SAFETY DATA SHEET

Conventional Blendstock for Oxygenate Blending

Section 1. Identification

GHS product identifier : Conventional Blendstock for Oxygenate Blending

Chemical name : Gasoline

Synonyms : CBOB; low octane base; automobile motor fuel base; unfinished gasoline

Code : CBOB

MSDS # : CBOB

Supplier's details : CITGO Petroleum Corporation
P.O. Box 4689
Houston, TX 77210
sdsvend@citgo.com

Emergency telephone number (with hours of operation) : Technical Contact: (800) 248-4684
Medical Emergency: (832) 486-4700
CHEMTREC Emergency: (800) 424-9300
(United States Only)

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 2
SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2B
GERM CELL MUTAGENICITY - Category 1B
CARCINOGENICITY - Category 1B
TOXIC TO REPRODUCTION (Fertility) - Category 2
TOXIC TO REPRODUCTION (Unborn child) - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (central nervous system (CNS)) - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
ASPIRATION HAZARD - Category 1
AQUATIC HAZARD (ACUTE) - Category 1
AQUATIC HAZARD (LONG-TERM) - Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Highly flammable liquid and vapor.
Causes skin and eye irritation.
May cause genetic defects.
May cause cancer.
Suspected of damaging fertility or the unborn child.
May be fatal if swallowed and enters airways.
May cause damage to organs. (central nervous system (CNS))
May cause respiratory irritation.
May cause drowsiness or dizziness.

Section 2. Hazards identification

May cause damage to organs through prolonged or repeated exposure.
Very toxic to aquatic life with long lasting effects.

Precautionary statements

General : Do not syphon by mouth.

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Response : Collect spillage. Get medical attention if you feel unwell. IF exposed or concerned: Call a POISON CENTER or physician. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage : Store locked up. Store in a well-ventilated place. Keep cool.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements : Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and receiving equipment. These alone may be insufficient to remove static electricity.

Hazards not otherwise classified : Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor may cause flash fire or explosion. Prolonged or repeated contact may dry skin and cause irritation. Repeated or prolonged overexposure to certain chemicals in this product may exacerbate the hearing loss effects associated with noise exposure.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : Gasoline

Other means of identification : CBOB; low octane base; automobile motor fuel base; unfinished gasoline

CAS number/other identifiers

Ingredient name	%	CAS number
Gasoline	>99	86290-81-5
Pentanes	10 - 30	109-66-0
Toluene	10 - 30	108-88-3
Xylene	10 - 30	1330-20-7
Hexanes, other isomers	10 - 30	*
Heptane	10 - 30	142-82-5
Butane	3 - 7	106-97-8
Benzene, trimethyl-	3 - 7	25551-13-7
n-Hexane	3 - 7	110-54-3
Benzene	3 - 7	71-43-2
Cumene	1 - 5	98-82-8
Ethylbenzene	1 - 5	100-41-4
Cyclohexane	1 - 5	110-82-7
Naphthalene	1 - 5	91-20-3

* = Various ** = Mixture *** = Proprietary

Section 3. Composition/information on ingredients

Any concentration shown as a range is to protect confidentiality or is due to process variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention. If necessary, call a poison center or physician.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes eye irritation.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation. Breathing high concentrations can cause irregular heartbeats which can be fatal.

Skin contact : Causes skin irritation. Defatting to the skin.

Ingestion : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Breathing high concentrations can cause irregular heartbeats which may be fatal.
Repeated or prolonged overexposure to solvents can cause brain or other nervous system damage. The symptoms can include the loss of memory, the loss of intellectual capacity and the loss of coordination.
Repeated or prolonged overexposure to certain chemicals in this product may exacerbate the hearing loss effects associated with noise exposure.
Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache

Section 4. First aid measures

drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation
redness
dryness
cracking

Ingestion : Adverse symptoms may include the following:
nausea or vomiting

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : This material (or a component) may sensitize the heart to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrthymias in individuals exposed to this material. If ingested, this material presents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended. 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 a Trendelenburg and left lateral decubitus position.

Specific treatments : Treat symptomatically and supportively.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that gas or vapor is still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use caution when applying carbon dioxide in confined spaces.
SMALL FIRE: Steam, CO_2, dry chemical or inert gas (e.g., nitrogen). LARGE FIRE: Use foam, water fog or water spray. Water fog and spray are effective in cooling containers and adjacent structures. However, water can cause frothing and/or may not extinguish the fire. Water can be used to cool the external walls of vessels to prevent excessive pressure, ignition or explosion.

Unsuitable extinguishing media : Do not use water jet.

