effects on the liver, kidney and blood, but these appear to be limited to changes in serum enzymes and decreased leukocyte counts.

XYLENES, ALL ISOMERS: Overexposure to xylene may cause upper respiratory tract irritation, headache, cyanosis, blood serum changes, nervous system damage and narcosis. Effects may be increased by the use of alcoholic beverages. Evidence of liver and kidney impairment were reported in workers recovering from a gross overexposure. Effects from Prolonged or Repeated Exposure: Impaired neurological function was reported in workers exposed to solvents including xylene.

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.

CYCLOHEXANE: Existing human occupational studies are inadequate to determine the toxicity of cyclohexane in humans (U.S. EPA, 2003).

CUMENE: Overexposure to cumene may cause upper respiratory tract irritation and CNS depression.

ETHYLBENZENE: IARC has classified ethylbenzene as "possibly carcinogenic to humans" (Group 2B).

1,2,4 TRIMETHYLBENZENE: An EPA study dated September 2016 states there is inadequate information to assess carcinogenic potential under the EPA's "Guidelines for Carcinogen Risk Assessment" (U.S. EPA, 2005).

BENZENE: Studies of workers exposed to benzene show clear evidence that overexposure can cause cancer and other diseases of the blood forming organs including Acute Myelogenous Leukemia (AML), and Aplastic Anemia (AA), an often-fatal disease. Some studies suggest overexposure to benzene may also be associated with Myelodysplastic Syndrome (MDS). Findings from a case control study of workers exposed to benzene was reported during the 2009 Benzene Symposium in Munich included an increase in Acute Myeloid Leukemias and Non-Hodgkins Lymphoid Neoplasms (NHLN) of the subtype follicular lymphoma (FL) in some occupational categories. 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 AA have been reported in the offspring of persons severely overexposed to benzene. Benzene has been classified as a proven human carcinogen by OSHA and a Group 1 (Carcinogenic to Humans) material by IARC. The current proposed IARC classification for benzene is summarized as follows: Sufficient evidence for Acute Myeloid Leukemia; limited evidence for Acute Lymphatic Leukemia, Chronic Lymphatic Leukemia, Non-Hodgkin Lymphoma, and Multiple Myeloma.

NAPHTHALENE: Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants because 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. A few studies have shown chromosomal effects (elevated levels of Sister Chromatid Exchange or chromosomal aberrations) in vitro. Naphthalene has been classified as Possibly Carcinogenic to Humans (2B) by IARC, based on findings from studies in laboratory animals.



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WHOLLY-VAPORIZED UNLEADED GASOLINE: Epidemiological data from over 18,000 petroleum marketing and distribution workers showed no increased risk of leukemia, multiple myeloma, or kidney cancer resulting from gasoline exposure. Unleaded gasoline has been identified as possibly carcinogenic to humans (2B) by the International Agency for Research on Cancer (IARC).

COMBUSTION ENGINE EXHAUST: Gasoline exhaust has been classified as possibly carcinogenic to humans (2B) by the International Agency for Research on Cancer (IARC).

Adverse effects related to the physical, chemical and toxicological characteristics

Signs and Symptoms	Irritating to eyes, respiratory system and skin. Symptoms may include redness, itching, and inflammation. May cause nausea, vomiting, diarrhea, and signs of nervous system depression: headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue. Aspiration hazard. May cause coughing, chest pains, shortness of breath, pulmonary edema and/or chemical pneumonitis. Repeated or prolonged skin contact may cause drying, reddening, itching and cracking.
Sensitization	Not expected to be a skin or respiratory sensitizer.
Mutagenic effects	May cause genetic defects.
Carcinogenicity	May cause cancer. Cancer designations are listed in the table below

