Material Safety Data Sheet

1. MATERIAL AND COMPANY IDENTIFICATION

Material Name : **Conventional Gasoline with EtOH**
Uses : Fuel for spark ignition engines designed to run on unleaded fuel.

Manufacturer/Supplier : **Shell Oil Products US**
PO BOX 4453
Houston, TX 77210-4453
USA
MSDS Request : 877-276-7285

Emergency Telephone Number
Spill Information : 877-242-7400
Health Information :

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Identity	CAS No.	Concentration
Gasoline		90.00 - 100.00 %
Ethanol	64-17-5	0.00 - 10.00 %

Contains Alkanes, Cycloalkanes, Alkenes and Aromatic Hydrocarbons, Mixture.
Contains 1,2,4 Tri-methyl-benzene, CAS# 95-63-6.
Contains Styrene, CAS # 100-42-5.
Contains Benzene, CAS # 71-43-2.
Contains Toluene, CAS # 108-88-3.
Contains Ethylbenzene, CAS # 100-41-4.
Contains n-Hexane, CAS # 110-54-3.
Contains Xylene (Mixed Isomers), CAS # 1330-20-7.
Contains Naphthalene, CAS # 91-20-3.
Contains Cyclohexane, CAS# 110-82-7.

3. HAZARDS IDENTIFICATION

Emergency Overview

Appearance and Odour : Bronze. Clear, bright liquid. Hydrocarbon.

Health Hazards : Harmful: may cause lung damage if swallowed. Irritating to skin. Vapours may cause drowsiness and dizziness. A component or components of this material may cause cancer. This product contains benzene which may cause leukaemia (AML - acute myelogenous leukaemia). May cause MDS (Myelodysplastic Syndrome).

Safety Hazards : Extremely flammable. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Electrostatic charges may be generated during handling. Electrostatic discharge may cause fire.

Environmental Hazards : Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Health Hazards

Inhalation	:	Vapours may cause drowsiness and dizziness. Slightly irritating to respiratory system.
Skin Contact	:	Irritating to skin.
Eye Contact	:	Moderately irritating to eyes.
Ingestion	:	Harmful: may cause lung damage if swallowed.
Other Information	:	Possibility of organ or organ system damage from prolonged exposure; see Chapter 11 for details. Target organ(s): Blood-forming organs. Peripheral nervous system. May cause heritable genetic damage. Possible risk of harm to the unborn child. A component or components of this material may cause cancer. This product contains benzene which may cause leukaemia (AML - acute myelogenous leukaemia). May cause MDS (Myelodysplastic Syndrome).
Signs and Symptoms	:	Skin irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blisters. If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever. The onset of respiratory symptoms may be delayed for several hours after exposure. Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness and death. Damage to blood-forming organs may be evidenced by: a) fatigue and anemia (RBC), b) decreased resistance to infection, and/or excessive bruising and bleeding (platelet effect). Peripheral nerve damage may be evidenced by impairment of motor function (incoordination, unsteady walk, or muscle weakness in the extremities, and/or loss of sensation in the arms and legs). Eye irritation signs and symptoms may include a burning sensation and a temporary redness of the eye. Auditory system effects may include temporary hearing loss and/or ringing in the ears.
Aggravated Medical Conditions	:	Pre-existing medical conditions of the following organ(s) or organ system(s) may be aggravated by exposure to this material: Blood-forming organs. Peripheral nervous system. Skin.
Environmental Hazards	:	Toxic to aquatic organisms. May cause long-term adverse effects in the environment. Unlike other gasoline components, ethanol is miscible with water.
Additional Information	:	This product is intended for use in closed systems only.

