

I T E C
Refining and Marketing Company Ltd.



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MATERIAL SAFETY DATA SHEET

Denatured Fuel Ethanol

Emergency Phone Numbers

Call CHEMTREC
North America: 800-424-9300
Others: (703) 527-3887 (Collect)

California Poison Control System: (800) 3563129

Section 1. Product and Company Identification

This Material Safety Data Sheet applies to the listed products and synonym descriptions for Hazard Communication purposes only. Technical specifications vary greatly depending on the product and are not reflected in this document. Consult specification sheets for technical information. This product contains ingredients that are considered to be hazardous as defined by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Product Name:	Denatured Fuel Ethanol
Product Code:	Multiple
Synonyms:	ITEC MSDS 004 ITECSOL AC500 ITECSOL AC600 Denatured Anhydrous Ethanol Denatured Fuel Ethanol Ethanol for Fuel Blending Ethanol for Gasoline Ethanol, Denatured Ethyl Alcohol, Denatured 200 Proof Fuel Ethanol
MSDS #:	004
CAS # :	64-17-5
Intended Use:	Gasoline Blendstock
Responsible Party:	ITEC Refining and Marketing Co. Ltd. 22 East Dundee Road Barrington, IL 60010-7410 (USA)

Section 2. Hazards Identification

Danger! Contains Benzene. Cancer Hazard. Can cause kidney, liver and blood disorders. May cause irritation to eyes, skin and respiratory system. Avoid liquid, mist and vapor contact. Harmful or fatal if

swallowed. Aspiration hazard; can enter lungs and cause damage. May cause irritation or be harmful if inhaled or absorbed through the skin. Extremely flammable liquid. Vapors may explode.

Physical state: Liquid.

Emergency Overview: Danger!
FLAMMABLE LIQUID AND VAPOR. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. POSSIBLE CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE CANCER, BASED ON ANIMAL DATA.

Do not ingest. Avoid prolonged contact with eyes, skin and clothing. Keep away from heat, sparks and flame. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Risk of cancer depends on duration and level of exposure.

Routes of entry: Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects:

Eyes: May cause severe irritation, redness, tearing, blurred vision and conjunctivitis.

Skin: Prolonged or repeated contact may cause moderate irritation, defatting (cracking), redness, itching, inflammation, dermatitis and possible secondary infection. High pressure skin injections are SERIOUS MEDICAL EMERGENCIES. Injury may not appear serious at first. Within a few hours, tissues will become swollen, discolored and extremely painful.

Inhalation: Nasal and respiratory tract irritation, central nervous system effects including excitation, euphoria, contracted eye pupils, dizziness, drowsiness, blurred vision, fatigue, nausea, headache, loss of reflexes, tremors, convulsions, seizures, loss of consciousness, coma, respiratory arrest and sudden death could occur as a result of long term and/or high concentration exposure to vapors. May also cause anemia and irregular heart rhythm. Repeated or prolonged exposure may cause behavioral changes.

Ingestion: Toxic if swallowed. This product may be harmful or fatal if swallowed. This product may cause nausea, vomiting, diarrhea and restlessness. DO NOT INDUCE VOMITING. Aspiration into the lungs can cause severe chemical pneumonitis or pulmonary edema/hemorrhage, which can be fatal. May cause gastrointestinal disturbances. Symptoms may include irritation, depression, vomiting and diarrhea. May cause harmful central nervous system effects, similar to those listed under "inhalation".

Medical conditions aggravated by overexposure:

Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

Over-exposure signs/symptoms:

Nasal and respiratory tract irritation, central nervous system effects including excitation, euphoria, contracted eye pupils, dizziness, drowsiness, blurred vision, fatigue, nausea, headache, loss of reflexes, tremors, convulsions, seizures, loss of consciousness, coma, respiratory arrest or sudden death could occur as a result of long term and/or high concentration exposure to vapors. May also cause anemia and irregular heart rhythm.