Name & CAS Reg. #	ACGIH (Class)	IARC (Class)	NTP	OSHA
Gasoline 8006-61-9	Confirmed animal carcinogen (A3)	Possible human carcinogen (2B)	Not Listed	Not Listed
Ethyl Alcohol 64-17-5	Confirmed animal carcinogen (A3)	Alcoholic Beverages Carcinogenic to humans (1)	Alcoholic Beverage Consumption Known to be human carcinogen	Not Listed
Butane (mixed isomers) 106-97-8	Not Listed	Not Listed	Not Listed	Not Listed
Toluene 108-88-3	Not Classifiable (A4)	Not Classifiable (3)	Not Listed	Not Listed
Xylene (mixed isomers) 1330-20-7	Not classifiable (A4)	Not classifiable (3)	Not Listed	Not Listed
n-Hexane 110-54-3	Not Listed	Not Listed	Not Listed	Not Listed
Cumene 98-82-8	Not listed	Possible human carcinogen (2B)	Reasonably anticipated to be a human carcinogen	Not listed
1,2,4 Trimethylbenzene 95-63-6	Not Listed	Not Listed	Not Listed	Not Listed
Ethylbenzene 100-41-4	Confirmed animal carcinogen (A3)	Possible human carcinogen (2B)	Not Listed	Not Listed
Benzene 71-43-2	Confirmed human carcinogen (A1)	Carcinogenic to humans (1)	Known to be human carcinogen	Known carcinogen
Cyclohexane 110-82-7	Not Listed	Not Listed	Not Listed	Not Listed
Naphthalene 91-20-3	Confirmed animal carcinogen (A3)	Possible human carcinogen (2B)	Reasonably anticipated to be a human carcinogen	Not Listed

Reproductive toxicity	Suspected of damaging fertility or the unborn child.
Specific Target Organ Toxicity (STOT) - single exposure	Respiratory system. Central nervous system.
Specific Target Organ Toxicity (STOT) - repeated exposure	Not classified.
Aspiration hazard	May be fatal if swallowed or vomited and enters airways.



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12. ECOLOGICAL INFORMATION

Ecotoxicity: This product should be considered toxic to aquatic organisms, with the potential to cause long lasting adverse effects in the aquatic environment.

Name	Algae/aquatic plants	Fish	Toxicity to Microorganisms	Crustacea
Gasoline 8006-61-9	72-hr EC50 = 56 mg/l Algae	96-hr LC50 = 11 mg/l Rainbow trout (static)	-	48-hr LC50 = 7.6 mg/l Daphnia magna
Ethyl Alcohol 64-17-5	-	96-hr LC50 >1,000 mg/l Rainbow Trout (static) 96- hr LC50 >100 mg/l Fathead minnow (static)	-	48-hr LC50 >1,000 mg/l Daphnia magna
Butane (mixed isomers) 106-97-8	-	-	-	-
Toluene 108-88-3	72-hr EC50 = 12.5 mg/l Algae	96-hr LC50 ≤ 10 mg/l Rainbow trout	-	48-hr EC50 = 5.46-9.83 mg/l Daphnia magna 48-hr EC50 = 11.5 mg/l Daphnia magna (Static)
Xylene (mixed isomers) 1330-20-7	72-hr EC50 = 11 mg/l Algae	96-hr LC50 = 8 mg/l Rainbow trout	-	48-hr LC50 = 3.82 mg/l Daphnia magna
n-Hexane 110-54-3	-	96-hr LC50 = 2.5 mg/l Fathead minnow	-	-
Cumene 98-82-8	72-hr EC50 = 2.6 mg/l Algae	96-hr LC50 = 6.04-6.61 mg/l Fathead minnow (Flow-through) 96-hr LC50 = 2.7 mg/l Rainbow trout (semi-static)	-	48-hr EC50 = 7.9-14.1 mg/l Daphnia magna (static)
1,2,4-Trimethylbenzene 95-63-6	-	96-hr LC50 = 7.19-8.28 mg/l Fathead minnow (flow-through)	-	48-hr EC50 = 6.14 mg/L Daphnia magna
Ethylbenzene 100-41-4	72-hr EC50 = 1.7-7.6 mg/l Algae	96-hr LC50 = 4 mg/L Rainbow trout	-	48-hr EC50 = 1-4 mg/L Daphnia magna
Benzene 71-43-2	72-hr EC50 = 29 mg/l Algae	96-hr LC50 = 5.3 mg/l Rainbow trout (flow-through)	-	48-hr EC50 = 8.76-15.6 mg/l Daphnia magna (Static)
Cyclohexane 110-82-7	72-hr EC50 = 500 mg/l Algae	96-hr LC50 = 3.96-5.18 mg/l Fathead minnow	-	48-hr EC50 = 1.7-3.5 mg/L Bay shrimp
Naphthalene 91-20-3	-	96-hr LC50 = 0.91-2.82 mg/l Rainbow trout (static) 96- hr LC50 = 1.99 mg/l Fathead minnow (static)	-	48-hr LC50 = 1.6 mg/l Daphnia magna

Persistence and degradability Expected to be 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.

