SAFETY DATA SHEET

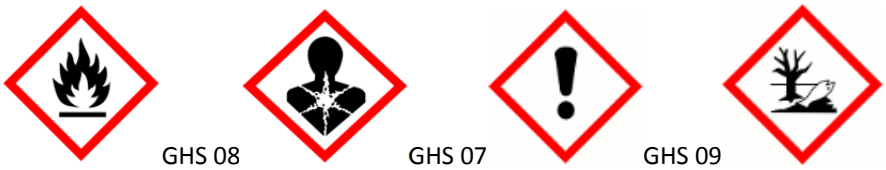
Denatured Fuel Ethanol

Section 1 Product Description

Product Name: Denatured Ethanol
Synonyms: Ethanol, Grain Alcohol, Denatured 200 proof alcohol
Recommended Use: Fuel, fuel additive
Supplier: Cardinal Ethanol LLC
Cardinal Ethanol
1554 N. 600 E.
Union City, IN
47390
765-964-3137
Chemical Information: 795-964-3137
Chemtrec: 800-424-9300 (Transportation Spill Response 24 hours)

Section 2 Hazard Identification

Classification of the chemical in accordance with paragraph (d) of §1910.1200;



GHS 02 GHS 08 GHS 07 GHS 09

DANGER: Highly flammable liquid and vapor.
GHS Classification: Flammable Liquid Category 2, Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 2.
Other Safety Precautions: IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.
Acute Toxicity Dermal Contains 90.975 % of the mixture consists of ingredient(s) of unknown toxicity

Section 3 Composition / Information on Ingredients

Chemical Name	CAS #	%
Ethanol	64-17-5	85.98
Water	7732-18-5	5
2-Propanol	67-63-0	4.75
Methanol	67-56-1	4.28

SAFETY DATA SHEET

Section 4 First Aid Measures

Emergency and First Aid Procedures
Inhalation: In case of accident by inhalation: remove casualty to fresh air and keep at rest.
Eyes: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Skin Contact: After contact with skin, wash immediately with plenty of water.
Ingestion: If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

Section 5 Firefighting Procedures

Extinguishing Media: Use dry chemical, CO2 or appropriate AF rated foam. SMALL FIRES: Any extinguisher suitable for class B fires, dry chemical, CO2, water spray, firefighting AF rated foam or Halon. LARGE FIRES: Water spray, fog or firefighting AF rated foam. Water may be ineffective for fighting the fire, but may be used to cool fire exposed containers.
Fire Fighting Methods and Protection: Firefighters should wear full protective equipment and NIOSH approved self-contained breathing apparatus.
Fire and/or Explosion Hazards: Vapors may travel back to ignition source. Closed Containers exposed to heat may explode. Extremely flammable.
Hazardous Combustion Products: Carbon dioxide, Carbon monoxide

Section 6 Spill or Leak Procedures

Steps to Take in Case Material Is Released or Spilled: No health affects expected from the clean-up of this material if contact can be avoided. Follow personal protective equipment recommendations found in Section 8 of this MSDS Ventilate the contaminated area.
Safety Data Sheet: Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

Section 7 Handling and Storage

Handling: Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/…/ equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.
Storage: Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.
Storage Code: Red - Flammables. Store in approved flammable containers. Store away from oxidizing materials.

SAFETY DATA SHEET

Section 8 Protection Information

	ACGIH		OSHA PEL	
Chemical Name	**(TWA)**	**(STEL)**	**(TWA)**	**(STEL)**
Ethanol	N/A	1000 ppm STEL	1000 ppm TWA; 1900 mg/m3 TWA	N/A N/A
2-Propanol	200 ppm TWA	400 ppm STEL	400 ppm TWA; 980 Mg/m3 TWA	N/A
Methanol	200 ppm TWA	250 ppm STEL	200 ppm TWA; 260 Mg/m3 TWA	N/A

Control Parameters Engineering Measures: Local exhaust ventilation or other engineering controls are normally required when handling or using this product to avoid overexposure.
Personal Protective Equipment (PPE): Lab coat, apron, eye wash, safety shower.
Respiratory Protection: No respiratory protection required under normal conditions of use. Provide general room exhaust ventilation if symptoms of overexposure occur as explained Section 11. A respirator is not normally required.
Respirator Type(s): None required where adequate ventilation is provided. If airborne concentrations are above the applicable exposure limits, use NIOSH/MSHA approved respiratory protection.
Eye Protection: Wear chemical splash goggles when handling this product. Have an eye wash station available.
Skin Protection: Wear protective gloves. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work.
Gloves: Nitrile

Section 9 Physical Data

Formula: See Section 3
Molecular Weight: (Ethanol) 46.07
Appearance: Colorless Liquid
Odor: Moderate Alcohol Odor
Odor Threshold: No data available
pH: No data available
Melting Point: 114 C
Boiling Point: 79 C
Flash Point: 17 C
Vapor Pressure: 57.3 hPa at 20°C
Evaporation Rate (BuAc=1): 3.3
Vapor Density (Air=1): 1.6
Specific Gravity: (Ethanol) 0.789 at 20 °C
Solubility in Water: Soluble
Log Pow (calculated): -0.32
Auto ignition Temperature: 363 C
Decomposition Temperature: No data available
Viscosity: No data available
Flammable Limits in Air: (Ethanol) LEL: 3.3% UEL: 19% **Percent Volatile by Volume:** 95%

SAFETY DATA SHEET

Section 10 Reactivity Data

Reactivity: Not generally reactive under normal conditions. Vapors may form explosive mixture with air.
Chemical Stability: Stable under normal conditions.
Conditions to Avoid: Temperatures above the high flash point of this combustible material in combination with sparks, open flames, or other sources of ignition.
Incompatible Materials: Organic Peroxides, Strong acids, Oxidizing materials, Water-reactive materials
Hazardous Decomposition Products: Carbon dioxide
Hazardous Polymerization: Will not occur.