See toxicological information (section 11)

Section 3. Composition, information on ingredients

<u>HARZARDOUS COMPONENTS/CAS#</u>	<u>%VOLUME</u>	<u>EXPOSURE LIMIT GUIDELINE</u>	
		<u>OSHA PEL</u>	<u>ACGIH TLV</u>
Ethanol / 64-17-5	95 – 98	1000 ppm	1000 ppm
Gasoline / 86290-81-5	2 – 5	300 ppm	500 ppm-STEL
Gasoline, Natural / 8006-61-9	2 – 5	300 ppm	500 ppm-STEL
Xylene / 1330-20-7	2 – 5	100 ppm	100 ppm
Toluene / 108-88-3	2 – 5	200 ppm	100 ppm

Section 4. First Aid Measures

Eye contact:	Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Seek medical advice if pain or redness continues.
Skin contact:	Remove contaminated clothing and shoes. Wash exposed area thoroughly with soap and water. Remove contaminated clothing promptly and launder before reuse. Contaminated leather goods should be discarded. If irritation persists or symptoms described in the MSDS develop, seek medical attention. High pressure skin injections are SERIOUS MEDICAL EMERGENCIES. Get immediate medical attention.
Inhalation:	If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
Ingestion:	This product may be harmful or fatal if swallowed. This product may cause nausea, vomiting, diarrhea and restlessness. DO NOT INDUCE VOMITING. Aspiration into the lungs can cause severe chemical pneumonitis or pulmonary edema/hemorrhage, which can be fatal. May cause gastrointestinal disturbances. Symptoms may include irritation, depression, vomiting and diarrhea. May cause harmful central nervous system effects, similar to those listed under "inhalation".
Notes to physician:	No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Protection of first-aiders:	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are 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.

Section 5. Fire Fighting Measures

Flammability of the product:	Flammable.
Products of combustion:	These products are carbon oxides (CO, CO ₂), nitrogen and sulfur oxides (NO _x , SO _x), particulate matter, VOC's.
Fire hazards in the Presence of various	

substances: Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge.

**Explosion hazards in
The presence of**

Various substances: Explosive in the presence of the following materials or conditions: open flames, sparks and static discharge.

Fire-fighting media and instructions

Extinguishing media

Suitable: Use dry chemical, CO₂, water spray (fog) or foam.

Not suitable: Do not use water jet.

Collect contaminated fire-fighting water separately. It must not enter the sewage system. Dike area of fire to prevent runoff. Decontaminate emergency personnel and equipment with soap and water.

Highly flammable liquid and vapor. Vapor may cause flash fire. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

**Special protective
equipment for
firefighters:**

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Dangerous when exposed to heat or flame. Vapors form flammable or explosive mixtures with air at room temperature. Vapor or gas may spread to distant ignition sources (pilot lights, welding equipment, electrical equipment, etc.) and flash back. Vapors may accumulate in low areas. Vapors may concentrate in confined areas. Flowing product can be ignited by self generated static electricity. Use adequate bonding and grounding to prevent static buildup. Runoff to sewer may cause fire or explosion hazard. Containers may explode in heat of fire. Irritating or toxic substances may be emitted upon thermal decomposition. For fires involving this material, do not enter any enclosed or confined space without proper protective equipment, which may include NIOSH approved self-contained breathing apparatus with full face mask. Clothing, rags or similar organic material contaminated with this product and stored in a closed space may undergo spontaneous combustion. Transfer to and from commonly bonded and grounded containers.

**Special remarks on
Fire hazards:**

Dangerous when exposed to heat or flame. Vapors form flammable or explosive mixtures with air at room temperature. Vapor or gas may spread to distant ignition sources (pilot lights, welding equipment, electrical equipment, etc.) and flash back. Vapors may accumulate in low areas. Vapors may concentrate in confined areas. Flowing product can be ignited by self generated static electricity. Use adequate bonding and grounding to prevent static buildup. Runoff to sewer may cause fire or explosion hazard. Containers may explode in heat of fire. Irritating or toxic substances may be emitted upon thermal decomposition. For fires involving this material, do not enter any enclosed or confined space without proper protective equipment, which may include NIOSH approved self-contained breathing apparatus with full face mask. Clothing, rags or similar organic material contaminated with this product and stored in a closed space may undergo spontaneous combustion. Transfer to and from commonly bonded and grounded containers.