4. FIRST AID MEASURES

Inhalation	:	Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.
Skin Contact	:	Remove contaminated clothing. Immediately flush skin with large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling,

		pain and/or blisters occur, transport to the nearest medical facility for additional treatment. When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop.
Eye Contact	:	Flush eyes with water while holding eyelids open. Rest eyes for 30 minutes. If redness, burning, blurred vision, or swelling persist transport to the nearest medical facility for additional treatment.
Ingestion	:	If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath, chest congestion or continued coughing or wheezing.
Advice to Physician	:	Treat symptomatically. Persons on disulfiram (Antabuse®) therapy should be aware that the ethyl alcohol in this product is hazardous to them just as is alcohol from any source. Disulfiram reactions (vomiting, headache and even collapse) may follow ingestion of small amounts of alcohol and have also been described from skin contact.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Flash point	:	-40 °C / -40 °F (ASTM D-93 / PMCC)
Upper / lower Flammability or Explosion limits	:	1.3 - 7.6 %(V)
Auto ignition temperature	:	> 250 °C / 482 °F
Specific Hazards	:	Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Will float and can be reignited on surface water.
Suitable Extinguishing Media	:	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable Extinguishing Media	:	Do not use direct water jets on the burning product as they could cause a steam explosion and spread of the fire. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.
Protective Equipment for Firefighters	:	Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.
Additional Advice	:	Keep adjacent containers cool by spraying with water. If possible remove containers from the danger zone. If the fire cannot be extinguished the only course of action is to evacuate immediately. Contain residual material at affected sites to prevent material from entering drains (sewers), ditches, and waterways.

6. ACCIDENTAL RELEASE MEASURES

Avoid contact with spilled or released material. Immediately remove all contaminated clothing. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 of this Material Safety Data Sheet. Observe the relevant local and international regulations. Avoid contact with skin, eyes and clothing. Evacuate the area of all non-essential personnel. Ventilate contaminated area thoroughly. If contamination of sites occurs remediation may require specialist advice. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Take precautionary measures against static discharges.

Protective measures : Vapour can travel for considerable distances both above and below the ground surface. Underground services (drains, pipelines, cable ducts) can provide preferential flow paths. Do not breathe fumes, vapour. Take measures to minimise the effects on groundwater. Contain residual material at affected sites to prevent material from entering drains (sewers), ditches, and waterways. Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment (of product and fire fighting water) to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapour or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment.

Clean Up Methods : For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.
For small liquid spills (< 1 drum), transfer by mechanical means to a labelled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.

Additional Advice : Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Local authorities should be advised if significant spillages cannot be contained. Maritime spillages should be dealt with using a Shipboard Oil Pollution Emergency Plan (SOPEP), as required by MARPOL Annex 1 Regulation 26. U.S. regulations may require reporting releases of this material to the environment which exceed the reportable quantity (refer to Chapter 15) to the National Response Centre at (800) 424-8802. Under Section 311 of the Clean Water Act (CWA) this material is considered an oil. As such, spills into surface waters must be reported to the National Response Centre at (800) 424-8802. This material is covered by EPA's Comprehensive Environmental Response,

Compensation and Liability Act (CERCLA) Petroleum Exclusion. Therefore, releases to the environment may not be reportable under CERCLA.

7. HANDLING AND STORAGE

General Precautions : Avoid breathing vapours or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material. Air-dry contaminated clothing in a well-ventilated area before laundering. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Prevent spillages. Turn off all battery operated portable electronic devices (examples include: cellular phones, pagers and CD players) before operating gasoline pump. Do not use as a cleaning solvent or other non-motor fuel uses. Contaminated leather articles including shoes cannot be decontaminated and should be destroyed to prevent reuse. For comprehensive advice on handling, product transfer, storage and tank cleaning refer to the product supplier.

Handling : When using do not eat or drink. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Never siphon by mouth. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Avoid exposure.

Storage : Drum and small container storage: Keep containers closed when not in use. Drums should be stacked to a maximum of 3 high. Packaged product must be kept tightly closed and stored in a diked (bunded) well-ventilated area, away from, ignition sources and other sources of heat. Use properly labelled and closeable containers. Take suitable precautions when opening sealed containers, as pressure can build up during storage. Tank storage: Tanks must be specifically designed for use with this product. Bulk storage tanks should be diked (bunded). Locate tanks away from heat and other sources of ignition. Cleaning, inspection and maintenance of storage tanks is a specialist operation, which requires the implementation of strict procedures and precautions.