Specific hazards arising from the chemical : Highly flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. This product is a poor conductor of electricity and can become electrostatically charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. This liquid may accumulate static electricity when filling properly grounded containers. Static accumulation may be significantly increased by the presence of small quantities of water or other contaminants. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Section 5. Fire-fighting measures

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Use only as a motor fuel. Do not syphon by mouth. Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container. Non equilibrium conditions may increase the fire hazard associated with this product. Always bond receiving containers to the fill pipe before and during loading. Always confirm that receiving container is properly grounded. Bonding and grounding alone may be inadequate to eliminate fire and explosion hazards. Carefully review operations that may increase the risks such as tank and container filling, tank

Section 7. Handling and storage

cleaning, sampling, gauging, loading, filtering, mixing, agitation, etc. In addition to bonding and grounding, efforts to mitigate the hazards may include, but are not limited to, ventilation, inerting and/or reduction of transfer velocities.
Always keep nozzle in contact with the container throughout the loading process. Do NOT fill any portable container in or on a vehicle.

Special precautions, such as reduced loading rates and increased monitoring, must be observed during "switch loading" operations (i.e., loading this material in tanks or shipping compartments that previously contained a dissimilar product).

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Bulk Storage Conditions: Maintain all storage tanks in accordance with applicable regulations. Use necessary controls to monitor tank inventories. Inspect all storage tanks on a periodic basis. Test tanks and associated piping for tightness. Maintain the automatic leak detection devices to assure proper working condition.

Head spaces in tanks and other containers may contain a mixture of air and vapor in the flammable range. Vapor may be ignited by static discharge. Storage area must meet OSHA requirements and applicable fire codes. Additional information regarding the design and control of hazards associated with the handling and storage of flammable and combustible liquids may be found in professional and industrial documents including, but not limited to, the National Fire Protection Association (NFPA) publications NFPA 30 ("Flammable and Combustible Liquid Code"), NFPA 77 ("Recommended Practice on Static Electricity") and the American Petroleum Institute (API) Recommended Practice 2003, (“Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents").

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Gasoline

ACGIH TLV (United States, 4/2014).
TWA: 300 ppm 8 hours.
TWA: 890 mg/m³ 8 hours.
STEL: 500 ppm 15 minutes.
STEL: 1480 mg/m³ 15 minutes.

Toluene

OSHA PEL Z2 (United States, 2/2013).
TWA: 200 ppm 8 hours.
CEIL: 300 ppm
AMP: 500 ppm 10 minutes.
ACGIH TLV (United States, 4/2014).
TWA: 20 ppm 8 hours.

Xylene

ACGIH TLV (United States, 4/2014).
TWA: 100 ppm 8 hours.
TWA: 434 mg/m³ 8 hours.
STEL: 150 ppm 15 minutes.
STEL: 651 mg/m³ 15 minutes.
OSHA PEL (United States, 2/2013).
TWA: 100 ppm 8 hours.
TWA: 435 mg/m³ 8 hours.

Section 8. Exposure controls/personal protection

Pentanes	**ACGIH TLV (United States, 4/2014).** TWA: 1000 ppm 8 hours. **OSHA PEL (United States, 2/2013).** TWA: 1000 ppm 8 hours. TWA: 2950 mg/m³ 8 hours.
Hexanes, mixture of isomers	**ACGIH (United States).** TWA: 500 ppm 8 hours. STEL: 1000 ppm 15 minutes.
Nonane	**ACGIH TLV (United States, 4/2014).** TWA: 200 ppm 8 hours. TWA: 1050 mg/m³ 8 hours.
n-hexane	**ACGIH TLV (United States, 4/2014).** **Absorbed through skin.** TWA: 50 ppm 8 hours. **OSHA PEL (United States, 2/2013).** TWA: 500 ppm 8 hours. TWA: 1800 mg/m³ 8 hours.
Benzene, trimethyl-	**ACGIH TLV (United States, 4/2014).** TWA: 25 ppm 8 hours. TWA: 123 mg/m³ 8 hours.
benzene	**ACGIH TLV (United States, 4/2014).** **Absorbed through skin.** TWA: 0.5 ppm 8 hours. TWA: 1.6 mg/m³ 8 hours. STEL: 2.5 ppm 15 minutes. STEL: 8 mg/m³ 15 minutes. **OSHA PEL (United States, 2/2013).** TWA: 1 ppm 8 hours. STEL: 5 ppm 15 minutes. **OSHA PEL Z2 (United States, 2/2013).** TWA: 10 ppm 8 hours. CEIL: 25 ppm AMP: 50 ppm 10 minutes.
Cumene	**ACGIH TLV (United States, 4/2014).** TWA: 50 ppm 8 hours. **OSHA PEL (United States, 2/2013).** **Absorbed through skin.** TWA: 50 ppm 8 hours. TWA: 245 mg/m³ 8 hours.
Ethylbenzene	**ACGIH TLV (United States, 4/2014).** TWA: 20 ppm 8 hours. **OSHA PEL (United States, 2/2013).** TWA: 100 ppm 8 hours. TWA: 435 mg/m³ 8 hours.
Naphthalene	**ACGIH (United States). Absorbed through skin.** TWA: 10 ppm 8 hours. STEL: 15 ppm 15 minutes. **OSHA (United States).** TWA: 10 ppm 8 hours. **ACGIH TLV (United States, 4/2014).** **Absorbed through skin.** TWA: 10 ppm 8 hours. TWA: 52 mg/m³ 8 hours. **OSHA PEL (United States, 2/2013).** TWA: 10 ppm 8 hours. TWA: 50 mg/m³ 8 hours.