Section 6. Accidental Release Measures

Personal precautions: Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment (section 8). Do not touch or walk through spilled material. Tanks, vessels or other confined spaces which have contained product should be freed of vapors before entering. The container should be checked to ensure a safe atmosphere before entry. Empty containers may contain toxic, flammable/combustible or explosive residues or vapors. Do not cut, grind, drill, weld or reuse empty containers that contained this product. Do not transfer this product to another container unless the container receiving the product is labeled with proper DOT shipping name, hazard class and other information that describes the product and its hazards.

Environmental precautions:

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Gasoline may contain oxygenated blend products (Ethanol, MTBE, etc.) that are soluble in water and therefore precautions should be taken to protect surface and groundwater sources from contamination. If facility or operation has an "oil or hazardous substance contingency plan", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Extremely flammable. Review Fire Fighting Measures section before proceeding with clean up. Keep all sources of ignition (flames, smoking, flares, etc.) and hot surfaces away from release. Contain spill in smallest possible area. Recover as much product as possible (e.g., by vacuuming). Stop leak if it can be done without risk. Use water spray to disperse vapors. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate federal, state and local agencies. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, contact the National Response Center at 800-424- 8802. For highway or railway spills, contact Chemtrec at 800-424-9300.

Methods for cleaning Up Small spill:

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

Large spill:

If emergency personnel are unavailable, contain spilled material. For small spills, add absorbent (soil may be used in the absence of other suitable materials) and use a non-sparking or explosion-proof means to transfer material to a sealable, appropriate container for disposal. For large spills, dike spilled material or otherwise contain it to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

Section 7. Handling and Storage

Handling:

Do not ingest. Avoid prolonged contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Keep away from heat, sparks and flame. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material.

Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Wash thoroughly after handling. Use only in well ventilated locations.

Keep away from heat, spark and flames. In case of fire, use water spray, foam, dry chemical or carbon dioxide as described in the Fire Fighting Measures section of the MSDS. Do not pressurize, cut, weld, braze, solder, drill on or near this container. "Empty" container contains residue (liquid and/or vapor) and may explode in heat of a fire. Use good personal hygiene practices. After handling this product, wash hands before eating, drinking, or using toilet facilities.

Keep out of reach of children. Failure to use caution may cause serious injury or illness. Never siphon by mouth. For use as a motor fuel only. Do not use as a cleaning solvent or for other non-motor fuel uses. To prevent ingestion and exposure - Do not siphon by mouth to transfer product between containers. Use good personal hygiene practices. After handling this product, wash hands before eating, drinking, or using toilet facilities.

Storage:

Store in tightly closed containers in cool, dry, isolated and well ventilated area away from heat, sources of ignition and incompatible materials. Use non-sparking tools and explosion proof equipment. Ground lines, containers, and other equipment used during product transfer to reduce the possibility of a static induced spark. Do not "switch load" because of possible accumulation of a static charge resulting in a source of ignition. Use good personal hygiene practices.

Section 8. Exposure controls, personal protection

Engineering measures:

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.

Personal protection

Eyes:

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 or dusts. Keep away from eyes. Eye contact can be avoided by wearing safety glasses or chemical splash goggles.

Skin:

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. Keep away from skin. Skin contact can be minimized by wearing protective gloves such as neoprene, nitrile-butadiene rubber, etc. and, where necessary, impervious clothing and boots. Leather goods contaminated with this product should be discarded. A source of clean water should be

available in the work area for flushing eyes and skin. Flame Retardant Clothing is recommended.