Product Transfer : Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (<= 1 m/sec until fill pipe submerged to twice its diameter, then <= 7 m/sec). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations. Wait 2 minutes after tank filling (for tanks such as those on road tanker vehicles) before opening hatches or manholes. Wait 30 minutes after tank filling (for large storage tanks) before opening hatches or manholes.

Recommended Materials	:	For containers, or container linings use mild steel, stainless steel. Aluminium may also be used for applications where it does not present an unnecessary fire hazard. Examples of suitable materials are: high density polyethylene (HDPE), polypropylene (PP), and Viton (FKM), which have been specifically tested for compatibility with this product. For container linings, use amine-adduct cured epoxy paint. For seals and gaskets use: graphite, PTFE, Viton A, Viton B.
Unsuitable Materials	:	Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Examples of materials to avoid are: natural rubber (NR), nitrile rubber (NBR), ethylene propylene rubber (EPDM), polymethyl methacrylate (PMMA), polystyrene, polyvinyl chloride (PVC), polyisobutylene. However, some may be suitable for glove materials.
Container Advice	:	Containers, even those that have been emptied, can contain explosive vapours. Do not cut, drill, grind, weld or perform similar operations on or near containers. Gasoline containers must not be used for storage of other products.
Additional Information	:	Ensure that all local regulations regarding handling and storage facilities are followed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Gasoline, low boiling point naphtha	ACGIH	TWA	300 ppm		
Gasoline, low boiling point naphtha	ACGIH	STEL	500 ppm		
Toluene	ACGIH	TWA	20 ppm		
Toluene	OSHA Z1A	TWA	100 ppm	375 mg/m3	
Toluene	OSHA Z1A	STEL	150 ppm	560 mg/m3	
Toluene	OSHA Z2	TWA	200 ppm		
Toluene	OSHA Z2	Ceiling	300 ppm		
Toluene	OSHA Z2	MAX. CONC	500 ppm		
Xylene, mixed isomers	ACGIH	TWA	100 ppm		
Xylene, mixed isomers	ACGIH	STEL	150 ppm		
Xylene, mixed isomers	OSHA Z1	PEL	100 ppm	435 mg/m3	

Xylene, mixed isomers	OSHA Z1A	TWA	100 ppm	435 mg/m3	
Xylene, mixed isomers	OSHA Z1A	STEL	150 ppm	655 mg/m3	
Ethanol	ACGIH	STEL	1,000 ppm		
Ethanol	OSHA Z1	PEL	1,000 ppm	1,900 mg/m3	
Ethanol	OSHA Z1A	TWA	1,000 ppm	1,900 mg/m3	
1,2,4-Trimethylbenzene	ACGIH	TWA	25 ppm		
1,2,4-Trimethylbenzene	OSHA Z1A	TWA	25 ppm	125 mg/m3	
Ethylbenzene	ACGIH	TWA	20 ppm		
Ethylbenzene	OSHA Z1	PEL	100 ppm	435 mg/m3	
Ethylbenzene	OSHA Z1A	TWA	100 ppm	435 mg/m3	
Ethylbenzene	OSHA Z1A	STEL	125 ppm	545 mg/m3	
Benzene	ACGIH	TWA	0.5 ppm		
Benzene	ACGIH	STEL	2.5 ppm		
Benzene	ACGIH	SKIN_DES			Can be absorbed through the skin.
Benzene	OSHA	TWA	1 ppm		
Benzene	OSHA	STEL	5 ppm		
Benzene	OSHA	OSHA_ACT	0.5 ppm		
Benzene	OSHA Z1A	TWA	1 ppm		
Benzene	OSHA Z1A	STEL	5 ppm		
Benzene	SHELL IS	TWA	0.5 ppm	1.6 mg/m3	
Benzene	SHELL IS	STEL	2.5 ppm	8 mg/m3	
Benzene	OSHA Z2	TWA	10 ppm		
Benzene	OSHA Z2	Ceiling	25 ppm		
Benzene	OSHA Z2	MAX. CONC	50 ppm		
n-hexane	ACGIH	TWA	50 ppm		
n-hexane	ACGIH	SKIN_DES			Can be absorbed through the skin.
n-hexane	OSHA Z1	PEL	500 ppm	1,800 mg/m3	
n-hexane	OSHA Z1A	TWA	50 ppm	180 mg/m3	
Cyclohexane	ACGIH	TWA	100 ppm		
Cyclohexane	OSHA Z1	PEL	300 ppm	1,050 mg/m3	
Cyclohexane	OSHA Z1A	TWA	300 ppm	1,050 mg/m3	
Naphthalene	ACGIH	TWA	10 ppm		

