



Green Plains

GHS SAFETY DATA SHEET

DENATURED ETHANOL

SDS DATE: 09/28/2017

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME (GHS Product Identifier): Denatured Ethanol
(Other means of Identification): Denatured Ethyl Alcohol

PRODUCT INTENDED USE AND RESTRICTION: Automobile fuel, fuel additive

MANUFACTURER: Green Plains, Inc.
DIVISION:

Green Plains Atkinson LLC. 87590 Hill Crest Rd. Atkinson, NE 68713 P.O. Box 391, Atkinson, NE 68713 Phone: 402-925-5570 Fax: 402-925-2988 <input checked="" type="checkbox"/>	Green Plains Bluffton LLC. 1441 S. Adams St., Bluffton, IN 46714 Phone: 260-353-1212 Fax: 260-353-1100 <input checked="" type="checkbox"/>	Green Plains Central City LLC. 214 20 th St., Central City, NE 68826 Phone: 308-946-9700 Fax: 308-946-2623 <input checked="" type="checkbox"/>	Green Plains Fairmont LLC. 1125 N Bixby Road, Fairmont, MN 56031 Phone: 507-238-3600 Fax: 507-238-3624 <input checked="" type="checkbox"/>	Green Plains Hereford LLC 4300 County Road 8 Hereford, TX 79045 Phone: 806-258-7800 Fax: 806-258-7801 <input checked="" type="checkbox"/>
Green Plains Holdings II LLC.-Lakota 1660 428 th St., Lakota, IA 50451 Phone: 515-886-2222 Fax: 515-886-2127 <input checked="" type="checkbox"/>	Green Plains Holdings II LLC.-Riga 7025 Siberhorn Hwy, Blissfield, MI 49228 P.O. Box 12, Riga, MI 49276 Phone: 517-486-6190 Fax: 517-486-6192 <input checked="" type="checkbox"/>	Green Plains Hopewell LLC 701 South 6th Avenue Hopewell, VA 23860 Phone: 804-668-0010 Fax: 804-668-0020 <input checked="" type="checkbox"/>	Green Plains Madison LLC 395 Bissell St Madison, IL 63060 Phone: 618-451-4420 Fax: 618-452-8946 <input checked="" type="checkbox"/>	Green Plains Mt Vernon LLC 8999 W Franklin Rd Mt Vernon, IN 47620 Phone: 812-985-4023 Fax: 812-985-9983 <input checked="" type="checkbox"/>
Green Plains Obion LLC. 2098 McDonald Rd., Rives, TN 38253/P.O. Box 95, Obion, TN 38240 Phone: 731-536-1286 Fax: 731-536-1434 <input checked="" type="checkbox"/>	Green Plains Ord LLC. 48267 Val-E Road, Ord, NE 68862 Phone: 308-496-4823 Fax: 308-496-4890 <input checked="" type="checkbox"/>	Green Plains Otter Tail LLC. 24096 170th Ave., Fergus Falls, MN 56537 Phone: 218-998-4301 Fax: 218-998-4302 <input checked="" type="checkbox"/>	Green Plains Shenandoah LLC. 4124 Airport Rd., Shenandoah, IA 51601 Phone: 712-246-2932 Fax: 712-246-3988 <input checked="" type="checkbox"/>	Green Plains Superior LLC. 1495 320th Ave, Superior, IA 51363 Phone: 712-858-4666 Fax: 712-858-4684 <input checked="" type="checkbox"/>
Green Plains Wood River LLC. 7874 South 140th Road, Wood River, NE 68883 Phone: 308-385-1200 Fax: 308-385-9990 <input checked="" type="checkbox"/>	Green Plains York LLC 1414 County Rd O York, NE 68467 Phone: 402-362-2285 Fax: 402-362-7041 <input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Green Plains Grain Company LLC. Archer 2132 Archer Road Archer, NE 68816 Phone: 308-795-2211 <input type="checkbox"/>	Green Plains Grain Company LLC. Cimarron 19016 Road I Kismet, KS 67859 Phone: 620-624-6296 Fax: 620-624-4411 <input type="checkbox"/>	Green Plains Grain Company LLC. Essex 411 North Street, Essex, IA 51638 Phone: 712-379-3155 Fax: 712-379-3175 <input type="checkbox"/>	Green Plains Grain Company LLC. Hopkins 200 N. Railroad Hopkins, MO 64461 Phone: 660-778-3331 Fax: 660-778-3676 <input type="checkbox"/>	<input type="checkbox"/>

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

INTERNATIONAL CHEMTREC CALL: 1-703-527-3887

OTHER CALLS: 1-402-884-8700 (M-F, 8 AM-5 PM, Central time (U.S.A & Canada); within U.S.A)

FAX PHONE: 1-402-884-8776 (M-F, 8 AM-5 PM, Central time (U.S.A & Canada); within U.S.A)

SECTION 1 NOTES: None Available

SECTION 2: HAZARDS IDENTIFICATION

GHS LABELING AND CLASSIFICATION: This product meets the definition of the following hazard classes as defined by the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).