Respiratory: Use a properly fitted, air-purifying or air-fed 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 workplace exposure limits for product or components are exceeded, NIOSH approved equipment should be worn. Proper respirator selection should be determined by adequately trained personnel, based on the contaminants, the degree of potential exposure and published respiratory protection factors. This equipment should be available for non-routine and emergency use.

Hands: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Personal protective Equipment: Consult your Supervisor or S.O.P. for special handling directions.

Personal protection in Case of a large spill: Splash goggles. Full suit. Vapor respirator. Boots. Gloves. Self-contained breathing apparatus (SCBA) should be used to avoid inhalation of the product. Suggested protective clothing might not be adequate. Consult a specialist before handling this product.

Recommended Monitoring Procedures: If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

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.

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, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Section 9. Physical and Chemical Properties

Physical state: Liquid.
Color: Colorless.
Odor: Alcohol-like. Characteristic Gasoline Odor [Strong]
Boiling point: 73.89 to 79.45°C (165 to 175°F)
Melting/freezing point: <-113.89°C (<-173°F)
Specific gravity: 0.79
Vapor density: 1.6 [Air = 1]
Volatility: Essentially 100%
Evaporation rate: 1.7 (Butyl acetate. = 1)
Solubility: Soluble in the following materials: cold water and hot water.

Section 10. Stability and reactivity data

Stability:	The product is stable.
Hazardous Polymerization:	Under normal conditions of storage and use, hazardous polymerization 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. Avoid exposure - obtain special instructions before use.
Materials to avoid:	Highly 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.
Conditions of reactivity:	Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge. Explosive in the presence of the following materials or conditions: open flames, sparks and static discharge.

Section 11. Toxicological Information

Toxicity data

ETHANOL is rapidly absorbed through the gastrointestinal tract and normally metabolized and excreted in a relatively few hours. Only in very unusual work situations could the inhalation of ethanol vapors result in symptoms of alcohol intoxication. Can be fatal or cause blindness if swallowed in extreme quantities. Inhalation or ingestion can cause headache, nausea, dizziness or narcosis. Chronic overexposure (inhalation or ingestion) can cause damage to the gastrointestinal tract, liver, kidneys and cardiovascular system. Prolonged contact causes irritation to skin and eyes. Medical conditions aggravated by exposure include kidney, liver, heart and GI conditions. This material is not listed as a cancer causing agent but is suspected of being a promoter.

GASOLINE contains benzene, as well as n-hexane, other aromatics and certain olefins. Gasoline generally acts as an anesthetic and mucous membrane irritant. Inhalation is the most important route of occupational entry. Eye and throat irritation occur in several hours at exposures of 160 to 270 ppm, eye, nose and throat irritation and dizziness occurs at exposures of 500 to 900 ppm in one hour, mild anesthesia occurs in 30 minutes at exposures of 2000 ppm. The threshold for immediate mild toxic effect is 900 to 1000 ppm. There are reports of toxic neuritis after exposure to gasoline. Repeated exposure of laboratory animals to high concentrations of gasoline vapors has caused kidney damage and cancer in rats and cancer in mice. Gasoline was evaluated for genetic activity in assays using microbial cells, cultured mammalian cells and rat bone marrow cells. The results were all negative so gasoline was considered non-mutagenic under these conditions. Overexposure to this product or its components has been suggested as a cause of liver abnormalities in laboratory animals and humans. n-HEXANE can affect the body if it is inhaled, comes in contact with the eyes or skin, or is swallowed. Hexane vapor is a narcotic and a mild upper respiratory irritant. Polyneuropathy (peripheral nerve damage) has been reported to occur in workers exposed to hexane vapors, characterized by progressive weakness and numbness in the extremities, loss of deep tendon reflexes and reduction of motor nerve conduction velocity. Recovery ranges from no recovery to complete recovery depending upon the duration of exposure and severity of nerve damage. Concentrations of 30,000 ppm produced narcosis in mice within 30 to 60 minutes, convulsions and death occurred at 35,000 to 40,000 ppm, and at 64,000 ppm respiratory arrest was produced in 2.5 to 4.5 minutes from the start of exposure. Concentrations up to 8000 ppm produced no anesthesia. In human subjects, 2000 ppm for 10 minutes produced no effects, but 5000 ppm resulted in dizziness and a sensation of giddiness. Other investigators reported slight nausea, headache and irritation of the eyes and throat at 1400 to 1500 ppm. In industrial practice, mild narcotic symptoms such as dizziness have been observed when concentrations exceeded 1000 ppm, but not below 500 ppm.

