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## Material Safety Data Sheet

### Ethyl Alcohol

#### Section 1: Chemical Product and Company Identification

**Product Name:** Ethyl alcohol

**Contact Information:**

**CAS#:** 64-17-5 and 77732-18-5

**Homeland Energy Solutions. LLC**

2779 Hwy 24

Lawler, Iowa 52154

**RTECS:**

536-238-5555

**TSCA:** Not listed

**CI#** A997-1GAL, A997-1PT, A997-55GAL, A997-5GAL

**Synonym:** Ethyl alcohol, Ethyl hydroxide, Fermentation alcohol, Grain Alcohol, Methylcarbinol

**Chemical Name:** Ethyl alcohol

**Chemical Formula:** C<sub>2</sub>H<sub>5</sub>OH

**For non-emergency assistance, call 536-238-5555**

#### Section 2: Composition and Information on Ingredients

Name	CAS #	% by Weight
Ethyl alcohol	64-17-5	95-99

Water	7732-18-5	1-5
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OSHA Hazardous Components  
Toxicological Data on Ingredients:

#### Section 3: Hazards Identification

##### Potential Acute Health Effects

**Eye:** Causes severe eye irritation. May cause painful sensitization to light. May cause chemical conjunctivitis and corneal damage.

**Skin:** Causes moderate skin irritation. May cause cyanosis of the extremities.

**Ingestion:** May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause systemic toxicity with acidosis. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advance stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure.

**Inhalation:** Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness, coma. Causes respiratory tract irritation. May cause narcotic effects in high concentration. Vapors may cause dizziness or suffocation.

### Section 3: Hazards Identification, Continued

**Chronic:** May cause reproductive and fetal effects. Laboratory experiments have resulted in mutagenic effects. Animal studies have reported the development of tumors. Prolonged exposure may cause liver, kidney, and heart damage.

**Potential Chronic Health Effects:**

CARCINOGENIC EFFECTS: Not available.

TERATOGENIC EFFECTS: Not available.

MUTAGENIC EFFECTS: Not available.

DEVELOPMENTAL TOXICITY: Not available.

### Section 4: First Aid Measures

**Inhalation:** Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. DO NOT use mouth-to-mouth resuscitation

**Eye Contact:** Get medical aid. Gently lift eyelids and flush continuously with water.

**Skin Contact:** Get medical aid. Wash clothing before reuse. Flush skin with plenty of soap and water.

**Ingestion:** DO NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything mouth to an unconscious person. Get medical aid.

**Notes to physician:** Treat symptomatically and supportively. Persons with skin or eye disorders may be at increased risk from exposure to this substance.

**Antidote:** Replace fluid and electrolytes.

### Section 5: Fire and Explosion Data

**Flammability of the Product:**

**Auto-Ignition Temperature:** 363 deg C (685.40 deg F)

**Flash Points:** 16.6 deg C (61.88 deg F)

**Flammable Limits:** 3

**Products of Composition:**

**General Hazards:** Replace fluid and electrolytes. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with the air. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Flammable liquid. Can release vapors that form explosive

mixtures at temperatures above the flashpoint. Use water spray to keep fire-exposure containers cool. Containers may explode in the heat of a fire.

**Fire Fighting Instructions:** For small fires, use dry chemical, carbon dioxide, water spray or alcohol resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective. Do NOT use straight streams of water.

**Fire Fighting Equipment:** Respiratory and eye protection required for fire fighting personnel. Full protective equipment and a full face piece self-contained breathing apparatus in pressure demand mode should be used for all indoor fires and any significant outdoor fires. For small outdoor fires, which may easily be extinguished with a portable fire extinguisher, use of an SCBA may not be required.

#### Section 6: Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Land Spill:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. A vapor suppressing foam may be used to reduce vapors.

#### Section 7: Handling and Storage

**Storage:** Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Keep from contact with oxidizing materials. Store in cool, dry, well-ventilated area away from incompatible substances. Flammables-area. Do not store near per chlorates, peroxides, chromic acid or nitric acid.

**Handling:** Wash thoroughly after handling. Use only in a well-ventilated area. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks, and flame. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

#### Section 8: Exposure Controls/Personal Protection

**Engineering Controls:** Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

**Personal Protection:**

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators;** A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

**OSHA Vacated PELs:** Ethyl alcohol: 1000 ppm TWA; 1900 mg/m<sup>3</sup> TWA Water: No OSHA Vacated PELs are listed for this chemical.