Bioaccumulation Has the potential to bioaccumulate.

Mobility in soil May partition into air, soil and water.

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

The user is responsible for determining if any discarded material is a hazardous waste (40 CFR 262.11). The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Shipping containers used for waste must be DOT authorized packages. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.



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Waste packaging should be recycled or disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

14. TRANSPORT INFORMATION

US DOT

UN Identification Number	UN 3475
Proper Shipping Name	Ethanol and gasoline mixture
Hazard Class and Packing Group	3, PG II
Shipping Label	Flammable Liquid
ERG	127

IATA Cargo

UN Identification Number	UN3475
Shipping Name / Description	Ethanol and gasoline mixture
Hazard Class and Packing Group	3, PG II
ICAO Label	3
Packing Instructions Cargo	364, Y341
Max Quantity Per Package Cargo	60 L

IATA Passenger

UN Identification Number	UN3475
Shipping Name / Description	Ethanol and gasoline mixture
Hazard Class and Packing Group	3, PG II
ICAO Label	3
Packing Instructions Passenger	353, Y341
Max Quantity Per Package	5 L

15. REGULATORY INFORMATION

Federal, State and Local Regulatory Information

Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state or local regulations; consult those regulations applicable to your facility/operation.

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Clean Water Act (Oil Spills)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) or, if not practical, the U.S. Coast Guard with follow-up to the National Response Center, as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

EPA Notification (Oil Spills)

If there is a discharge of more than 1,000-gallons of oil into or upon navigable waters of the United States or if it is the second spill event of 42 gallons or more of oil into water within a twelve (12) month period, a written report must be submitted to the Regional Administrator of the EPA within sixty days of the event.



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CERCLA Section 103 (Release to the Environment)

The CERCLA definition of hazardous substances contains a “petroleum exclusion” clause which exempts crude oil, refined and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 or the Clean Water Act if the spill occurs on navigable waters) may still apply.

US TSCA Chemical Inventory Section 8(b): This product and/or its components are listed on the TSCA Chemical Inventory.

EPA Superfund Amendment & Reauthorization Act (SARA):

SARA Section 302: This product does not contain any component(s) included on EPA's Extremely Hazardous Substance (EHS) List.

SARA Section 304: This product may contain component(s) identified as a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting requirements:

Name	Hazardous Substances RQs
Gasoline	NA
Ethyl Alcohol	NA
Butane (mixed isomers)	No CERCLA RQ
Toluene	1000 lb final RQ 454 kg final RQ
Xylene (mixed isomers)	100 lb final RQ 45.4 kg final RQ
n-Hexane	5000 lb final RQ 2270 kg final RQ
Cumene	5000 lb final RQ 2270 kg final RQ
1,2,4 Trimethylbenzene	No CERCLA RQ
Ethylbenzene	1000 lb final RQ 454 kg final RQ
Benzene	10 lb final RQ 4.54 kg final RQ
Cyclohexane	1000 lb final RQ 454 kg final RQ
Naphthalene	100 lb final RQ 45.4 kg final RQ

SARA: Title III Classifications Sections 311 & 312:

- Acute: YES
- Chronic: YES
- Fire: YES
- Reactivity: NO
- Sudden Release of Pressure: NO

SARA Section 313: This product may contain component(s), which if in exceedance of the de minimis threshold, may be subject to the reporting requirements of SARA Title III Section 313 Toxic Release Reporting (Form R).