Green Plains

GHS SAFETY DATA SHEET

DENATURED ETHANOL

SDS DATE: 09/28/2017

GHS CLASSIFICATION ACCORDING TO ANNEX II:

HEALTH	ENVIRONMENTAL	PHYSICAL
Serious eye damage/eye irritation-2A Skin corrosion/irritation-3 STOT SE-2 Acute toxicity (Oral)-Category 4	Not classified	Flammable Liquids-Category 2
SIGNAL WORD:		DANGER
SYMBOL:		 
HAZARD STATEMENT:		H225: Highly flammable liquid and vapor. H319: Causes serious eye irritation. H315: Causes skin irritation. H335: May cause respiratory irritation H336: May cause drowsiness or dizziness H302: Harmful if swallowed.
PRECAUTIONARY STATEMENTS:	PREVENTIVE:	P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood P210-Keep away from heat/sparks/open flames/hot surfaces.—No smoking. P241: Use explosion-proof electrical/ventilating/light/.../equipment. P242: Use only non-sparking tools. P243: Take precautionary measures against static discharge. P264: Wash hands thoroughly after handling. P261: Avoid breathing fume/gas/mist/vapors/spray. P270: Do not eat, drink or smoke when using this product.
	RESPONSE:	P370+380+376+378: In case of fire: Evacuate area, stop leak if safe to do so, use proper fire-extinguishers (e.g. alcohol-resistant foam, dry powder, CO2) for extinction P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+313: If eye irritation persists, get medical advice/attention P303+361+353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P304+312: IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell. P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor/... P308+P313: IF exposed or concerned: Get medical advice/attention
	STORAGE:	P403+235: Store in a well ventilated place. Keep cool. P405: Store locked up. P410: Protect from sunlight.
	DISPOSAL:	P501: Dispose of contents/container to relevant local and national regulations.

Any Regional Considerations: N/A

SECTION 2 NOTES: Vapor/air mixtures are explosive

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

	Ethanol CAS#: 64-17-5	Gasoline CAS#: 8006-61-9	Benzene CAS#:71-43-2
CHEMICAL NAME	Ethyl alcohol	Gasoline	Benzene
COMMON NAME	Ethanol	Gasoline	Benzene
CHEMICAL FAMILY	Alcohols	Petroleum hydrocarbon	Aromatic hydrocarbon
CHEMICAL FORMULA	C ₂ H ₆ O	N/A	C ₆ H ₆
SYNONYMS	Alcohol, absolute ethanol	Lead-free gasoline, natural gasoline	Annulene, Benzeen, Benzol

INGREDIENT: Ethanol; natural gasoline; gasoline; benzene

NAME	CAS#	EC#	ICSC#	% WT	% VOL
------	------	-----	-------	------	-------



GHS SAFETY DATA SHEET

DENATURED ETHANOL

SDS DATE: 09/28/2017

Ethanol	64-17-5	200-578-6	0044	95-98%	N/A
Natural Gasoline	8006-61-9	232-349-1	N/A	2-5%	N/A
Gasoline	86290-81-5	289-220-8	1400	2-5%	N/A
Benzene	71-43-2	200-753-7	0015	<0.1%	N/A

CARCINOGENICITY

OSHA: NOT APPLICABLE **ACGIH:** NOT APPLICABLE **NTP:** NOT APPLICABLE **IARC:** NOT APPLICABLE
OTHER: Natural gasoline: Possible Carcinogen (2B) listed by IARC; Benzene: Carcinogen (1) listed by IARC; Ethanol: ACGIH TLV-A3

IMPURITIES/STABILIZING ADDITIVES IDENTIFICATION: N/A

IMPURITIES/STABILIZING ADDITIVES CLASSIFICATION (if applicable): N/A

SECTION 3 NOTES: None Available

SECTION 4: FIRST AID MEASURES

Contaminated individuals of chemical exposure must be taken for medical attention if any adverse effect occurs. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to health professional with contaminated individual.

EMERGENCY OVERVIEW: 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.
 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.

