



# Material Safety Data Sheet

## Denatured ETHANOL

### 1. Product and company identification

<b>Product name</b>	: Denatured ETHANOL
<b>Synonym</b>	: Denatured Ethanol, Ethyl, Alcohol
<b>Trade name</b>	: Aliphatic Alcohol
<b>Material uses</b>	: Fuel additive.
<b>Supplier/Manufacturer</b>	: Hereford Renewable Energy 4300 County Road 8 Hereford, TX 79045 Tel: +1-806-258-7850
<b>MSDS authored by</b>	: Murphy Oil Corporation USA, Inc.
<b><u>In case of emergency</u></b>	: CHEMTREC, U.S.: 1-800-424-9300 International: +1-703-527-3887
<b><u>Product type</u></b>	: Liquid.

### 2. Hazards identification

<b>Color</b>	: Colorless.
<b>Physical state</b>	: Liquid. [Clear].
<b>Odor</b>	: Mild, Pleasant.
<b>Signal word</b>	: WARNING!
<b>Hazard statements</b>	: FLAMMABLE LIQUID AND VAPOR. CAUSES EYE IRRITATION. MAY CAUSE RESPIRATORY TRACT AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. CANCER HAZARD-CONTAINS MATERIAL WHICH CAN CAUSE CANCER.
<b>Precautions</b>	: Keep away from heat, sparks and flame. Avoid exposure – obtain special instructions before use. Do not breathe vapor or mist. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling. Do not breathe spray.
<b>OSHA/HCS status</b>	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
<b><u>Potential acute health effects</u></b>	
<b>Inhalation</b>	: Moderately irritating to the respiratory system.
<b>Ingestion</b>	: No known significant effects or critical hazards.
<b>Skin</b>	: Moderately irritating to the skin.
<b>Eyes</b>	: Irritating to eyes.
<b><u>Potential chronic health effects</u></b>	
<b>Chronic effects</b>	: Contains material that may cause target organ damage, based on animal data.
<b>Carcinogenicity</b>	: Contains material which can cause cancer. Risk of cancer depends on durations and exposure level.
<b>Mutagenicity</b>	: No known significant effects or critical hazards.
<b>Teratogenicity</b>	: No known significant effects or critical hazards.
<b>Developmental effects</b>	: No known significant effects or critical hazards.
<b>Fertility effects</b>	: No known significant effects or critical hazards.
<b><u>Target organs</u></b>	: Contains material which may cause damage to the following organs: blood, kidneys, the reproductive system, liver, upper respiratory tract, skin, eyes, central nervous system (CNS).
<b><u>Over-exposure sign/symptoms</u></b>	
<b>Inhalation</b>	: Adverse symptoms may include the following: respiratory tract irritation coughing

- Ingestion** : No specific data.
- Skin** : Adverse symptoms may include the following:  
irritation  
redness
- Eyes** : Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Medical conditions** : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.
- aggravated by over-exposure**
- See toxicological information (section 11)

### 3. Composition/information on ingredients

#### United States

Name	CAS number	%
Ethyl Alcohol	64-17-5	60-100
Gasoline, natural	8006-61-9	1-5

#### Canada

Name	CAS number	%
Ethyl Alcohol	64-17-5	60-100
Gasoline, natural	8006-61-9	1-5

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.

### 4. First aid measures

- Eye contact** : Immediately flush eyes with plenty of water for at least 20 minutes, occasionally lifting the upper eyelids. Get medical attention.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 20 minutes. Get medical attention.
- Inhalation** : Move exposed person to fresh air. Get medical attention.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Notes to physician** : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

### 5. Fire-fighting measures

- Flammability of the product** : Flammable liquid. 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.
- Extinguishing media**
- Suitable** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.
- Not suitable** : Do not use water jet.
- Special exposure hazards** : Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Hazardous decomposition Products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide
- 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.

## 6. Accidental release measures

- Personal precautions** : Shut off all ignition sources. No flares, smoking or flames in hazard area. Provide adequate ventilation. Put on appropriate personal protective equipment (see Section 8).
- 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).
- Methods for cleaning up**
- Small spill** : 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** : 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). Use spark proof tools and explosion-proof equipment. 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.

## 7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). 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. Do not get in eyes or on skin or clothing. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Keep away from heat, sparks and flame.
- Storage** : 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. 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.

