



# MATERIAL SAFETY DATA SHEET

## Gasoline, Unleaded with Ethanol

### 1. CHEMICAL PRODUCT and COMPANY INFORMATION

EMERGENCY TELEPHONE NUMBER (24 hrs): CHEMTREC (800) 424-9300  
 COMPANY CONTACT (business hours): 800-542-0778

Global Companies LLC  
 Water Mill Center  
 800 South St.  
 Waltham, MA 02454-9161



**SYNONYMS: Regular Unleaded Gasoline, Premium Unleaded Gasoline, Mid-grade Unleaded Gasoline, Reformulated Blendstock for Oxygenate Blending (RBOB) w/Ethanol, Premium Blendstock for Oxygenate Blending (PBOB) w/Ethanol, Conventional Blendstock for Oxygenate Blending (CBOB) w/Ethanol, Unleaded Gasoline**

See Section 16 for abbreviations and acronyms.

### 2. COMPOSITION and INFORMATION ON INGREDIENTS \*

<u>INGREDIENT NAME*</u>	<u>EXPOSURE LIMITS</u>	<u>CONCENTRATION PERCENT BY WEIGHT</u>
Gasoline CAS NUMBER: 8006-61-9	OSHA PEL-TWA/STEL: None established ACGIH TLV-TWA/STEL:300/ 500 ppm, A3	100
Benzene CAS NUMBER: 71-43-2	OSHA PEL-TWA/STEL: 1/5 ppm ACGIH TLV-TWA:0.5/ 2.5 ppm, A1, skin US Coast Guard: same as OSHA	0.1 to 4.9 0.1 to 1.3* *for reformulated gasoline
Ethyl Alcohol (Ethanol) CAS NUMBER (64-17-5)	OSHA PEL-TWA/STEL: 1000 ppm ACGIH TLV-TWA: 1000 ppm, A4	0 - 10
Toluene CAS NUMBER: 108-88-3	OSHA PEL-TWA/Ceiling: 200/ 300 ppm OSHA PEL-Peak: 500 ppm (10 mm.) ACGIH TLV-TWA: 50 ppm, A4 (skin)	0-15
Xylene, mixed isomers CAS NUMBER: 1330-20-7	OSHA PEL-TWA: 100 ppm ACGIH TLV-TWA/STEL: 100/ 150 ppm, A4	0-15
Ethyl Benzene CAS NUMBER: 100-41-4	OSHA PEL-TWA/STEL: 100 /125 ppm ACGIH TLV-TWA/STEL: 100/125 ppm, A4	< 4
1,2,4- Trimethylbenzene CAS NUMBER: 95-63-6	OSHA PEL-TWA: 25 ppm ACGIH TLV-TWA: 25 ppm,	<5

A complex blend of petroleum-derived normal and branched-chain alkane, cycloalkane, alkene, and aromatic hydrocarbons. Butane is often added to increase volatility, especially in winter. May contain antioxidant and multifunctional additives. Oxygenated and reformulated gasoline will have legally-required amounts of oxygenates (Ethanol) to increase octane levels. RBOB and PBOB are gasoline base stocks and do not contain any Oxygenates (Ethanol)

\*Also see Section 15 for list of SARA Section 313 toxic chemicals and their exposure limits.

### 3. HAZARDS IDENTIFICATION

<p><b>EMERGENCY OVERVIEW</b>  <b>DANGER!</b>  <b>EXTREMELY FLAMMABLE --EYE AND MUCOUS MEMBRANE IRRITANT-- EFFECTS CENTRAL NERVOUS SYSTEM -- HARMFUL OR FATAL IF SWALLOWED -- ASPIRATION HAZARD</b></p>
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### OVERVIEW

*High fire hazard; Keep away from heat, spark, open flame, and other ignition sources.*

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs). Contact may cause eye, skin and mucous membrane irritation. Harmful if absorbed through the skin. Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects.

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.

### EYES

Moderate irritant. Contact with liquid or vapor may cause irritation.

### SKIN

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

### INGESTION

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

### INHALATION

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

**WARNING:** the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

### CHRONIC EFFECTS and CARCINOGENICITY

Contains benzene, a regulated human carcinogen. Benzene has the potential to cause anemia and other blood diseases, including leukemia, after repeated and prolonged exposure. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with systemic toxicity. See also Section 11 - Toxicological Information.

### MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

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

## 4. FIRST AID MEASURES

### EYES

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 mm. Hold Eyelids open to ensure adequate flushing. Seek medical attention.

### SKIN

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.



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### INGESTION

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

### INHALATION

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. Seek medical attention immediately.

## 5. FIRE FIGHTING MEASURES

### FLAMMABLE PROPERTIES:

FLASH POINT: -45 °F (-43°C)  
AUTOIGNITION TEMPERATURE: highly variable; >530 °F (>280 °C)  
OSHA/NFPA FLAMMABILITY CLASS: 1A (flammable liquid)  
LOWER EXPLOSIVE LIMIT (%): 1.4%  
UPPER EXPLOSIVE LIMIT (%): 7.6%

### FIRE AND EXPLOSION HAZARDS

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source 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.

### EXTINGUISHING MEDIA

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO<sub>2</sub>, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

During certain times of the year and/or in certain geographical locations, gasoline may contain additional additives. Firefighting foam suitable for polar solvents is recommended for fuel with greater than 10% oxygenate concentration - refer to NFPA 11 'Low Expansion Foam -1994 Edition.'

### FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

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 with full face piece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. 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 fire fighting foam.

*See Section 16 for the NFPA 704 Hazard Rating.*

## 6. ACCIDENTAL RELEASE MEASURES –

### **ACTIVATE FACILITY SPCC, SPILL CONTINGENCY or EMERGENCY PLAN.**

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Do not touch or walk-through spilled material. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.



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Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with dry earth, sand or other non-combustible, inert oil absorbing materials. 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 protective equipment (see Section 8). Local and / or Federal notification may be required if this material is released to the environment (see Section 15 for additional information).

### 7. HANDLING and STORAGE

#### HANDLING PRECAUTIONS

- USE ONLY AS A MOTOR FUEL
- DO NOT SIPHON BY MOUTH

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for “switch loading” must be followed 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 PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. 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.

Store in a well-ventilated area. Protect containers from damage and vehicular traffic. Post “No Smoking” signs in product storage areas. This storage area should comply with NFPA 30 “Flammable and Combustible Liquid Code”. Avoid storage near incompatible materials. 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”.

#### WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. 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.

### 8. EXPOSURE CONTROLS and PERSONAL PROTECTION

#### ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and Flammability limits, particularly in confined spaces.

#### EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.



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### SKIN PROTECTION

Gloves constructed of nitrile or neoprene are recommended. 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 PROTECTION

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible 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.

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.

## 9. PHYSICAL and CHEMICAL PROPERTIES

### APPEARANCE

A clear, water-like liquid

### ODOR

A strong, characteristic aromatic hydrocarbon odor. Oxygenated gasoline with Ethanol may have a alcohol-like odor and is detectable at a lower concentration than non-oxygenated gasoline.

### ODOR THRESHOLD

	<u>Odor Detection</u>	<u>Odor Recognition</u>
Non-oxygenated gasoline:	0.5-0.6 ppm	0.8-1.1 ppm
Gasoline with 10% Ethanol:	0.2-0.3 ppm	0.4-0.7 ppm

## BASIC PHYSICAL PROPERTIES

BOILING RANGE:	85 to 437 °F (39 to 200 °C)
VAPOR PRESSURE:	7-15 RVP @ 100 °F (38 °C) (275-475mm Hg @ 68 °F (20 °C)
VAPOR DENSITY (air = 1):	AP 3 to 4
SPECIFIC GRAVITY (H <sub>2</sub> O = 1):	0.76
EVAPORATION RATE:	10-11 (n-butyl acetate = 1)
PERCENT VOLATILES:	100%
SOLUBILITY (H <sub>2</sub> O):	Non-oxygenated gasoline-negligible (<0.1% @ 77°F). Gasoline with 10% Ethanol has greater solubility than other oxygenates

## 10. STABILITY and REACTIVITY

STABILITY: Stable. Hazardous polymerization will not occur.

### CONDITIONS TO AVOID

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

### INCOMPATIBLE MATERIALS

Keep away from strong acids and oxidizers.

### HAZARDOUS DECOMPOSITION PRODUCTS

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



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### 11. TOXICOLOGICAL PROPERTIES

#### ACUTE TOXICITY

Acute Dermal LD50 (rabbits): >5 ml/kg Acute Oral LD50 (rat): 18.75 ml/kg  
Primary dermal irritation (rabbits): slightly irritating Draize eye irritation (rabbits): non-irritating  
Guinea pig sensitization: negative

#### CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenicity: OSHA: NO IARC: YES - 2B NTP: NO ACGIH: YES (A3)

IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain.