Section 8. Exposure controls/personal protection

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, vapor controls, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles. Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection : Avoid skin contact with liquid. Chemical-resistant gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Recommended: Heavy duty, industrial grade chemically resistant gloves constructed of nitrile, neoprene, polyethylene, fluoroelastomer rubber or polyvinyl chloride as approved by glove manufacturer. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. Leather gloves are not protective for liquid contact.

Body protection : Avoid skin contact with liquid. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Avoid skin contact with liquid. Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Leather boots are not protective for liquid contact.

Respiratory protection : Avoid inhalation of gases, vapors, mists or dusts. Use a properly fitted, air-purifying or supplied-air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If an air purifying respirator is appropriate, use one equipped with cartridges rated for organic vapors.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid. [Mobile liquid.]

Color : Transparent, clear to amber or red.

Odor : Pungent, characteristic gasoline.

pH : Not applicable

Melting point : <-60°C (<-76°F)

Boiling point : 38 to 204°C (100.4 to 399.2°F)

Flash point : Closed cup: -43°C (-45.4°F) [Estimated]

Evaporation rate : 7.5 (n-butyl acetate. = 1)

Section 9. Physical and chemical properties

Lower and upper explosive (flammable) limits : Lower: 1%
Upper: 8%

Vapor pressure : 29.3 to 100 kPa (220 to 750 mm Hg) [room temperature]

Vapor density : 3 to 4 [Air = 1]

Relative density : 0.7 to 0.8

Density lbs/gal : Estimated 6.25 lbs/gal

Density gm/cm^3 : Not available.

Solubility : Very slightly soluble in the following materials: cold water.

Partition coefficient: n-octanol/water : 2 to 7

Auto-ignition temperature : 280°C (536°F)

Flow time (ISO 2431) : Not available.

Viscosity : Kinematic (room temperature): <0.01 cm^2/s (<1 cSt)
Kinematic (40°C (104°F)): 0.004 to 0.009 cm^2/s (0.4 to 0.9 cSt)

Viscosity SUS : Estimated 3 SUS @104 F

Conductivity : <50 picosiemens/meter (unadditized)

Section 10. Stability and reactivity

Reactivity : Not expected to be Explosive, Self-Reactive, Self-Heating, or an Organic Peroxide under US GHS Definition(s).

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas. Do not store with strong oxidizing agents.

Incompatible materials : Reactive or incompatible with the following materials:
oxidizing materials

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Toluene	LC50 Inhalation Vapor	Rat	>20 mg/l	4 hours
	LD50 Dermal	Rabbit	12267 mg/kg	-
	LD50 Oral	Rat - Male	5580 mg/kg	-
	TDLo Oral	Rat	1000 mg/kg	-
Xylene	LC50 Inhalation Vapor	Rat	5000 ppm	4 hours
	LC50 Inhalation Vapor	Rat	6700 ppm	4 hours
	LD50 Oral	Mouse	2119 mg/kg	-
	LD50 Oral	Rat	4300 mg/kg	-
	LD50 Oral	Rat	4300 mg/kg	-
Hexanes, mixture of isomers	LC50 Inhalation Vapor	Rat	48000 ppm	4 hours
Heptane	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
Butane	LC50 Inhalation Vapor	Mouse	680000 mg/m³	2 hours

