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SAFETY DATA SHEET

Your Logo

Date:

Section 1: Identification

Product Name: Denatured Fuel Ethanol

Other names: E98, Fuel Ethanol, Denatured Ethyl Alcohol

Intended Use / Restriction: Automotive Spark Ignition Engine Fuel, Motor Fuel Additive

Manufactured by: Company XYZ, Company Address, Company Phone Number

24-hour Emergency Phone Number: a knowledgeable individual that can handle responding to the emergency with proper information. Some use the Chemtrec service for this.

CHEMTREC Phone (24HR Emergency Telephone): 1-800-424-9300 (Within U.S.A)

International CHEMTREC Call: 1-703-527-3887

Section 2: Hazard(s) Identification



GHS Pictograms:

Signal Word: **Danger**

OSHA HCS 2012 (GHS) Classification:

Physical	Health	Environment
Flammable Liquids- Hazard Category 2	Acute Toxicity (oral) - 4 Skin corrosion / irritation - 3 Serious eye damage / eye irritation - 2A Specific Target Organ Toxicity Single Exposure - 3	Acute hazards to the aquatic environment - 3

Hazard Statements:

H225 - Highly Flammable liquid and vapor

- H302 - Harmful if swallowed
- H312 - Harmful if contact with the skin
- H316 - Causes mild skin irritation
- H319 - Causes serious eye irritation
- H335 - May cause respiratory irritation
- H336 - May cause drowsiness or dizziness
- H402 - Harmful to aquatic life

Precautionary statements:

Prevention	Response
P201: Obtain special instructions before use.	P301 [P311]: IF SWALLOWED: Call a Poison Center or Doctor
P202: Do not handle until all safety precautions have been read and understood.	P303 [P361/ P353]: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P210: Keep away from heat / sparks / open flames / hot surfaces. No Smoking.	P304 [P312]: IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell.
P233: Keep container tightly closed.	P305 [P351/ P338]: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P235: Keep cool.	P308 [P313]: If exposed or concerned: Get medical advice or attention.
P240: Ground / bond container and receiving equipment.	P332 [P313]: If skin irritation occurs; Get medical advice or attention.
P241: Use explosion-proof electrical / ventilating / lighting equipment.	P337 [P313]: If eye irritation persists; Get medical advice or attention.
P242: Use only non-sparking tools.	P370 [P380 / P376 / P378]: In case of fire: Evacuate area, stop leak if safe to do so, use proper fire-extinguishers (alcohol-resistant foam, dry powder, or CO2) to extinguish.
P243: Take precautionary measures against static discharge.	
P261: Avoid breathing fumes / gas / mist / vapors / spray.	
P264: Wash hands thoroughly after handling.	
P270: Do not eat, drink or smoke when using this product.	
P273: Avoid release to the environment.	
P280: Wear protective gloves and eye and face protection.	

Storage	Disposal
P403 [P233 / P235]: Store in a well ventilated place. Keep container tightly closed. Keep cool.	P501: Dispose of contents / container in accordance with local and national regulations.
P405: Store locked up	

Hazards not otherwise classified: Vapors can be explosive.

Section 3: Composition / Information on Ingredients

<u>Ingredient</u>	<u>CAS #</u>	<u>EC #</u>	<u>% Volume</u>
Ethanol	64-17-5	200-578-6	95 -98
Natural Gasoline	68425-31-0	232-349-1	2 - 5
Gasoline	86290-81-5	289-220-8	2 - 5
Benzene	71-43-2	200-753-7	<0.1

This product consists primarily of ethanol (ethyl alcohol). Either natural gasoline or gasoline is added as a denaturing ingredient per United States federal regulations to render the ethanol unfit for human consumption.

Section 4: First Aid Measures

Skin: If product has contacted clothing, remove the contaminated clothing as quickly as possible. Wash skin thoroughly with soap or a mild detergent. Apply a skin cream with lanolin. If irritation occurs seek medical attention. Wash contaminated clothing before reusing.

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lens. Do not use an eye ointment. Seek medical attention if irritation persists after flushing eyes.

Inhalation: Move exposed person to fresh air. If not breathing give artificial respiration. In cases of inhalation of IDHL levels, evacuate the victim to a safe area as soon as possible. Loosen tight fitting clothing. Get medical attention immediately.