Acute toxicity

Product/ingredient name

Ethanol

Result

Species

Dose

LD50 Intra-arterial	Rat	11 mg/kg
LD50 Intraperitoneal	Rat	3600 ug/kg
LD50 Intravenous	Rat	1440 mg/kg
LD50 Oral	Rat	7060 mg/kg
LD50 Oral	Rat	7 g/kg
LDLo Dermal	Rabbit	20 g/kg
TDLo Intraperitoneal	Rat	2700 mg/kg
TDLo Intraperitoneal	Rat	1.25 mg/kg
TDLo Intraperitoneal	Rat	1000 mg/kg
TDLo Intracerebral	Rat	363.6 ug/kg
TDLo Intraperitoneal	Rat	500 mg/kg
TDLo Intravenous	Rat	0.5 g/kg
TDLo Intraperitoneal	Rat	0.5 g/kg
TDLo Oral	Rat	6 g/kg
TDLo Oral	Rat	10 mL/kg
TDLo Oral	Rat	6.67 mL/kg
TDLo Oral	Rat	5 mL/kg
TDLo Intraperitoneal	Rat	2.45 g/kg
TDLo Oral	Rat	6000 mg/kg
TDLo Oral	Rat	5250 mg/kg
TDLo Oral	Rat	5000 mg/kg
TDLo Oral	Rat	4800 mg/kg
TDLo Oral	Rat	5.25 g/kg
TDLo Oral	Rat	0.5 g/kg
TDLo Oral	Rat	3 g/kg
TDLo Oral	Rat	2.5 g/kg
TDLo Intraperitoneal	Rat	0.25 g/kg
TDLo Oral	Rat	0.72 g/kg
TDLo Oral	Rat	1600 mg/kg
TDLo Oral	Rat	1500 mg/kg
TDLo Oral	Rat	5 g/kg
TDLo Intraperitoneal	Rat	1.5 g/kg
TDLo Oral	Rat	8000 mg/kg
TDLo Intraperitoneal	Rat	2 g/kg
TDLo Oral	Rat	6.4 g/kg
TDLo Intraperitoneal	Rat	1 g/kg
TDLo Intraperitoneal	Rat	3500 mg/kg
TDLo Intracerebral	Rat	106 ug/kg
TDLo Intraperitoneal	Rat	2.4 mg/kg
TDLo Intraperitoneal	Rat	3000 mg/kg
TDLo Unreported	Rat	3 g/kg
Gasoline LD50 Oral	Rat	92 g/kg
LD50 Oral	Rat	13.6 g/kg

Conclusion/Summary : Not available.

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Chronic effects on

humans:

CARCINOGENIC EFFECTS: Classified A4 (Not classifiable for humans or animals.) by ACGIH [Ethanol]. Classified A3 (Proven for animals.) by ACGIH [Gasoline]. Classified 2 (Suspected for humans.) by European Union [Gasoline]. Classified 2B (Possible for humans.) by IARC [Gasoline, Natural]. Classified 2 (Suspected for humans.) by European Union [Gasoline, Natural]. Contains material which may cause damage to the following organs: blood, kidneys, the reproductive system, liver,

upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

Other toxic effects on Humans:

Extremely hazardous by the following route of exposure: of ingestion. Very hazardous by the following route of exposure: of eye contact (irritant). Hazardous by the following route of exposure: of skin contact (irritant). Slightly hazardous by the following route of exposure: of inhalation (lung irritant).