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	LC50 Inhalation Vapor	Rat	658000 mg/m³	4 hours
Benzene, trimethyl-	LD50 Oral	Rat	8970 mg/kg	-
n-hexane	LC50 Inhalation Vapor	Rat	48000 ppm	4 hours
	LD50 Oral	Rat	15840 mg/kg	-
benzene	LC50 Inhalation Vapor	Rat	10000 ppm	7 hours
	LD50 Oral	Mammal - species unspecified	5700 mg/kg	-
	LD50 Oral	Mouse	4700 mg/kg	-
	LD50 Oral	Rat	6400 mg/kg	-
Cumene	LC50 Inhalation Vapor	Mouse	10 g/m³	7 hours
	LD50 Dermal	Rabbit	12300 uL/kg	-
	LD50 Oral	Rat	2.9 g/kg	-
	LD50 Oral	Rat	4000 mg/kg	-
Ethylbenzene	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-
Cyclohexane	LC50 Inhalation Vapor	Mouse	70000 mg/m³	2 hours
	LD50 Oral	Rat	6240 mg/kg	-
	LD50 Oral	Rat	12705 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
	LDLo Oral	Rabbit	5500 mg/kg	-
Naphthalene	LD50 Oral	Rat	490 mg/kg	-

Conclusion/Summary : **pentane**: Studies of pentane isomers in laboratory animals indicate exposure to extremely high levels (roughly 10 vol.%) may induce cardiac arrhythmias (irregular heartbeats) which may be serious or fatal.
toluene: Deliberate inhalation of toluene at high concentrations (e.g., glue sniffing and solvent abuse) can cause CNS depression, cardiac arrhythmias and death.
xylene: Overexposure to xylene may cause upper respiratory tract irritation, headache, cyanosis, blood serum changes, CNS 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 over-exposure.
heptane: Heptane is a CNS depressant and narcosis at elevated concentrations.
Butane: 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.
n-hexane: n-Hexane is a CNS depressant and narcosis at elevated concentrations.
cumene: Overexposure to cumene may cause upper respiratory tract irritation and CNS depression.
cyclohexane: Cyclohexane is a CNS depressant and narcosis at elevated concentrations.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Toluene	Eyes - Mild irritant	Rabbit	-	0.5 minutes 100 milligrams	-
	Eyes - Mild irritant	Rabbit	-	870 Micrograms	-
	Skin - Mild irritant	Pig	-	24 hours 250 microliters	-
	Skin - Mild irritant	Rabbit	-	435 milligrams	-
	Skin - Moderate irritant	Rabbit	-	500 milligrams	-
Xylene	Skin - Mild irritant	Rat	-	8 hours 60 microliters	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Moderate irritant	Rabbit	-	100 Percent	-
Benzene, trimethyl-	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500	-

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				milligrams	
n-Hexane	Eyes - Mild irritant	Rabbit	-	10 milligrams	-
Benzene	Eyes - Moderate irritant	Rabbit	-	88 milligrams	-
	Skin - Mild irritant	Rat	-	8 hours 60 microliters	-
	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams	-
Cumene	Eyes - Mild irritant	Rabbit	-	86 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 10 milligrams	-
Ethylbenzene	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams	-
Naphthalene	Skin - Mild irritant	Rabbit	-	495 milligrams	-

Skin : **xylene**: May cause skin irritation.
cyclohexane: Cyclohexane can cause eye, skin and mucous membrane irritation.

Eyes : **xylene**: May cause eye irritation.

Respiratory : **xylene**: May cause respiratory irritation.

Sensitization

Not available.

Skin : **toluene**: Non-sensitizer to skin.

Respiratory : **toluene**: Non-sensitizer to lungs.

Mutagenicity

Not available.

Conclusion/Summary : **heptane**: n-heptane was not mutagenic in the Salmonella/microsome (Ames) assay.
benzene: Some studies of workers exposed to benzene have shown an association with increased rates of chromosome aberrations in circulating lymphocytes.
naphthalene: Findings from a large number of bacterial and mammalian cell mutation assays have been negative. A few studies have shown chromosomal effects (elevated levels of Sister Chromatid Exchange or chromosomal aberrations) *in vitro.*

Carcinogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Benzene	Positive - Inhalation - TD	Rat - Female	-	-