ROUTES OF ENTRY/FIRST AID:

EYES CONTACT: Flush with water for minimum of 15 minutes

SKIN CONTACT: Flush with water for minimum of 15 minutes

INHALATION: Remove victim to fresh air

INGESTION: This product may be harmful or fatal if swallowed. DO NOT induce vomiting. Drink water to dilute

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Any pre-existing disorders of the nervous system, liver, respiratory system, skin, eyes and gastrointestinal tract may be aggravated by exposure

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS:

SECTION 4 NOTES: None Available

SECTION 5: FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: For small fire, use dry chemicals, CO₂, water spray or alcohol resistant foam; For large fire, use water spray, water fog or alcohol resistant foam

PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE FIGHTERS: Wear an approved positive pressure, self-contained breathing apparatus and firefighter gear. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers by flooding with water until fire is completely extinguished. Always stay away from tanks engulfed in flames

UNUSUAL FIRE AND EXPLOSION HAZARDS:

(Define specific hazards arising from the chemical e.g., nature of any hazardous combustion products)

Ethanol vapors may travel a considerable distance to a source of ignition and flash back. Alcohols burn with a pale blue flame, which may only be able to feel the heat of the flame without seeing the fire

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide, aldehydes, and ketones

FLAMMABLE LIMITS IN AIR (% by volume):

UPPER LIMIT: 19.0%

LOWER LIMIT: 3.3%



GHS SAFETY DATA SHEET

DENATURED ETHANOL

SDS DATE: 09/28/2017

FLASH POINT:

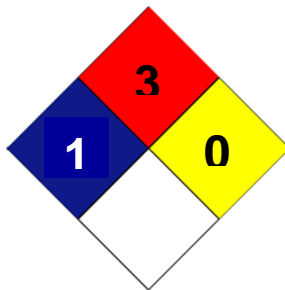
F: -55.0°F (Ethanol; Closed Cup); -45.0°F (Denaturant; est.)
C: -48.3°C (Ethanol; Closed Cup); -42.8°C (Denaturant; est.)

METHOD USED:

AUTOIGNITION TEMPERATURE:

F: 689.0°F
C: 365.0°C

NFPA HAZARD CLASSIFICATION:



HEALTH=1
FLAMMABILITY=3
REACTIVITY=0
OTHER=N/A

HMS HAZARD CLASSIFICATION (0-4 scale):

Ethanol, 200 proof	
HEALTH	2
FLAMMABILITY	3
PHYSICAL HAZARD	0
PERSONAL PROTECTION	H
Splash goggles, gloves, chemical apron, vapor respirator	

SECTION 5 NOTES: None Available

SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: In case of a large spill, wear splash goggles, full suit, vapor respirator, boots, gloves. A self contained breathing apparatus should be used to avoid inhalation of the product.

ENVIRONMENTAL PRECAUTIONS: Keep run-offs out of municipal sewers and open bodies of water. Comply with local, state and national laws and regulations

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP: For small spills, may be flushed with large amounts of water; for large spills, eliminate all sources of ignition. Stop leak if without risk. Use water spray or alcohol resistant foam to reduce vapors. Prevent entry into confined spaces. Prevent entry of material into waterways. Depending on size and nature of release, local, state and federal authorities may need to be notified.

SECTION 6 NOTES: None Available

SECTION 7: HANDLING AND STORAGE

PRECAUTION FOR SAFE HANDLING: Wear personal protective equipment. Ensure adequate ventilation. Use explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing.

CONDITIONS FOR SAFE STORAGE (any incompatibilities): Metal containers should be grounded and bonded. Protect container against physical damage. Detached or outside storage is preferred. Inside storage should be in an NFPA approved flammable liquids storage room or cabinet. All ignition sources should be eliminated. NFPA 30, flammable and combustible liquids code, should be followed for all storage and handling. Consult local fire codes for additional storage information



Green Plains

GHS SAFETY DATA SHEET

DENATURED ETHANOL

SDS DATE: 09/28/2017

SECTION 7 NOTES: None Available

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS/GUIDELINES:

INGREDIENTS	ACGIH	NIOSH	OSHA-FINAL PELs
Ethanol	1000 ppm TWA	1000 ppm TWA; 1900 mg/m ³ TWA; 3300 ppm IDLH	1000 ppm OSHA-TWA; 1900 mg/m ³ TWA
Natural Gasoline	300 ppm ACGIH TLV/TWA	N/A	N/A
Gasoline	300 ppm ACGIH TLV/TWA	300 ppm TWA; 500 ppm STEL	300 ppm OSHA-TWA; 500 ppm STEL
Benzene (constituent of gasoline)	10 ppm ACGIH TLV/TWA	Ca 0.1 ppm TWA; 1 ppm STEL; Ca 500 ppm IDLH	1 ppm OSHA PEL/TWA

ENGINEERING CONTROLS: Controls should be used whenever feasible to maintain concentrations below acceptable exposure limits including but not limited to enclosures, local ventilation and dilution ventilation. When transferring contents the metallic container must be bonded and the receiving container must be grounded to prevent static discharges. Ensure eyewash stations are available.