Name	CERCLA/SARA 313 Emission reporting:
Gasoline	None
Ethyl Alcohol	None
Butane (mixed isomers)	None
Toluene	1.0 % de minimis concentration
Xylene (mixed isomers)	1.0 % de minimis concentration
n-Hexane	1.0 % de minimis concentration
Cumene	1.0 % de minimis concentration
1,2,4 Trimethylbenzene	1.0 % de minimis concentration
Ethylbenzene	0.1 % de minimis concentration
Benzene	0.1 % de minimis concentration
Cyclohexane	1.0 % de minimis concentration
Naphthalene	0.1 % de minimis concentration



SAFETY DATA SHEET

Flex Fuel

State and Community Right-To-Know Regulations:

Gasoline	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 0957
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To-Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Carcinogen; Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 0957 TPQ: 10000 lb (Under N.J.A.C. 7:1G, environmental hazardous substances in mixtures such as gasoline or new and used petroleum oil may be reported under these categories)
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Ethyl Alcohol	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Carcinogen, initial date 4/29/11 (in alcoholic beverages) Carcinogen, initial date 7/1/88 (when associated with alcohol abuse) Developmental toxicity, initial date 10/1/87 (in alcoholic beverages)
New Jersey Right-To-Know:	SN 0844
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To-Know:	Teratogen
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Carcinogen; Flammable - third degree; Mutagen; Teratogen
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Butane (mixed isomers)	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 0273
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To-Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - fourth degree
New Jersey - Environmental Hazardous Substances List:	SN 0273 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed



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Flex Fuel

Toluene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Developmental toxicity, initial date 1/1/91 Female reproductive toxicity, initial date 8/7/09
New Jersey Right-To-Know:	SN 1866
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To-Know:	Not Listed
Florida Substance List:	Present
Rhode Island Right-To-Know:	Toxic (skin); Flammable (skin)
Michigan Critical Materials Register List:	100 lb Annual usage
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree; Teratogen
New Jersey - Environmental Hazardous Substances List:	Flammable - third degree; Teratogen
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1000 lb RQ (air); 1 lb RQ (land/water)

Xylene (mixed isomers)

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 2014
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To-Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic (skin); Flammable (skin)
Michigan Critical Materials Register List:	100 lb Annual usage, all isomers
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 2014 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1000 lb RQ (air); 1 lb RQ (land/water)

n-Hexane

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1340
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To-Know:	Present
Florida Substance List:	Present
Rhode Island Right-To-Know:	Toxic Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 1340 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1 lb RQ (air); 1 lb RQ (land/water)



SAFETY DATA SHEET

Flex Fuel

1,2,4 Trimethylbenzene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1929
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To-Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Cumene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Carcinogen, initial date 4/6/10
New Jersey Right-To-Know:	SN 0542
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To-Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic (skin); Flammable (skin)
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 0542 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	5000 lb RQ (air); 1 lb RQ (land/water)

Ethylbenzene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Carcinogen, initial date 6/11/04
New Jersey Right-To-Know:	SN 0851
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To-Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Carcinogen; flammable - Third degree
New Jersey - Environmental Hazardous Substances List:	SN 0851 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1000 lb RQ (air); 1 lb RQ (land/water)



SAFETY DATA SHEET

Flex Fuel

Benzene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Carcinogen, initial date 2/27/87 Developmental toxicity, initial date 12/26/97 Male reproductive toxicity, initial date 12/26/97
New Jersey Right-To-Know:	SN 0197
Pennsylvania Right-To-Know:	Environmental hazard; Special hazardous substance
Massachusetts Right-To-Know:	Carcinogen; Extraordinarily hazardous
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic (skin); Flammable (skin); Carcinogen (skin)
Michigan Critical Materials Register List:	100 lb Annual usage threshold
Massachusetts Extraordinarily Hazardous Substances:	Carcinogen; Extraordinarily hazardous
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Present
New Jersey - Special Hazardous Substances:	Carcinogen; Flammable - third degree; Mutagen
New Jersey - Environmental Hazardous Substances List:	SN 0197 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	10 lb RQ (air); 1 lb RQ (land/water)

Cyclohexane

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 0565
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To-Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 0565 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1000 lb RQ (air); 1 lb RQ (land/water)

Naphthalene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Carcinogen, initial date 4/19/02
New Jersey Right-To-Know:	SN 1322 SN 3758
Pennsylvania Right-To-Know:	Environmental hazard Present (particulate)
Massachusetts Right-To-Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Carcinogen
New Jersey - Environmental Hazardous Substances List:	SN 1322 TPQ: 500 lb (Reportable at the de minimis quantity of >0.1%)
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	100 lb RQ (air); 1 lb RQ (land/water)



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Canada DSL/NDSL Inventory: This product and/or its components are listed either on the Domestic Substances List (DSL) or are exempt.