Naphthalene	ACGIH	STEL	15 ppm		
Naphthalene	ACGIH	SKIN_DES			Can be absorbed through the skin.
Naphthalene	OSHA Z1	PEL	10 ppm	50 mg/m3	
Naphthalene	OSHA Z1A	TWA	10 ppm	50 mg/m3	
Naphthalene	OSHA Z1A	STEL	15 ppm	75 mg/m3	
Styrene	ACGIH	TWA	20 ppm		
Styrene	ACGIH	STEL	40 ppm		
Styrene	OSHA Z1A	TWA	50 ppm	215 mg/m3	
Styrene	OSHA Z1A	STEL	100 ppm	425 mg/m3	
Styrene	OSHA Z2	TWA	100 ppm		
Styrene	OSHA Z2	Ceiling	200 ppm		
Styrene	OSHA Z2	MAX. CONC	600 ppm		

Additional Information : Shell has adopted as Interim Standards the OSHA Z1A values that were established in 1989 and later rescinded.
SHELL IS is the Shell Internal Standard. Skin notation means that significant exposure can also occur by absorption of liquid through the skin and of vapour through the eyes or mucous membranes.

Biological Exposure Index (BEI) - See reference for full details

Material	Determinant	Sampling time	BEI	Reference
Toluene	toluene in Urine	Sampling time: End of shift.	0.03 mg/l	ACGIH BEL (01 2010)
Toluene	toluene in Blood	Sampling time: Prior to last shift of work week.	0.02 mg/l	ACGIH BEL (01 2010)
Toluene	o-Cresol, with hydrolysis in Creatinine in urine	Sampling time: End of shift.	0.3 mg/g	ACGIH BEL (01 2010)
Xylene, mixed isomers	Methylhippuric acids in Creatinine in urine	Sampling time: End of shift.	1.5 g/g	ACGIH BEL (01 2010)
Ethylbenzene	Sum of mandelic acid and phenylglyoxylic acid in Creatinine in urine	Sampling time: End of shift at end of work week.	0.7 g/g	ACGIH BEL (01 2010)
Ethylbenzene	Ethyl benzene in End-exhaled air	Sampling time: Not critical.		ACGIH BEL (01 2010)

Benzene	S-Phenylmercapturic acid in Creatinine in urine	Sampling time: End of shift.	25 µg/g	ACGIH BEL (01 2010)
Benzene	t,t-Muconic acid in Creatinine in urine	Sampling time: End of shift.	500 µg/g	ACGIH BEL (01 2010)
n-hexane	2,5-Hexanedion, without hydrolysis in Urine	Sampling time: End of shift at end of work week.	0.4 mg/l	ACGIH BEL (01 2010)
Styrene	styrene in Venous blood	Sampling time: End of shift.	0.2 mg/l	ACGIH BEL (01 2010)
Styrene	Mandelic acid plus phenylglyoxylic acid in Creatinine in urine	Sampling time: End of shift.	400 mg/g	ACGIH BEL (01 2010)

Exposure Controls : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Use sealed systems as far as possible. Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits. Local exhaust ventilation is recommended. Eye washes and showers for emergency use.

Personal Protective Equipment : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Respiratory Protection : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus. All respiratory protection equipment and use must be in accordance with local regulations. Respirator selection, use and maintenance should be in accordance with the requirements of the OSHA Respiratory Protection Standard, 29 CFR 1910.134.

Hand Protection : Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material,

		glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced.
Eye Protection	:	Chemical splash goggles (chemical monogoggles).
Protective Clothing	:	Chemical resistant gloves/gauntlets, boots, and apron (where risk of splashing).