VENTILATION: Handle material in properly ventilated areas only

PERSONAL PROTECTIVE EQUIPMENT (PPE):

EYE PROTECTION: Wear safety glasses as a minimum eye protection. Conditions may warrant the use of chemical goggles or a face shield. Eye and face protection must comply with ANSI Z87.1-1987. Ensure eyewash stations are available

SKIN PROTECTION: Wear chemical resistant gloves (rubber, neoprene or vinyl). Use personal protection equipment that is chemical resistant and prevents skin contact

RESPIRATORY PROTECTION: A respiratory protection program meeting OSHA's 29 CFR 1910.134 or ANSI's Z88.2 requirements must be followed whenever conditions warrant respirator use

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Use other PPE as required by the situation

SECTION 8 NOTES: None Available

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: A clear colorless liquid

PHYSICAL STATE: Liquid

COLOR: colorless

ODOR: Characteristic vinous odor

pH AS SUPPLIED: N/A

pH (Other): N/A

FREEZING POINT:

F: -173.0°F

C: -113.9°C

BOILING POINT:

F: 172.9°F (@ 1 atm.)

C: 78.3°C (@ 1 atm.)

MELTING POINT: N/A

F:

C:

FLASH POINT:

F: -55.0°F (Ethanol; Closed Cup); -45.0°F (Denaturant; est.)

C: -48.3°C (Ethanol; Closed Cup); -42.8°C (Denaturant; est.)



GHS SAFETY DATA SHEET

DENATURED ETHANOL

SDS DATE: 09/28/2017

EVAPORATION RATE (BASIS=1): N/A

FLAMMABILITY (by %volume):

UPPER FLAMMABILITY LIMIT: 19.0%
LOWER FLAMMABILITY LIMIT: 3.3%

VAPOR PRESSURE (mmHg): 44.6 mmHg @ 68°F (Ethanol); 6-15 mmHg @ 100°F (Denaturant)
@

F:
C:

VAPOR DENSITY (AIR = 1): 1.59

@

F:
C:

SOLUBILITY IN WATER: N/A

PARTITION COEFFICIENT n-octanol/water: N/A

AUTO-IGNITION TEMPERATURE:

F: 689.0°F
C: 365.0°C

DECOMPOSITION TEMPERATURE: N/A

F:
C:

SPECIFIC GRAVITY (H2O = 1): 0.79

@

F: 68.0°F
C: 20.0°C

PERCENT SOLIDS BY WEIGHT: N/A

PERCENT VOLATILE: 100%
BY WT/BY VOL @

F:
C:

VOLATILE ORGANIC COMPOUNDS (VOC): N/A

WITH WATER: LBS/GAL
WITHOUT WATER: LBS/GAL

MOLECULAR WEIGHT: N/A

VISCOSITY: N/A

@

F:
C:

SECTION 9 NOTES: None Available

SECTION 10: STABILITY AND REACTIVITY

REACTIVITY: Does not react with air or water

STABILITY: Stable

CONDITIONS TO AVOID (STABILITY): Avoid contact with strong oxidizers, excessive heat, sparks or open flame

POSSIBILITY OF HAZARDOUS REACTIONS: Contact with Bromine pentafluoride is likely to cause fire or explosion. Ethanol ignites on contact with chromyl chloride. Ethanol ignites on contact with iodine heptafluoride gas. It ignites then explodes upon contact with nitrosyl perchlorate. Addition of platinum black catalyst caused ignition (ethyl alcohol 200 proof). Ethanol has an explosive reaction with the oxidized coating around potassium metal. Ethanol ignites and then explodes on contact with acetic anhydride + sodium hydrosulfate (ignites and may explode), disulfuric acid + nitric acid, phosphorous (III) oxide platinum, potassium-tert-butoxide + acids. Ethanol forms explosive products in reaction with the following compound: ammonia + silver nitrate (forms silver nitride and