Ingestion: IF SWALLOWED DO NOT INDUCE VOMITTING. If the victim is conscious, give person one to two glasses of water. If vomiting occurs, keep head below waist level to avoid aspiration into the lungs. Get medical attention immediately

Section 5: Fire Fighting Measures

HMIS Classification

Denatured Fuel Ethanol	
HEALTH	2
FLAMMABILITY	3
PHYSICAL HAZARD	0
PERSONAL PROTECTION	H
eye protection / gloves / protective clothing	



Health - 1
 Flammability - 3
 Reactivity - 0

NFPA 704 Rating

Flash Point (ASTM D3278, Closed Cup)
 Auto Ignition Temperature
 Explosive Limits (In Air)

19.4 °F (- 7°C)
 709°F (376°C)
 LFL; 3.5% UFL; 16.8%

Extinguishing Media: Alcohol resistant foam, dry chemical or carbon dioxide

Fire Fighting Procedures: Use alcohol compatible foam (AR-AFFF). Water may be ineffective on flames but may be used to cool fire exposed containers. Wear self-contained breathing apparatus with a full face piece operated in the positive pressure demand mode when fighting fires.

Hazardous Decomposition Products: May form toxic materials, carbon dioxide and carbon monoxide.

Special Fire and Explosion Hazards: Flames are invisible in daylight. Vapors are heavier than air and may travel along the ground or may be moved by ventilation and ignited by pilot lights or other flames, sparks, heaters, smoking, electric motors, static discharge, or other ignition sources at locations distant from material handling point. Never use welding or cutting torch on or near drum, even empty, because product residue can ignite explosively.

Section 6: Accidental Release Measures

Personal Precautions: Wear eye protection, gloves, boots and protective clothing while cleaning up spills. Take precautionary measures to avoid direct contact with material. Respiratory protective equipment may be necessary in a closed environment. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.

Environmental Precautions: Prevent run-off to sewers, streams or other bodies of water. If run-off occurs notify proper authorities as required that a spill has occurred.

Methods and Materials for Containment and Cleanup:

Small Spill: Absorb liquid on paper, vermiculite, floor absorbent, or other absorbent material and transfer to hood.

Large Spill: Due to flammability of this product eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source, dike area or spill to prevent spreading. Pump liquid to salvage tank. Remaining liquid may be taken up on sand, clay, earth, floor absorbent, or other absorbent material and shoveled into containers.

Section 7: Handling and Storage

Precautions for Safe Handling: Wear personal protective equipment. Use only spark resistant tools. Ensure adequate ventilation. After handling use good hygiene practices.

Conditions for Safe Storage: Store this material away from heat, sparks and flames. Containers of this material may be hazardous when empty since emptied containers retain product residues (vapor or liquid). It is good practice to triple rinse with water empty drums. Above ground storage must meet applicable codes. Ground and cross bond all containers when pouring or transferring. All hazard precautions given in this datasheet must be observed.

Section 8: Exposure Controls / Personal Protection

Exposure Limits:

<u>Ingredient</u>	<u>OSHA PEL / STEL</u>	<u>ACGIH TLV / STEL</u>
Ethanol	1000 ppm	1000 ppm
Natural Gasoline	300 ppm / 500 ppm	300 ppm / 500 ppm
Gasoline	300 ppm / 500 ppm	300 ppm / 500 ppm
Benzene	1 ppm	10 ppm

Engineering Controls: Provide sufficient mechanical or general ventilation to maintain exposure below limits. Provide eye wash stations. Provide proper respiratory PPE when necessary.

Respiratory Protection: If workplace exposure limit(s) of product or any component is exceeded, (Section II) a NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators, air purifying respirator with cartridges for organic vapor under specified conditions. Engineering or administrative controls should be implemented to reduce exposure.

Protective Gloves: Wear resistant gloves such as neoprene.

Eye Protection: Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety supplier.

Other Protective Equipment: To prevent repeated or prolonged skin contact, wear impervious clothing/boots. Eye wash baths and safety showers are recommended. Also check atmosphere for explosiveness and oxygen deficiency when necessary.

Signs and Symptoms of Exposure: Central nervous system reactions including nausea, dizziness, headaches and stupor of speech associated with difficulty in walking. Overexposure to this material has been suggested as a cause of the following effects in humans: liver abnormalities and eye damage. Material can cause dermatitis of the skin on prolonged or repeated exposure. Single large doses taken into the body through ingestion may lead to alcohol poisoning.