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Bronze. Clear, bright liquid.
Odour	:	Hydrocarbon.
pH	:	Not applicable.
Freezing Point	:	-58 °C / -72 °F
Flash point	:	-40 °C / -40 °F (ASTM D-93 / PMCC)
Upper / lower Flammability or Explosion limits	:	1.3 - 7.6 %(V)
Auto-ignition temperature	:	> 250 °C / 482 °F
Specific gravity	:	0.72 - 0.76
Density	:	ca. 0.78 g/cm3 at 15 °C / 59 °F
Water solubility	:	Negligible.
Kinematic viscosity	:	< 1 mm2/s at 40 °C / 104 °F
Vapour density (air=1)	:	3.5

10. STABILITY AND REACTIVITY

Stability	:	Stable under normal conditions of use.
Conditions to Avoid	:	Avoid heat, sparks, open flames and other ignition sources.
Materials to Avoid	:	Strong oxidising agents.
Hazardous Decomposition Products	:	Hazardous decomposition products are not expected to form during normal storage. Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

11. TOXICOLOGICAL INFORMATION

Basis for Assessment	:	Information given is based on product testing, and/or similar products, and/or components.
Acute Oral Toxicity	:	Low toxicity: LD50 >2000 mg/kg , Rat Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.
Acute Dermal Toxicity	:	Low toxicity: LD50 >2000 mg/kg , Rabbit
Acute Inhalation Toxicity	:	Low toxicity: LC50 >20 mg/l / 1.00 h, Rat High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.
Skin Irritation	:	Irritating to skin.
Eye Irritation	:	Moderately irritating to eyes (but insufficient to classify).
Respiratory Irritation	:	Based on human experience, breathing of vapours or mists may cause a temporary burning sensation to nose, throat and

lungs.

Sensitisation : Not expected to be a sensitiser.

Repeated Dose Toxicity : Kidney: caused kidney effects in male rats which are not considered relevant to humans
Blood-forming organs: repeated exposure affects the bone marrow. (Benzene)
Peripheral nervous system: repeated exposure causes peripheral neuropathy in animals. (n-hexane)

Mutagenicity : May cause heritable genetic damage. (Benzene)
Mutagenicity studies on gasoline and gasoline blending streams have shown predominantly negative results.

Carcinogenicity : Known human carcinogen. (Benzene)
May cause leukaemia (AML - acute myelogenous leukemia). (Benzene)
Inhalation exposure to mice causes liver tumours, which are not considered relevant to humans.

Material	:	**Carcinogenicity Classification**
Gasoline, low boiling point naphtha	:	ACGIH Group A3: Confirmed animal carcinogen with unknown relevance to humans.
Gasoline, low boiling point naphtha	:	IARC 2B: Possibly carcinogenic to humans.
Xylene, mixed isomers	:	ACGIH Group A4: Not classifiable as a human carcinogen.
Xylene, mixed isomers	:	IARC 3: Not classifiable as to carcinogenicity to humans.
Toluene	:	ACGIH Group A4: Not classifiable as a human carcinogen.
Toluene	:	IARC 3: Not classifiable as to carcinogenicity to humans.
Ethanol	:	ACGIH Group A4: Not classifiable as a human carcinogen.
Ethylbenzene	:	ACGIH Group A3: Confirmed animal carcinogen with unknown relevance to humans.
Ethylbenzene	:	IARC 2B: Possibly carcinogenic to humans.
Benzene	:	ACGIH Group A1: Confirmed human carcinogen.
Benzene	:	NTP: Known carcinogen.
Benzene	:	IARC 1: Carcinogenic to humans.
Benzene	:	OSHASP: Cancer hazard.
Naphthalene	:	ACGIH Group A4: Not classifiable as a human carcinogen.
Naphthalene	:	NTP: Anticipated carcinogen.
Naphthalene	:	IARC 2B: Possibly carcinogenic to humans.
Styrene	:	ACGIH Group A4: Not classifiable as a human carcinogen.
Styrene	:	NTP: Reasonably anticipated to be a human carcinogen.
Styrene	:	IARC 2B: Possibly carcinogenic to humans.