Conclusion/Summary : **Gasoline**: IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic to humans. Exposure to wholly vaporized unleaded gasoline was associated wiht kidney cancers in male rats and liver tumors in female mice. The male rat kidney tumors are specific to that species and are not relevant to human health. The significance of the tumors identified in female mice is unclear.
benzene: Studies of workers exposed to benzene show clear evidence that over-exposure can cause cancer of the blood forming organs (acute myelogenous leukemia) and aplastic anemia. Also, studies indicate repeated over-exposure to benzene may be associated with other types of leukemia and other blood disorders, including myelodysplastic syndromes. Studies in laboratory animals indicate that prolonged, repeated exposure to high levels of benzene vapor can cause bone marrow suppression and cancer in multiple organ systems.
cumene: Cumene exhibited hyperplasia of the epithelial tissues of the nose in NTP animal studies. Exposed male and female mice experienced metaplasia and hyperplasia of the lung. Also, male mice exhibited nonneoplastic lesions in the forestomach and liver. Adenomas of the respiratory epithelium of the nose were observed in male and female rats. Male rats exposed to cumene exhibited increased incidences of renal tubule adenoma or carcinoma (combined) as well as interstitial cell adenoma of the testis. Adenomas and carcinomas of the lung were increased in male and female mice exposed to cumene. The relevance of these findings to humans is not clear at this time. IARC has classified cumene as “possibly carcinogenic to humans” (Group 2B). In addition, NTP has determined cumene is reasonably anticipated to be a human carcinogen based on sufficient evidence of carcinogenicity from studies in experimental animals.
ethylbenzene: Findings from a 2-year inhalation study in rodents conducted by NTP

Section 11. Toxicological information

were as follows: Effects were observed only at the highest exposure level (750 ppm). At this level the incidence of renal tumors was elevated in male rats (tubular carcinomas) and female rats (tubular adenomas). Also, the incidence of tumors 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).

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.

Classification

Product/ingredient name	OSHA	IARC	NTP
Toluene	-	3	-
Xylene	-	3	-
Benzene	+	1	Known to be a human carcinogen.
Cumene	-	2B	Reasonably anticipated to be a human carcinogen.
Ethylbenzene	-	2B	-
Naphthalene	-	2B	Reasonably anticipated to be a human carcinogen.

Reproductive toxicity

Not available.

Conclusion/Summary : **toluene**: Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. Several studies of workers suggest long-term exposure may be related to small increases in spontaneous abortions and changes in some gonadotropic hormones. However, the weight of evidence does not indicate toluene is a reproductive hazard to humans. Studies in laboratory animals indicate some changes in reproductive organs following high levels of exposure, but no significant effects on mating performance or reproduction were observed. Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. Findings in laboratory animals were largely negative. Positive findings include small increases in minor skeletal and visceral malformations and developmental delays following very high levels of maternal exposure.

n-hexane: In laboratory studies, prolonged exposure to elevated concentrations of n-hexane was associated with decreased sperm count and degenerative changes in the testicles of rats.

benzene: 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 over-exposed to benzene. Studies in laboratory animals 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.

ethylbenzene: Studies in laboratory animals indicate limited evidence of renal malformations, resorptions, and developmental delays following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time.

Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Benzene	Negative - Inhalation	Rat	-	-

Conclusion/Summary : No additional information.

Specific target organ toxicity (single exposure)

Section 11. Toxicological information

Name	Category	Route of exposure	Target organs
Gasoline	Category 3	Not applicable.	Narcotic effects
Toluene	Category 3	Not applicable.	Narcotic effects
Pentanes	Category 3	Not applicable.	Narcotic effects
Hexanes, mixture of isomers	Category 3	Not applicable.	Narcotic effects
Nonane	Category 3	Not applicable.	Narcotic effects
n-hexane	Category 3	Not applicable.	Narcotic effects
Benzene, trimethyl-	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
Cumene	Category 3	Not applicable.	Respiratory tract irritation
Ethylbenzene	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Toluene	Category 2	Inhalation	kidneys
Benzene, trimethyl-	Category 2	Not determined	central nervous system (CNS)
n-hexane	Category 2	Inhalation	peripheral nervous system
benzene	Category 1	Inhalation	blood system

Aspiration hazard

Name	Result
Pentanes	ASPIRATION HAZARD - Category 1
Toluene	ASPIRATION HAZARD - Category 1
Hexanes, other isomers	ASPIRATION HAZARD - Category 1
Heptane	ASPIRATION HAZARD - Category 1
Benzene, trimethyl-	ASPIRATION HAZARD - Category 1
n-Hexane	ASPIRATION HAZARD - Category 1
Benzene	ASPIRATION HAZARD - Category 1
Cumene	ASPIRATION HAZARD - Category 1
Ethylbenzene	ASPIRATION HAZARD - Category 1
Cyclohexane	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact : Causes eye irritation.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation. Breathing high concentrations can cause irregular heartbeats which can be fatal.

Skin contact : Causes skin irritation. Defatting to the skin.