Canadian Regulatory Information: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the (M)SDS contains all the information required by the Controlled Products Regulations.

Name	Canada - WHMIS: Classifications of Substances:	Canada - WHMIS: Ingredient Disclosure:
Gasoline	B2,D2A,D2B	0.1%
Ethyl Alcohol	B2, D2B	0.1%
Butane (mixed isomers)	A,B1	1%
Toluene	B2,D2A,D2B	0.1%
Xylene (mixed isomers)	B2,D2A,D2B	m-, o-isomers 1.0%; p-isomer 0.1%
n-Hexane	B2,D2A,D2B	1%
Cumene	B2,D2A	0.1%
1,2,4 Trimethylbenzene	B3,D2B	1%
Ethylbenzene	B2,D2A,D2B	0.1%
Benzene	B2,D2A,D2B	0.1%
Cyclohexane	B2,D2B	1%
Naphthalene	B4,D2A	0.1%

16. OTHER INFORMATION

Description of Revisions

Revised to meet Globally Harmonized System for chemical hazard communication requirements pursuant to OSHA regulatory revisions 77 FR 17884, March 26, 2012.

Abbreviations

°F	Degrees Fahrenheit (temperature)	mg	Milligram
<	Less than	mL	Milliliter
=	Equal to	mm ²	Square millimeter
>	Greater than	mmHg	Millimeters of mercury (pressure)
AP	Approximately	ppm	Parts per million
°C	Degrees Centigrade (temperature)	sec	Second
kg	Kilogram	ug	Microgram
L	Liter		

Acronyms

ACGIH	American Conference of Governmental Industrial Hygienists	NTP	National Toxicology Program
AIHA	American Industrial Hygiene Association	OPA	Oil Pollution Act of 1990
AL	Action Level	OSHA	U.S. Occupational Safety & Health Administration
ANSI	American National Standards Institute	PEL	Permissible Exposure Limit (OSHA)
API	American Petroleum Institute	RCRA	Resource Conservation and Recovery Act Reauthorization Act of 1986 Title III
CAS	Chemical Abstract Service	REL	Recommended Exposure Limit (NIOSH)
CERCLA	Comprehensive Emergency Response, Compensation and Liability Act	RVP	Reid Vapor Pressure
DOT	U.S. Department of Transportation	SARA	Superfund Amendments and
EC50	Ecological concentration 50%	SCBA	Self-Contained Breathing Apparatus
EPA	U.S. Environmental Protection Agency	SPCC	Spill Prevention, Control and Countermeasures
ERPG	Emergency Response Planning Guideline	STEL	Short-Term Exposure Limit (generally 15 minutes)
GHS	Global Harmonized System	TLV	Threshold Limit Value (ACGIH)
HMIS	Hazardous Materials Information System	TSCA	Toxic Substances Control Act
IARC	International Agency for Research On Cancer	TWA	Time Weighted Average (8 hr.)
IATA	International Air Transport Association	UN	United Nations
IMDG	International Maritime Dangerous Goods	UNECE	United Nations Economic Commission for
Koc	Soil Organic Carbon		
LC50	Lethal concentration 50%		



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Flex Fuel

LD50	Lethal dose 50%		Europe
MSHA	Mine Safety and Health Administration	WEEL	Workplace Environmental Exposure Level (AIHA)
NFPA	National Fire Protection Association		
NIOSH	National Institute of Occupational Safety and Health	WHMIS	Canadian Workplace Hazardous Materials Information System
NOIC	Notice of Intended Change		

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** End of Safety Data Sheet **