Reproductive and Developmental Toxicity : Causes foetotoxicity at doses which are maternally toxic. (Toluene)
May impair fertility at doses which produce other toxic effects. (n-hexane)
Many case studies involving abuse during pregnancy indicate that toluene can cause birth defects, growth retardation and learning difficulties. (Toluene)
Ethanol, a component of this material, may cause birth defects and/or miscarriages following high oral doses.

Additional Information : Exposure to very high concentrations of similar materials has been associated with irregular heart rhythms and cardiac

arrest.
Prolonged and repeated exposures to high concentrations have resulted in hearing loss in rats. Solvent abuse and noise interaction in the work environment may cause hearing loss. (Toluene)
Abuse of vapours has been associated with organ damage and death. (Toluene)
May cause MDS (Myelodysplastic Syndrome). (Benzene)

12. ECOLOGICAL INFORMATION

Incomplete ecotoxicological data are available for this substance.

Acute Toxicity	:	Toxic: LL/EL/IL50 1-10 mg/l (to aquatic organisms) (LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract).
Fish	:	Expected to be toxic: LL/EL/IL50 1-10 mg/l
Aquatic Invertebrates	:	Expected to be toxic: LL/EL/IL50 1-10 mg/l
Algae	:	Expected to be toxic: LL/EL/IL50 1-10 mg/l
Microorganisms	:	Expected to be harmful: LL/EL/IL50 10-100 mg/l
Mobility	:	Floats on water. Evaporates within a day from water or soil surfaces. Large volumes may penetrate soil and could contaminate groundwater. Contains volatile constituents.
Persistence/degradability	:	Major constituents are expected to be inherently biodegradable. The volatile constituents will oxidize rapidly by photochemical reactions in air.
Bioaccumulation	:	Expected to be inherently biodegradable. Contains constituents with the potential to bioaccumulate.
Other Adverse Effects	:	Films formed on water may affect oxygen transfer and damage organisms.

13. DISPOSAL CONSIDERATIONS

Material Disposal	:	Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand. Do not dispose into the environment, in drains or in water courses. Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater contamination.
Container Disposal	:	Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not, puncture, cut, or weld uncleaned drums. Send to drum recoverer or metal reclaimer. Do not pollute the soil, water or environment with the waste container.
Local Legislation	:	Disposal should be in accordance with applicable regional,

national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be complied with.

14. TRANSPORT INFORMATION

US Department of Transportation Classification (49CFR)

Identification number	UN 1203
Proper shipping name	Gasohol
Class / Division	3
Packing group	II
Emergency Response Guide No .	128
Additional Information	Oil: This product is an oil under 49CFR (DOT) Part 130. If shipped by rail or highway in a tank with a capacity of 3500 gallons or more, it is subject to these requirements. Mixtures or solutions containing 10% or more of this product may also be subject to this rule.

IMDG

Identification number	UN 1203
Proper shipping name	GASOLINE
Class / Division	3
Packing group	II
Marine pollutant:	Yes

IATA (Country variations may apply)

Identification number	UN 1203
Proper shipping name	Gasoline
Class / Division	3
Packing group	II

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

Federal Regulatory Status

Additional Information : IARC has classified gasoline exhaust emissions as a Class 2B carcinogen - possibly carcinogenic to humans. Steps should be taken to prevent personal exposure to gasoline exhaust emissions.

Comprehensive Environmental Release, Compensation & Liability Act (CERCLA)

Conventional Gasoline with EtOH () Reportable quantity: 100 lbs

Gasoline, low boiling point naphtha ()	Reportable quantity: 100 lbs
Xylene, mixed isomers (1330-20-7)	Reportable quantity: 100 lbs
Toluene (108-88-3)	Reportable quantity: 1000 lbs
Ethanol (64-17-5)	Reportable quantity: 100 lbs
Ethylbenzene (100-41-4)	Reportable quantity: 1000 lbs
Benzene (71-43-2)	Reportable quantity: 10 lbs
n-hexane (110-54-3)	Reportable quantity: 5000 lbs
Naphthalene (91-20-3)	Reportable quantity: 100 lbs
Cyclohexane (110-82-7)	Reportable quantity: 1000 lbs
Styrene (100-42-5)	Reportable quantity: 1000 lbs

Shell classifies this material as an "oil" under the CERCLA Petroleum Exclusion, therefore releases to the environment are not reportable under CERCLA.