Specific effects

Carcinogenic effects: Contains material which may cause cancer, based on animal data. Risk of cancer depends on duration and level of exposure.

Target organs: Contains material which may cause damage to the following organs: blood, kidneys, the reproductive system, liver, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

Section 12. Ecological Information

Ecotoxicity data

Product/ ingredient name	Result	Species	Exposure
Ethanol	Acute EC50 9.3 to 11.2 g/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute EC50 10600 to 11200 mg/L Fresh water	Daphnia - Water flea - Daphnia obtusa	48 hours
	Acute EC50 >100 ppm Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute EC50 2000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 13 to 16 ml/L Fresh water	Fish - Rainbow trout, Donaldson trout - Oncorhynchus mykiss	96 hours
	Acute LC50 5577000 to 6557000 ug/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia	48 hours
	Acute LC50 3715000 to 4432000 ug/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia	48 hours
	Acute LC50 >100000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	Acute LC50 42000 ug/L Fresh water	Fish - Rainbow trout, Donaldson trout - Oncorhynchus mykiss	4 days
	Acute LC50 25500 ug/L Marine water	Crustaceans - Brine shrimp – Artemia Franchiscana	48 hours
	Acute LC50 11000000 ug/L Marine water	Fish - Bleak - Alburnus alburnus	96 hours
	Acute LC50 10000000 to 11500000 ug/L Marine water	Fish - Bleak - Alburnus alburnus	96 hours
	Acute LC50 5680 to 7392 mg/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 6076000 to 7115000 ug/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia	48 hours
	Acute LC50 6325000 to 7413000 ug/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia	48 hours
	Acute LC50 14200000 to 15100000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	Acute LC50 13480000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	Chronic NOEC <6.3 g/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

Products of Degradation:

Products of degradation: carbon oxides (CO, CO₂) and water.

Section 13. Disposal Considerations

Waste disposal: The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any byproducts should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Consult your local or regional authorities.

Section 14. Transport Information

DOT Shipping Description:	Ethanol, 3, UN1170, II
Non-bulk Package Marking:	Ethanol, 3, UN1170
Non-Bulk Package Label:	Flammable Liquid
Bulk Package Placard/Marking:	Flammable Liquid/1170
Hazardous Substance/RQ:	*See Section 15 for RQ's
Packing References:	49 CFR 173, 150, 173.202, 173.242
Emergency Response Guide:	127

Section 15. Regulatory Information

United States

HCS Classification : Flammable liquid
Carcinogen
Target organ effects

U.S. Federal regulations:

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

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: Ethanol; Gasoline, Natural

SARA 311/312 MSDS distribution - chemical inventory - hazard identification:

Ethanol: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard;

Gasoline: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard; Gasoline, Natural: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard.

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: No products were found.

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

State regulations:

Connecticut Carcinogen Reporting: None of the components are listed.

Connecticut Hazardous Material Survey: None of the components are listed.

Florida substances: None of the components are listed.

Illinois Chemical Safety Act: None of the components are listed.

Illinois Toxic Substances Disclosure to Employee Act: None of the components are listed.

Louisiana Reporting: None of the components are listed.

Louisiana Spill: None of the components are listed.

Massachusetts Spill: None of the components are listed.

Massachusetts Substances: The following components are listed:
ETHYL ALCOHOL;GASOLINE

Michigan Critical Material: None of the components are listed.

Minnesota Hazardous Substances: None of the components are listed.

New Jersey Hazardous Substances: The following components are listed: ETHYL ALCOHOL; MOTOR FUEL, n.o.s.; GASOLINE

New Jersey Spill: None of the components are listed.

New Jersey Toxic Catastrophe Prevention Act: None of the components are listed.

New York Acutely Hazardous Substances: None of the components are listed.

New York Toxic Chemical Release Reporting: None of the components are listed.