Ingestion : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Section 11. Toxicological information

Inhalation : Breathing high concentrations can cause irregular heartbeats which may be fatal.
Repeated or prolonged overexposure to solvents can cause brain or other nervous system damage. The symptoms can include the loss of memory, the loss of intellectual capacity and the loss of coordination.
Repeated or prolonged overexposure to certain chemicals in this product may exacerbate the hearing loss effects associated with noise exposure.
Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation
redness
dryness
cracking

Ingestion : Adverse symptoms may include the following:
nausea or vomiting

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : May cause damage to organs through prolonged or repeated exposure.

Carcinogenicity : May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : May cause genetic defects.

Teratogenicity : Suspected of damaging the unborn child.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : Suspected of damaging fertility.

Section 12. Ecological information

Toxicity

Section 12. Ecological information

Product/ingredient name	Result	Species	Exposure
Toluene	Acute EC50 12500 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 11600 µg/l Fresh water	Crustaceans - Gammarus pseudolimnaeus - Adult	48 hours
	Acute EC50 6000 µg/l Fresh water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	48 hours
	Acute LC50 5500 µg/l Fresh water	Fish - Oncorhynchus kisutch - Fry	96 hours
	Chronic NOEC 1000 µg/l Fresh water	Daphnia - Daphnia magna	21 days
Xylene	Acute EC50 90 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute LC50 8.5 ppm Marine water	Crustaceans - Palaemonetes pugio - Adult	48 hours
	Acute LC50 8500 µg/l Marine water	Crustaceans - Palaemonetes pugio	48 hours
	Acute LC50 15700 µg/l Fresh water	Fish - Lepomis macrochirus - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Acute LC50 19000 µg/l Fresh water	Fish - Lepomis macrochirus	96 hours
	Acute LC50 13400 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute LC50 16940 µg/l Fresh water	Fish - Carassius auratus	96 hours
Heptane	Acute EC50 1.5 mg/l	Daphnia - Daphnia magna	48 hours
	Acute LC50 4 mg/l	Fish - Carassius auratus	24 hours
	Acute LC50 375000 µg/l Fresh water	Fish - Oreochromis mossambicus	96 hours
	Acute LC50 4924 ppm Fresh water	Fish - Gambusia affinis - Adult	96 hours
Benzene, trimethyl-	Acute LC50 5600 µg/l Marine water	Crustaceans - Palaemonetes pugio	48 hours
n-Hexane	Acute LC50 2500 µg/l Fresh water	Fish - Pimephales promelas	96 hours
Benzene	Acute EC50 29000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 1600000 µg/l Fresh water	Algae - Selenastrum sp.	96 hours
	Acute EC50 9230 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 21 mg/l Marine water	Crustaceans - Artemia salina	48 hours
	Acute LC50 5.28 ul/L Fresh water	Fish - Oncorhynchus gorbuscha - Fry	96 hours
	Chronic NOEC 98 mg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 1.5 to 5.4 ul/L Marine water	Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling)	4 weeks
Cumene	Acute EC50 2600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 7400 µg/l Fresh water	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute EC50 10600 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 2700 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
Ethylbenzene	Acute EC50 4600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 3600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 6530 µg/l Fresh water	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute EC50 2930 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 4200 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
Cyclohexane	Acute LC50 4530 µg/l Fresh water	Fish - Pimephales promelas	96 hours
Naphthalene	Acute EC50 1.6 ppm Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 2350 µg/l Marine water	Crustaceans - Palaemonetes pugio	48 hours
	Acute LC50 213 µg/l Fresh water	Fish - Melanotaenia fluviatilis - Larvae	96 hours
	Chronic NOEC 0.5 mg/l Marine water	Crustaceans - Uca pugnax - Adult	3 weeks
	Chronic NOEC 1.5 mg/l Fresh water	Fish - Oreochromis mossambicus	60 days

Section 12. Ecological information

Conclusion/Summary : Not available.

Persistence and degradability

Conclusion/Summary : **toluene**: Rapidly biodegradable in aerobic conditions.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Toluene	-	-	Readily
Benzene	-	-	Readily

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Toluene	2.73	8.3	low
Pentanes	3.45	171	low
Xylene	3.12	8.1 to 25.9	low
Heptane	4.66	552	high
Butane	2.89	-	low
Benzene, trimethyl-	3.4 to 3.8	-	low
n-hexane	4	501.187	high
benzene	2.13	4.27	low
Cumene	3.55	94.69	low
Ethylbenzene	3.6	-	low
Cyclohexane	3.44	167	low
Naphthalene	3.4	36.5 to 168	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times 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. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be 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.