## 8. Exposure controls/personal protection

### United States

Ingredient	Exposure limits
Ethyl Alcohol	<b>ACGIH TLV (United States, 1/2009).</b> STEL: 1000 ppm 15 minute(s). <b>NIOSH REL (United States, 6/2009).</b> TWA: 1900 mg/m <sup>3</sup> 10 hour(s). TWA: 1000 ppm 10 hour(s). <b>OSHA PEL (United States, 11/2006).</b> TWA: 1900 mg/m <sup>3</sup> 8 hour(s). TWA: 1000 ppm 8 hour(s).
Gasoline, natural	OSHA PEL 1989 (United States, 3/1989). STEL: 1500 mg/m <sup>3</sup> 15 minute(s). STEL: 500 ppm 15 minute(s). TWA: 900 mg/m <sup>3</sup> 8 hour(s). TWA: 300 ppm 8 hour(s).

**Canada**

Occupational exposure limits		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredient	List name	ppm	mg/m <sup>3</sup>	Other	ppm	mg/m <sup>3</sup>	Other	ppm	mg/m <sup>3</sup>	Other	Notations
Ethyl Alcohol	US ACGIH 1/2009	-	-	-	1000	-	-	-	-	-	
	AB 4/2009	1000	1880	-	-	-	-	-	-	-	
	BC 9/2009	-	-	-	1000	-	-	-	-	-	
	ON 8/2008	1000	1900	-	-	-	-	-	-	-	
Gasoline, natural	QC 6/2008	1000	1880	-	-	-	-	-	-	-	
		300	890	-	500	1480	-	-	-	-	

**Consult local authorities for acceptable exposure limits.**

**Recommended monitoring procedures** : 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.

**Engineering measures** : Use only with adequate ventilation. Use explosion-proof ventilation equipment.

**Hygiene measures** : Ensure that eyewash stations and safety showers are close to the workstation location. 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.

**Respiratory** : 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. Recommended: Wear an appropriate NIOSH approved respirator if concentration levels exceed the safe exposure limits.

**Hands** : Use gloves appropriate for work or task being performed. Recommended: Natural rubber (latex).

**Eyes** : Safety eyewear should be used when there is a likelihood of exposure. Recommended: Safety glasses with side shields.

**Skin** : Personal protective equipment or 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. Recommended: Lab coat.

**Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

## 9. Physical and chemical properties

<b>Physical state</b>	: Liquid. [Clear.]
<b>Flash point</b>	: Closed cup: 12.8°C (55°F) [Pensky-Martens.]
<b>Auto-ignition temperature</b>	: 363°C (685.4°F)
<b>Flammable limits</b>	: Lower: 3.3% Upper: 19%
<b>Color</b>	: Colorless.
<b>Odor</b>	: Mild, Pleasant.
<b>Boiling /condensation point</b>	: 78°C (172.4°F)
<b>Melting/freezing point</b>	: -113°C (-171.4°F)
<b>Specific gravity</b>	: 0.79
<b>Vapor pressure</b>	: 0.53 kPa (4 mm Hg)
<b>Vapor density</b>	: 1.6 [Air=1]
<b>Volatility</b>	: 60% (w/w)
<b>Solubility</b>	: Complete

## 10. Stability and reactivity

- Chemical stability** : The product is stable.
- 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** : 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.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Hazardous polymerization** : Under normal conditions of storage and use, hazardous polymerizations will not occur.

## 11. Toxicological information

**Acute toxicity** : No specific data.

Product/ingredient name	Result	Species	Dose	Exposure
Ethyl Alcohol	LC50 Inhalation Vapor LD50 Oral	Rat Rat	124700 mg/m3 7 g/kg	4 hours -

### Chronic toxicity

#### Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Ethyl Alcohol	A4	-	-	-	-	-
Gasoline, natural	-	2B	-	+	-	-

## 12. Ecological information

**Environmental effects** : Not established.

### Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Ethanol	Acute EC50 2000 ug/L Fresh water	Daphnia – Daphnia magna	48 hours
	Acute LC 50 25500 ug/L Marine water	Crustaceans – Artemia franchiscana-LARVAE	48 hours
	Acute LC 50 42000 ug/L Fresh water	Fish – Oncorhynchus mykiss	4 days
	Chronic NOEC <6.3 g/L Fresh water	Daphnia – Daphnia magna	48 hours





## 13. Disposal considerations

**Waste disposal** : The generation of waste should be avoided or minimized wherever possible. This material and its container must be disposed of in a safe way. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Empty containers or liners may retain some product residues. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## 14. Transport information