Pennsylvania RTK Hazardous Substances: The following components are listed: DENATURED ALCOHOL;GASOLINE

Rhode Island Hazardous Substances: None of the components are listed.

California Prop. 65

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

Ingredient name

Cancer Reproductive No significant risk Maximum
Level Level Level acceptable dosage
Level

Ethanol	No.	Yes.	No.	No.
Gasoline	Yes.	No.	No.	No.
Xylene	Yes	Yes	No	No
Toluene	Yes	Yes	No	No

Canada

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).

CEPA DSL & NDSL: All materials are either listed or exempt

EU regulations:

Risk phrases: R11- Highly flammable.
R45- May cause cancer.

Safety phrases:

S53- Avoid exposure - obtain special instructions before use.
S2- Keep out of the reach of children.
S46- If swallowed, seek medical advice immediately and show this container or label.

Section 16. Other Information

Date of issue: 12/29/08
Version: 001
MSDS Number: 004
Status: Final

Disclaimer of Expressed and Implied Warranties:

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Definitions of Material Safety Data Sheet Terminology

GOVERNMENT AGENCIES AND PRIVATE ASSOCIATIONS

ACGIH - American Conference of Governmental Industrial Hygienists, (private association)
DOT - United States Department of Transportation
EPA - United States Environmental Protection Agency
IARC - International Agency for Research on Cancer, (private association)
NFPA - National Fire Protection Association, (private association)
MSHA - Mine Safety and Health Administration, U.S. Department of Labor
NIOSH - National Institute of Occupational Safety and Health, U.S. Department of Health and Human Services
NTP - National Toxicology Program, (private association)
OSHA - Occupational Safety and Health Administration, U.S. Department of Labor
WHMIS- Workplace Hazardous Material Information System
CSA- Canadian Standards Association

HAZARD AND EXPOSURE INFORMATION

Acute Hazard - An adverse health effect which occurs rapidly as a result of short term exposure.

CAS # - American Chemical Society's Chemical Abstract service registry number which identifies the product and/or ingredients.

Ceiling - The concentration that should not be exceeded during any part of the working exposure.

Chronic Hazard - An adverse health effect which generally occurs as a result of long term Exposure or short term exposure with delayed health effects and is of long duration.

Fire Hazard - A material that poses a physical hazard by being flammable, combustible, phyrophoric or an oxidizer as defined by 29 CFR 1910.1200.

Hazard Class - DOT hazard classification.

Hazardous Ingredients - Names of ingredients which have been identified as health hazards.

IDLH- Immediately Dangerous to Life and Health, the airborne concentration below which a person can escape without respiratory protection and exposure up to 30 minutes, and not suffer debilitating or irreversible health effects. Established by NIOSH.

mg/m3 - Milligrams of contaminant per cubic meter of air, a mass to volume ratio.

N/A - Not available or no relevant information found.

NA - Not applicable.

PEL - OSHA permissible exposure limit; an action level of one half this value may be applicable

ppm - Part per million (one volume of vapor or gas in one million volumes of air).

Pressure Hazard - A material that poses a physical hazard due to the potential of a sudden release of pressure such as explosive or a compressed gas as defined by 29 CFR 1910.1200.

Reactive Hazard - A material that poses a physical hazard due to the potential to become unstable reactive, water reactive or that is an organic peroxide as defined by 29 CFR 1910.1200.

STEL - The ACGIH Short-Term Exposure Limit, a 15-minute Time-Weighted Average exposure which should not be exceeded at any time during a workday, even if the 8-hour TWA is less than the TLV.

TLV - ACGIH Threshold Limit Value, represented herein as an 8-hour TWA concentration.

8-hour TWA - The time weighted average concentration for a normal 8-hour workday and a 40-hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect.

LD50 – Single dose of a substance that, when administered by a defined route in an animal assay, is expected to cause the death of 50% of the defined animal population.

LC50 - The concentration of a substance in air that, when administered by means of inhalation over a specified length of time in an animal assay, is expected to cause the death of 50% of a defined animal population.

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