RCRA classification : D001, D018

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Toluene; Benzene, methyl-	108-88-3	Listed	U220
Xylene	1330-20-7	Listed	U239
Benzene (I,T)	71-43-2	Listed	U019
Cumene (I); Benzene, (1-methylethyl)- (I)	98-82-8	Listed	U055
Cyclohexane (I); Benzene, hexahydro- (I)	110-82-7	Listed	U056
Naphthalene	91-20-3	Listed	U165

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	UN 1203	UN 1203	UN 1203
UN proper shipping name	Gasoline	Gasoline	Gasoline
Transport hazard class(es)	3 	3 	3 
Packing group	II	II	II
Environmental hazards	No.	Yes.	Yes.

Additional information

DOT Classification : Packaging instruction
Passenger aircraft
Quantity limitation: 5 L

Cargo aircraft
Quantity limitation: 60 L

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3), 2.7 (Marine pollutant mark).
The marine pollutant mark is not required when transported by road or rail.

ADR/RID : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Special provisions 640 (C)
Tunnel code (D/E)

IMDG : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.

IATA : **Cargo Aircraft Only** Quantity limitation: 60 L
Limited Quantities - Passenger Aircraft Quantity limitation: 5 L

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations :

United States inventory (TSCA 8b): All components are listed or exempted.

Clean Water Act (CWA) 307: toluene; benzene; ethylbenzene; naphthalene

Clean Water Act (CWA) 311: toluene; xylene; benzene; ethylbenzene; cyclohexane; naphthalene

This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.

SARA 302/304

Section 15. Regulatory information

Composition/information on ingredients

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : FLAMMABLE LIQUIDS - Category 2
SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2B
GERM CELL MUTAGENICITY - Category 1B
CARCINOGENICITY - Category 1B
TOXIC TO REPRODUCTION (Fertility) - Category 2
TOXIC TO REPRODUCTION (Unborn child) - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (central nervous system (CNS)) - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
ASPIRATION HAZARD - Category 1
HNOC - Static-accumulating flammable liquid

Composition/information on ingredients

Name	%	Classification
Gasoline	>99	FLAMMABLE LIQUIDS - Category 2 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2B GERM CELL MUTAGENICITY - Category 1B CARCINOGENICITY - Category 1B TOXIC TO REPRODUCTION (Fertility) - Category 2 TOXIC TO REPRODUCTION (Unborn child) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (central nervous system (CNS)) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 ASPIRATION HAZARD - Category 1 HNOC - Static-accumulating flammable liquid
Pentanes	10 - 30	FLAMMABLE LIQUIDS - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 ASPIRATION HAZARD - Category 1
Toluene	10 - 30	FLAMMABLE LIQUIDS - Category 2 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A TOXIC TO REPRODUCTION (Unborn child) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (central nervous system (CNS)) (inhalation) - Category 2 ASPIRATION HAZARD - Category 1
Xylene	10 - 30	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (REPEATED

Section 15. Regulatory information

		EXPOSURE) (hearing organs) - Category 2
Hexanes, other isomers	10 - 30	FLAMMABLE LIQUIDS - Category 2 SKIN IRRITATION - Category 2 TOXIC TO REPRODUCTION (Fertility) (inhalation) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 ASPIRATION HAZARD - Category 1
Heptane	10 - 30	FLAMMABLE LIQUIDS - Category 2 SKIN IRRITATION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 ASPIRATION HAZARD - Category 1
Butane	3 - 7	FLAMMABLE GASES - Category 1 GASES UNDER PRESSURE - Liquefied gas SIMPLE ASPHYXIANTS SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (central nervous system (CNS)) - Category 2
Benzene, trimethyl-	3 - 7	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (central nervous system (CNS)) - Category 2 ASPIRATION HAZARD - Category 1
n-Hexane	3 - 7	FLAMMABLE LIQUIDS - Category 2 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (peripheral nervous system) (inhalation) - Category 2 ASPIRATION HAZARD - Category 1
Benzene	3 - 7	FLAMMABLE LIQUIDS - Category 2 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A GERM CELL MUTAGENICITY - Category 1B CARCINOGENICITY - Category 1A SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (blood system) (inhalation) - Category 1 ASPIRATION HAZARD - Category 1
Cumene	1 - 5	FLAMMABLE LIQUIDS - Category 3 EYE IRRITATION - Category 2A CARCINOGENICITY (inhalation) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 ASPIRATION HAZARD - Category 1
Ethylbenzene	1 - 5	FLAMMABLE LIQUIDS - Category 2 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A CARCINOGENICITY (inhalation) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 ASPIRATION HAZARD - Category 1
Cyclohexane	1 - 5	FLAMMABLE LIQUIDS - Category 2