Regulatory Information	UN number	Proper shipping name	Classes	PG*	Label	Additional Information
<b>DOT Classification</b>	UN1170	ETHANOL, SOLUTIONS	3	II		<b>Limited quantity</b> Yes.  <b>Packaging instruction</b> <b>Passenger aircraft</b> Quantity limitation: Forbidden.  <b>Cargo aircraft</b> Quantity limitation: 30 L  <b>Special provisions</b> T8, T31
<b>TDG Classification</b>	UN1170	ETHANOL, SOLUTIONS	3	II		-
<b>IMDG Class</b>	UN 1170	ETHANOL, SOLUTIONS	3	II		-
<b>IATA-DGR Class</b>	UN1170	ETHANOL, SOLUTIONS	3	II		<b>Passenger and Cargo Aircraft</b> Quantity limitation: 5 L Packaging instructions: 305 <b>Cargo Aircraft Only</b> Quantity limitation: 60 L Packaging instructions: 307 <b>Limited Quantities – Passenger Aircraft</b> Quantity limitation: 1 L  Packaging instructions: Y305

PG\*: Packing group

Exemption to the above classification may apply.

**AERG:** 127

## 15. Regulatory information

### United States

#### HCS Classification

- : Flammable liquid
- Irritating material
- Target organ effects

#### U.S. Federal regulations

- : **United States Inventory (TASCA 8b):** This material is 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:** Ethyl Alcohol; Gasoline, natural
- SARA 311/312 MSDS distribution – chemical inventory – hazard identification:**  
Ethanol: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard
- Clean Air Act (CAA) 112 accidental release prevention:** No products were found.

#### Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)

- : Not listed.

#### Clean Air Act Section 602 Class I Substances

- : Not listed

#### Clean Air Act Section 602 Class II Substances

- : Not listed

#### DEA List I Chemicals (Precursor Chemicals)

- : Not listed

#### DEA List II Chemicals (Essential Chemicals)

- : Not listed

### State regulations

- Connecticut Carcinogen Reporting:** This material is not listed.
- Connecticut Hazardous Material Survey:** This material is not listed.
- Florida Substances:** This material is not listed.
- Illinois Chemical Safety Act:** This material is not listed.
- Illinois Toxic Substances Disclosure to Employee Act:** This material is not listed.
- Louisiana Reporting:** This material is not listed.
- Louisiana Spill:** This material is not listed.
- Massachusetts Spill:** This material is not listed.
- Massachusetts Substances:** This material is not listed.
- Michigan Critical Material:** This material is not listed.
- Minnesota Hazardous Substances:** This material is not listed.
- New Jersey Hazardous Substances:** This material is not listed.
- New Jersey Spill:** This material is not listed.
- New Jersey Toxic Catastrophe Prevention Act:** This material is not listed.
- New York Acutely Hazardous Substances:** This material is not listed.
- New York Toxic Chemical Release Reporting:** This material is not listed.
- Pennsylvania RTK Hazardous Substances:** This material is not listed.
- Rhode Island Hazardous Substances:** This material is not listed.

### California Prop. 65

**WARNING:** This product contains less than 0.1% of a chemical known to the State of California to cause cancer.

**WARNING:** This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Benzene	Yes.	Yes.	6.4 ug/day (ingestion) 13 ug/day (inhalation)	24 ug/day (ingestion) 49 ug/day (Inhalation)

### Canada

#### WHMIS (Canada)

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

#### Canadian lists

- : **CEPA Toxic substances:** This material is not listed.
- Canadian ARET:** This material is not listed.
- Canadian NPRI:** The following components are listed: Ethyl Alcohol.
- Alberta Designated Substances:** This material is not listed.
- Ontario Designated Substances:** This material is not listed.
- Quebec Designated Substances:** This material is not listed.

#### Canada inventory

- : This material is listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

### International regulations

#### International lists

- : **Australia inventory (AICS):** This material is listed or exempted.
- China inventory (IECSC):** This material is listed or exempted.
- Japan inventory:** Not determined.
- Korea inventory:** This material is listed or exempted.
- New Zealand Inventory of Chemicals (NZIoC):** This material is listed or exempted.
- Philippines Inventory (PICCS):** This material is listed or exempted.

## 16. Other information

### United States

**Hazardous Material Information System (U.S.A.)** : Health: 2 \* Flammability: 3 Physical hazards: 0

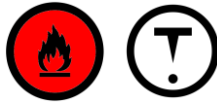
**Caution:** HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Associations (NPCA). HMIS® materials may be purchased exclusively from J.J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

**National Fire Protection Association (U.S.A.)** : Health: 1 Flammability: 3 Instability: 0

### Canada

**WHMIS (Canada)** :



**References** : ANSI Z400.1, MSDS Standard, 2004. – Manufacturer’s Material Safety Data Sheet. – 29 CRR Part 1910.1200 OSHA MSDS Requirements. – 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG. – Canada Gazette Part II, Vol. 122, No. 2. Registration SOR/88-64, 31 December 1987. Hazardous Products Act “Ingredient Disclosure List” – Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2005.

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