Clean Water Act (CWA) Section 311

Xylene, mixed isomers (1330-20-7)	Reportable quantity: 100 lbs
Toluene (108-88-3)	Reportable quantity: 1000 lbs
Ethylbenzene (100-41-4)	Reportable quantity: 1000 lbs
Benzene (71-43-2)	Reportable quantity: 10 lbs
Naphthalene (91-20-3)	Reportable quantity: 100 lbs
Cyclohexane (110-82-7)	Reportable quantity: 1000 lbs
Styrene (100-42-5)	Reportable quantity: 1000 lbs

Under Section 311 of the Clean Water Act (CWA) this material is considered an oil. As such, spills into surface waters must be reported to the National Response Centre at (800) 424-8802.

SARA Hazard Categories (311/312)
Immediate (Acute) Health Hazard. Delayed (Chronic) Health Hazard. Fire Hazard.

SARA Toxic Release Inventory (TRI) (313)

Xylene, mixed isomers (1330-20-7)
Toluene (108-88-3)
1,2,4-Trimethylbenzene (95-63-6)
Ethylbenzene (100-41-4)
Benzene (71-43-2)
n-hexane (110-54-3)
Naphthalene (91-20-3)
Cyclohexane (110-82-7)
Styrene (100-42-5)

State Regulatory Status

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)

This product contains a chemical known to the State of California to cause cancer.
Known to the State of California to cause birth defects or other reproductive harm.

New Jersey Right-To-Know Chemical List

Xylene, mixed isomers (1330-20-7)	Listed.
Toluene (108-88-3)	Listed.
Ethanol (64-17-5)	Listed.
1,2,4-Trimethylbenzene (95-63-6)	Listed.
Ethylbenzene (100-41-4)	Listed.
Benzene (71-43-2)	Listed.
n-hexane (110-54-3)	Listed.
Naphthalene (91-20-3)	Listed.
Cyclohexane (110-82-7)	Listed.
Styrene (100-42-5)	Listed.

Pennsylvania Right-To-Know Chemical List

Gasoline, low boiling point naphtha ()	Listed.
Xylene, mixed isomers (1330-20-7)	Environmental hazard.
	Listed.
Toluene (108-88-3)	Environmental hazard.
	Listed.
Ethanol (64-17-5)	Listed.
1,2,4-Trimethylbenzene (95-63-6)	Environmental hazard.

	Listed.
Ethylbenzene (100-41-4)	Environmental hazard.
	Listed.
Benzene (71-43-2)	Special hazard.
	Environmental hazard.
	Listed.
n-hexane (110-54-3)	Listed.
Naphthalene (91-20-3)	Environmental hazard.
	Listed.
Cyclohexane (110-82-7)	Environmental hazard.
	Listed.
Styrene (100-42-5)	Environmental hazard.
	Listed.

16. OTHER INFORMATION

Additional Information	:	This document contains important information to ensure the safe storage, handling and use of this product. The information in this document should be brought to the attention of the person in your organisation responsible for advising on safety matters.
NFPA Rating (Health, Fire, Reactivity)	:	1, 3, 0
MSDS Version Number	:	6.0
MSDS Effective Date	:	09/09/2011
MSDS Revisions	:	A vertical bar (|) in the left margin indicates an amendment from the previous version.
MSDS Regulation	:	The content and format of this MSDS is in accordance with the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
Uses and Restrictions	:	This product must not be used in applications other than those recommended in Section 1, without first seeking the advice of the supplier. This product is not to be used as a solvent or cleaning agent; for lighting or brightening fires; as a skin cleanser. This product is designed only to suit automotive applications and no provision is made for the requirements of aviation applications.
MSDS Distribution	:	The information in this document should be made available to all who may handle the product.
Disclaimer	:	The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.

Material Safety Data Sheet