Section 9: Physical and Chemical Properties

Appearance and Odor	Clear, colorless volatile liquid with alcohol odor
Odor Threshold	not applicable
Physical State	Liquid
pH	6 – 9 (typically)
Freezing Point (ethanol)	- 173°F (- 114°C)
Initial Boiling Point (ASTM D86)	162.5°F (72.5°C) @ 760 mm Hg
Flash Point (ASTM D3278, Closed Cup)	19.4 °F (- 7°C)
Evaporation Rate (n-butyl acetate = 1)	1.9
Flammability Explosive Limits (In Air)	LFL; 3.5% UFL; 16.8%
Vapor Pressure (DVPE)	3.17 psi
Vapor Density (Air = 1) (ethanol)	1.6
Specific Gravity	0.787 – 0.797 @ 60°F (15.55°C)
Solubility in Water	Complete
Partition Coefficient: n-octanol/water	not applicable
Auto Ignition Temperature	709°F (376°C)
Viscosity (ethanol) 25°C	1.08 centipoises
Decomposition Temperature	not applicable

Notes: Data provided for product is supported by laboratory analyses performed in 2014 provided by the Renewable Fuels Association. Exceptions are freezing point, vapor density and viscosity which were found in references for pure ethanol (ethyl alcohol).

Section 10: Stability and Reactivity

Stability	Stable
Conditions to Avoid	High heat, sparks and hot metal surfaces
Incompatibility (Materials to Avoid)	Strong oxidizing agents and strong inorganic acids
Hazardous decomposition products	Under normal storage does not decompose. If fire may form toxic materials, carbon dioxide and carbon monoxide
Hazardous Polymerization	Will not occur

Section 11: Toxicological Information

Health effects testing on this product have been ongoing. The reports are being completed and will be forwarded to the U.S. EPA for review. The information included was found in references for ethanol (ethyl alcohol).

LD50 - Ethanol	Acute Oral	7060 mg/kg (Rat)
LD50 - Ethanol	Acute Oral	3450 mg/kg (Mouse)
LD50 - Ethanol	Acute Dermal	20000 mg/kg (Rabbit)

Effects of Acute Overexposure:

Eyes: Can cause moderate irritation, redness, tearing.

Skin: Can cause slight irritation, redness and dryness.

Breathing: Excessive inhalation of vapors can cause nasal and respiratory irritation. When inhaled or absorbed in harmful quantities may produce central nervous system depression characterized by irritation, headaches, nausea, dizziness, lack of concentration, fatigue, and stupor.

Swallowing: Can cause gastrointestinal irritation, nausea, vomiting, and diarrhea. Introduction of solvents, as in aspiration of vomit fluid, may produce chemical pneumonia.

Effects of Chronic Overexposure:

Overexposure to this material has been suggested as a cause of the following effects in humans: liver abnormalities and eye damage. Material can cause dermatitis of the skin on prolonged or repeated exposure. Single large doses taken into the body through ingestion may lead to alcohol poisoning.

Signs and Symptoms of Exposure: Central nervous system reactions including nausea, dizziness, headaches and stupor of speech associated with difficulty in walking.

Medical conditions Generally Aggravated by Exposure: Existing respiratory disorders and skin diseases may be aggravated by exposure.

Carcinogenicity: NTP – No IARC Monographs – No OSHA Regulated – No

Other: IARC Monographs – Benzene; Carcinogen and Natural Gasoline; Possible Carcinogen

Section 12: Ecological Information

Toxicity: Fish, acute	LC50: 96 hours (fathead minnows)	14,200 mg/l
	LC50: 96 hours (daphnia, ceriodaphnia)	5,000 mg/l
Toxicity Aquatic Plants growth inhibition	Chlorella vulgaris (fresh water algae)	1,000 mg/l
Persistence and degradability	Biodegrades rapidly	
Bio-accumulative potential	No	
Mobility in soil	Yes	

Section 13: Disposal Considerations

Spill: Reclaim if Possible. Destroy by liquid incineration. Follow all applicable local, state and federal laws. Contaminated absorbent may be deposited in a landfill in accordance with local, state and federal regulations.

Section 14: Transport Information

DOT Classification: FLAMMABLE LIQUID, Hazard Class 3, Packing Group II

Placard Identification: UN1987 Alcohols, n.o.s. (ethanol, gasoline); *or* UN3475, Ethanol and gasoline mixture

Section 15: Regulatory Information

SARA Section 302 (Extremely Hazardous Substance): Not Applicable

SARA Section 311/312 (Hazard Categories): Acute and Chronic Health Hazards and Fire Hazard

SARA Section 313 (Toxic Chemicals): Not Applicable for ethanol. Benzene is reportable.

CERCLA: Not Applicable

CAA 112 (r): Not Applicable

RCRA: Not Applicable

Section 16: Other Information

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