This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. The NTP, ARC, OSHA and ACGIH list benzene as a human carcinogen.

### 12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations. (See Section 15 for additional information).

### 13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options.

### 14. TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME: Gasoline  
DOT HAZARD CLASS and PACKING GROUP: 3, PG II  
DOT IDENTIFICATION NUMBER: UN 1203  
DOT SHIPPING LABEL: FLAMMABLE LIQUID  
EMERGENCY RESPONSE GUIDEBOOK GUIDE NUMBER: 128

### 15. REGULATORY INFORMATION

#### U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. 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.

#### 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.

#### CERCLA SECTION 103 and SARA SECTION 304 (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 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.



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### SARA SECTION 3111312- HAZARD CLASSES

<u>ACUTE HEALTH</u>	<u>CHRONIC HEALTH</u>	<u>FIRE</u>	<u>SUDDEN RELEASE OF PRESSURE</u>	<u>REACTIVE</u>
X	X	X	--	--

### SARA SECTION 313- SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

<u>INGREDIENT NAME (CAS NUMBER)</u>	<u>CONCENTRATION WT. PERCENT</u>	<u>EXPOSURE LIMITS</u>
Benzene (71-43-2)	0.1 to 4.9	See Section 2
Benzene (71-43-2) for reformulated gasoline	0.1 to 1.3*	See Section 2
Ethyl benzene (100-41-4)	<4	OSHA PEL-TWA: 100 ppm ACGIH TLV-TWA/STEL: 100/125 ppm
n-Hexane (110-54-3)	0.5 to 4	OSHA PEL-TWA: 500 ppm ACGIH TLV-TWA: 50 ppm
Toluene (108-88-3)	0 to 15	See Section 2
1,2,4- Trimethylbenzene (95-63-6)	<5	OSHA PEL-TWA/STEL: 25 ppm ACGIH TLV-TWA/STEL: 25 ppm
Xylene, mixed isomers (1330-20-7)	0 to 15	See Section 2
Ethyl Alcohol (Ethanol)	0-10	OSHA PEL-TWA/STEL: 1000 ppm ACGIH TLV-TWA: 1000 ppm

### 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.

### CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 2 (Flammable Liquid)

Class D, Division 2A (Very toxic by other means) and Class D, Division 2B (Toxic by other means)

### **16. OTHER INFORMATION**

NFPA® HAZARD RATING  
 HEALTH: 1 Slight  
 FIRE: 3 Serious  
 REACTIVITY: 0 Minimal

HMIS® HAZARD RATING  
 HEALTH: 1\* Slight  
 FIRE: 3 Serious  
 REACTIVITY: 0 Minimal  
 \*CHRONIC

### ABBREVIATIONS:

AP = Approximately    <= Less than    >= Greater than  
 N/A = Not Applicable    N/D = Not Determined    ppm= parts per million

### ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists	OSHA	U.S. Occupational Safety & Health Administration
API	American Petroleum Institute	PEL	Permissible Exposure Limit (OSHA)
AIHA	American Industrial Hygiene Association	RCRA	Resource Conservation and Recovery Act
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act	REL	Recommended Exposure Limit (NIOSH)
ANSI	American National Standards Institute	SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
DOT	U.S. Department of Transportation	SCBA	Self-Contained Breathing Apparatus
EPA	U.S. Environmental Protection Agency	SPCC	Spill Prevention, Control, and Countermeasures
HMIS	Hazardous Materials Information System		





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IARC	International Agency For Research On Cancer	STEL	Short-Term Exposure Limit (generally 15 minutes)
MSHA	Mine Safety and Health Administration	TLV	Threshold Limit Value (ACGIH)
NFPA	National Fire Protection Association	TSCA	Toxic Substances Control Act
NIOSH	National Institute of Occupational Safety and Health	TWA	Time Weighted Average (8 hr.)
NOIC	Notice of Intended Change	WEEL	Workplace Environmental Exposure Level (AIHA)
NTP	National Toxicology Program	WHMIS	Canadian Workplace Hazardous Materials Information System
OPA	Oil Pollution Act of 1990		

### DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

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Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.