Section 11 Toxicity Data

Routes of Entry: Inhalation and ingestion.
Symptoms (Acute): Respiratory Irritation, Dermatitis, Central Nervous System Depression
Delayed Effects: Liver disorders
Acute Toxicity:

Chemical Name	CAS Number	Oral LD50	Dermal LD50	Inhalation LC50
Ethanol	64-17-5	Oral LD50 Rat 7060 mg/kg		INHALATION LC50-4H Rat 124.7 mg/l
Water	7732-18-5	not applicable		
2-Propanol	67-63-0	Oral LD50 Rat 4396 mg/kg	DERMAL LD50 RAT 12800 mg/kg DERMAL LD50 RABBIT 12870 MG/KG	INHALATION LC50-4H Rat 72.6 MG/L
Methanol	67-56-1	Oral LD50 Rat 5628 mg/kg	DERMAL LD50 RABBIT 15800 Mg/kg	INHALATION LC50-4H Rat 64000 ppm

Carcinogenicity:

Chemical name	CAS Number	Oral LD50	Dermal LD50	Inhalation LC50
Ethanol	64-17-5	Listed	Listed	Listed
2-Propanol	67-63-0	Listed	Not Listed	Not Listed
Methanol	67-56-1	Not Listed	Not Listed	Not Listed

Chronic Effects:
Mutagenicity: No evidence of a mutagenic effect.
Teratogenicity: No evidence of a teratogenic effect (birth defect).
Sensitization: No evidence of a sensitization effect.
Reproductive: No evidence of negative reproductive effects.
Target Organ Effects:
Acute: Central Nervous System, Eyes
Chronic: Eyes

SAFETY DATA SHEET

Section 12 Ecological Data

Overview: Slight ecological hazard. In high concentrations, this product may be dangerous to plants and/or wildlife.
Mobility: This material is expected to have moderate mobility in soil. It absorbs to most soil types.
Persistence: Biodegradation is expected to be a major fate process for this material.
Bioaccumulation: Bio concentration is not expected to occur.
Degradability: Biodegrades quickly.
Other Adverse Effects: No data

Chemical Name	CAS Number	Eco Toxicity
Ethanol	64-17-5	96 HR LC50 PIMEPHALES PROMELAS > 100 MG/L [STATIC]
Water	7732-18-5	No data available
2-Propanol	67-63-0	96 HR LC50 LEPOMIS MACROCHIRUS > 1400000 µG/L
Methanol	67-56-1	96 HR LC50 PIMEPHALES PROMELAS 11130 MG/L [STATIC]
48 HR EC50 DAPHNIA MAGNA 2 MG/L [STATIC]		
		24 HR EC50 DAPHNIA MAGNA 10800 MG/L
		48 HR LC50 DAPHNIA MAGNA 9268 - 14221 MG/L
		48 HR EC50 DAPHNIA MAGNA 13299 MG/L
		72 HR EC50 DESMODESMUS SUBSPICATUS > 1000 MG/L
		96 HR EC50 DESMODESMUS SUBSPICATUS > 1000 MG/L

Section 13 Disposal Information

Disposal Methods: Dispose in accordance with all applicable Federal, State and Local regulations. Always contact a permitted waste disposer (TSD) to assure compliance.

Waste Disposal Code(s): If discarded, this product is considered a RCRA ignitable waste, D001.

Section 14 Transport Information

Ground - DOT Proper Shipping Name:

UN1170

Ethanol Solutions

Class 3

P.G. II

Air - IATA Proper Shipping Name:

UN1170

Ethanol Solutions

Class 3

P.G. II

SAFETY DATA SHEET

Section 15 Regulatory Information

TSCA Status: All components in this product are on the TSCA Inventory.

Chemical Name	CAS Number	§ 313 Name	§ 304 RQ	CERCLA RQ	§ 302 TPQ	CAA 112(2) TQ
Ethanol	64-17-5	No	No	No	No	No
2-Propanol	67-63-0	Isopropyl alcohol	No	No	No	No
Methanol	67-56-1	No	No	No	No	No

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.

Section 16 Additional Information

Revised: 09/02/2014

The information provided in this (Material) Safety Data Sheet represents a compilation of data drawn directly from various sources available to us. Cardinal Ethanol, LLC makes no representation or guarantee as to the suitability of this information to a particular application of the substance covered in the (Material) Safety Data Sheet.

Glossary:

ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstract Service Number
CERCLA: Comprehensive Environmental Response, Compensation and Liability Act
DOT: U.S. Department of Transportation
IARC: International Agency for Research on Cancer
N/A: Not Available
IDLH: Immediately dangerous to life and health
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
ppm: Parts per million
RCRA: Resource Conservation and Recovery Act
SARA: Superfund Amendments and Reauthorization Act
TLV: Threshold Limit Value
TSCA: Toxic Substances Control Act