Section 15. Regulatory information

Naphthalene	1 - 5	SKIN IRRITATION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 ASPIRATION HAZARD - Category 1 FLAMMABLE SOLIDS - Category 2 ACUTE TOXICITY (oral) - Category 4 CARCINOGENICITY - Category 2

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	toluene xylene n-hexane benzene cumene ethylbenzene cyclohexane 1,2,4-trimethylbenzene naphthalene	108-88-3 1330-20-7 110-54-3 71-43-2 98-82-8 100-41-4 110-82-7 95-63-6 91-20-3	<30 <30 <10 <5 <5 <5 <4 <3 <3
Supplier notification	toluene xylene n-hexane benzene cumene ethylbenzene cyclohexane 1,2,4-trimethylbenzene naphthalene	108-88-3 1330-20-7 110-54-3 71-43-2 98-82-8 100-41-4 110-82-7 95-63-6 91-20-3	<30 <30 <10 <5 <5 <5 <4 <3 <3

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : The following components are listed: PENTANE; toluene; xylene; HEPTANE; N-HEPTANE; Butane; n-hexane; trimethylbenzene; BENZENE; cumene; ethylbenzene; cyclohexane; PSEUDOCUMENE; NAPHTHALENE

New York : The following components are listed: Toluene; Xylene mixed; Hexane; Benzene; Cumene; Benzene, 1-methylethyl-; Ethylbenzene; Cyclohexane; Benzene, hexahydro-; Naphthalene

New Jersey : The following components are listed: Gasoline

Pennsylvania : The following components are listed: Gasoline

California Prop. 65 Clear and Reasonable Warnings (2018)

⚠ **WARNING**: This product can expose you to Benzene, which is known to the State of California to cause cancer and birth defects or other reproductive harm. This product can expose you to chemicals including Gasoline, Cumene, Ethylbenzene, Naphthalene, Unleaded gasoline, which are known to the State of California to cause cancer, and Toluene, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Ingredient name	%	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Gasoline engine exhaust (condenstates / extracts)	99 - 100	Yes.	No.	No.	No.
Toluene	<30	No.	Yes.	No.	7000 µg/day (ingestion)
Benzene	<5	Yes.	Yes.	6.4 µg/day (ingestion) 13 µg/day (inhalation)	24 µg/day (ingestion) 49 µg/day (inhalation)
Cumene	<5	Yes.	No.	No.	No.
Ethylbenzene	<5	Yes.	No.	41 µg/day (ingestion)	No.

Section 15. Regulatory information

Naphthalene	<2	Yes.	No.	54 µg/day (inhalation) Yes.	No.

International regulations

WHMIS (Canada) : Class B-2: Flammable liquid
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Inventory list

United States : All components are listed or exempted.

Australia : All components are listed or exempted.

Canada : All components are listed or exempted.

China : Not determined.

Europe : All components are listed or exempted.

Japan : **Japan inventory (ENCS)**: Not determined.
Japan inventory (ISHL): Not determined.

Malaysia : Not determined.

New Zealand : All components are listed or exempted.

Philippines : All components are listed or exempted.

Republic of Korea : All components are listed or exempted.

Taiwan : All components are listed or exempted.

Thailand : Not determined.

Turkey : Not determined.

Viet Nam : Not determined.

Section 16. Other information

National Fire Protection Association (U.S.A.)

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
FLAMMABLE LIQUIDS - Category 2	On basis of test data
SKIN IRRITATION - Category 2	Calculation method
EYE IRRITATION - Category 2B	Expert judgment
GERM CELL MUTAGENICITY - Category 1B	Expert judgment
CARCINOGENICITY - Category 1B	Expert judgment
TOXIC TO REPRODUCTION (Fertility) - Category 2	Expert judgment
TOXIC TO REPRODUCTION (Unborn child) - Category 2	Expert judgment
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (central nervous system (CNS)) - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3	Expert judgment
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) -	Expert judgment

Section 16. Other information

Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 ASPIRATION HAZARD - Category 1 AQUATIC HAZARD (ACUTE) - Category 1 AQUATIC HAZARD (LONG-TERM) - Category 1	 Expert judgment Expert judgment Calculation method Calculation method

History

Date of printing : 3/2/2018

Date of issue/Date of revision : 2/27/2018

Date of previous issue : 2/27/2018

Version : 2

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : Not available.

Indicates information that has changed from previously issued version.

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