### Section 9: Physical and Chemical Properties

**Physical State and Appearance:** Clear liquid , colorless

**Vapor Pressure:** 59.3 mm Hg @ 20 deg C

**Odor:** Mild, rather pleasant, like wine or whiskey

**Appearance:** colorless

**pH:** Not available

**Boiling Point:** 78 deg C

**Solubility:** Miscible

**Vapor Density:** 1.59

**Viscosity:** 1.200 cP @ 20 deg C

**Freezing/Melting Point:** -114.1 deg C

**Decomposition Temperature:** Not available

**Molecular formula:** C<sub>2</sub>H<sub>5</sub>OH

**Molecular Weight:** 46.0414

### Section 10: Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures.

**Conditions to Avoid:** Incompatible materials, ignition sources, excess heat, oxidizers.

**Incompatible Materials and Conditions to Avoid:** Strong oxidizing agents, acids, alkali metals, ammonia, perchlorate, bromine pentafluoride, perchloric acid, silver nitrate, mercuric nitrate, potassium-tert-iodine heptafluoride, acetyl bromide, disulfuryl difluoride, tetrachlorosilane + water, acetyl chloride, permanganic acid, ruthenium (VIII) oxide, uranyl perchlorate, potassium dioxide.

**Hazardous Decomposition:** Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

### Section 11: Toxicological Information

**RTECS#:**

**CAS# 64-17-5:** KQ6300000

**CAS# 7732-18-5:** ZCo110000

**LD50/LC50:**

**CAS# 64-17-5:**

Draize test, rabbit, eye: 500 mg Severe;

Draize test, rabbit, eye: 500 mg/24H Mild;

Draize test, rabbit, skin: 20 mg/24H Moderate;

Inhalation, mouse: LC50= 39 gm/m<sup>3</sup>/4H;

Inhalation, rat: LC50= 20000 ppm/10H;

Oral, mouse: LD50 =3450 mg/kg;

Oral, rabbit: LD50 =6300 mg/kg;

Oral, rat: LD50 = 7060 mg/kg;

Oral, rat: LD50 = 9000 mg/kg;

**CAS# 7732-18-5:**

Oral, rat: LD50 = > 90 mL/kg;

**Carcinogenicity:**

CAS# 64-17-5 Not listed by ACGIH  
CAS# 7732-18-5 Not listed by ACGIH

**Epidemiology:** Ethanol has been shown to produce fetotoxicity in the embryo or fetus of laboratory animals. Prenatal exposure to ethanol is associated with a distinct pattern of congenital malformations that have collectively been termed the “fetal alcohol syndrome”.

**Teratogenicity:** Oral, Human – woman: TDLo=41 gm/kg (female 41 week (s) after conception) Effects on Newborn – Apgar score (human only) and Effects on Newborn- other neonatal measures or effects and Effects on Newborn – drug dependence.

**Reproductive Effects:** Intrauterine, Human- woman: TDLo = 200 mg/kg (female 5 day (s) pre mating) Fertility – female fertility index ( e.g. # females pregnant per # sperm positive females; # females pregnant per # females mated).

**Mutagenicity:** DNA Inhibition: Human, Lymphocyte + 220 mmol/L. ; cytogenetic Analysis: Human, Lymphocyte \_ 1160 gm/l. ; Cytogenetic Analysis: Human, Fibroblast + 12000 ppm.

### Section 12: Ecological Information

**Ecotoxicity:** Fish: Rainbow trout: LC50=12900-15300 mg/L; 96 Hr; Flow-through @ 24-24.3 CFish: Rainbow trout: LC50=11200 mg/L; 24 Hr; Fingerling (Unspecified) Bacteria:

Phylobacterium phosphoreum: EC50 = 34900 Mg/L; 5-30 min; Microtox test When spilled on land it is apt to volatilize and probably biodegrade. It would not be expected to absorb to sediment or bioconcentrate in fish.

**Environmental:** When released to the atmosphere it will photodegrade in hours ( polluted urban atmosphere) to an estimated range of 4 to 6 days in less polluted areas. Rainout should be significant.

**Physical:** No information available.

### Section 13: Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P SERIES:** Not listed

**RCRA U-SERIES:** Not listed

### Section 14: Transport Information

**DOT Classification:** ETHANOL

**Hazard Class:** 3

**UN Number:** UN1170

**Packing Group:** II

## Section 15: Other Regulatory Information

### Federal and State Regulations:

**TSCA 8(b) Inventory:** CAS # 64-17-5 is listed on the TSCA inventory  
CAS# 7732-18-5 is listed on the TSCA inventory

**Health & Safety Reporting List :** None of the chemicals in this product are under a Chemical Test Rue.

**Section 12b :**None of the chemicals are listed under TSCA Section 12b.

**TSCA Significant New Use Rule:** None of the chemicals in the material have a SNUR under TSCA

**SARA Title III:** None of the chemicals in this product have a TPQ

**CERCLA:** Components of this product are not listed under this statute.

## Section 16: Other Information

**References:** Legend Technical Services, Inc.

**Created:** 12/15/2004

**Last Updated:** 01/15/2009

**HMIS (U.S.A.):**

Health Hazard: 1

Fire Hazard: 1

Reactivity: 0

Personal Protection:1

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

Health: 1

Flammability: 1

Reactivity: 0

Specific hazard: NA

Complies with WHMIS Requirements in Canada.

OSHA Requirements in USA

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