Green Plains

GHS SAFETY DATA SHEET

DENATURED ETHANOL

SDS DATE: 09/28/2017

silver fulminate), iodine + phosphorus (forms ethane iodide), magnesium perchlorate (forms ethyl perchlorate), mercuric nitrate, nitric acid + silver (forms silver fulminate) silver nitrate (forms ethyl nitrate) silver(I) oxide + ammonia or hydrazine (forms silver nitride and silver fulminate), sodium (evolves hydrogen gas). Sodium Hydrazide + alcohol can produce an explosion. Alcohols should not be mixed with mercuric nitrate, as explosive mercuric fulminate may be formed. May form explosive mixture with manganese perchlorate + 2,2-dimethoxypropane. Addition of alcohols to highly concentrate hydrogen peroxide forms powerful explosives. Explodes on contact with calcium hypochlorite Vapor may explode if ignited in an enclosed area. Containers may explode when heated or involved in a fire.

INCOMPATIBILITY MATERIAL: Contact with acetyl chloride or other oxidizing agents may cause a violent reaction

HAZARDOUS DECOMPOSITION PRODUCTS: Not expected to decompose under normal conditions

SECTION 10 NOTES: None Available

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION: The toxicity data of this product has not been determined by testing or research, but to our best knowledge, this product is minimally toxic. The toxicity data shown below is for reference only.

ROUTES OF EXPOSURE: Inhalation, ingestion, skin absorption

SYMPTOMS RELATED TO THE PHYSICAL, CHEMICAL AND TOXICOLOGICAL CHARACTERISTICS:

CONTACT WITH EYES: Generally causes pain, irritation and reflex lid closure. A foreign-body sensation may persist. Vapors produce stinging and tearing

CONTACT WITH SKIN: Slight irritant

INHALATION: Prolonged exposure may cause headache, drowsiness, loss of appetite, inability to concentrate or throat irritating

INGESTION: Grade 1; LD₅₀=5 to 15 g/kg

DELAYED AND IMMEDIATE EFFECTS AND ALSO CHRONIC EFFECTS FROM SHORT- AND LONG-TERM EXPOSURE: N/A

NUMERICAL MEASURES OF TOXICITY:

LD50/LC50: No data available

IRRITATION DATA:

Draize test: 20 mg/24H (Moderate) Skin, rabbit

Draize test: 500 mg (Severe) Administration into the eye (Rabbit)

CARCINOGENICITY: Ethyl Alcohol: Not listed by ACGIH, IARC, NTP, or CA Prop 65; Natural Gasoline: Possible Carcinogen (2B) listed by IARC; Benzene: Carcinogen (1) listed by IARC

Product contains Benzene, a known chemical to cause cancer in humans. Prolonged exposure to benzene vapors may cause diseases such as leukemia, immune system disorders and adverse reproductive effects. Similar naphtha distillates have produced skin tumors in laboratory animals. Chronic exposure to gasoline vapors caused liver tumors in mice and kidney tumors in rats. Prolonged/repeated oral exposure to alkylate naphthas has resulted in kidney damage in male rats

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 weeks 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: Excessive consumption of alcohol during pregnancy is associated with physical and developmental problems. It may also cause defects in the central nervous system, heart, kidney and limbs. Moderate consumption can be associated with reduced birth weight and behavioral defects. Intrauterine, Human-woman: TDLo=200 mg/kg (female 5 days pre-mating); Fertility-female fertility index (e.g. #females pregnant per # sperm positive females; #females pregnant per #females mated)

NEUROTOXICITY: No information available

MUTAGENICITY: DNA Inhibition: Human, Lymphocyte=220 mmol/L.; Cytogenetic Analysis: Human, Lymphocyte=1160 gm/L.; Cytogenetic Analysis: Human, Fibroblast=12000 ppm.; Cytogenetic Analysis: Human, Leukocyte=1 pph/72H (Continuous).; Sister Chromatid Exchange: Human, Lymphocyte=500 ppm/72H (Continuous)



Green Plains GHS SAFETY DATA SHEET

DENATURED ETHANOL

SDS DATE: 09/28/2017

SECTION 11 NOTES: None Available

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY (AQUATIC AND TERRESTRIAL, WHERE AVAILABLE):

Ecotoxicity: Fish: Rainbow trout: LC50=12900-15300 mg/L; 96 Hr; Flow-through @24-24.3°C

Fish: Rainbow trout: LC50=11200 mg/L; 24 Hr

Fingerling (unspecified) Bacteria: Phytobacterium phosphoreum: EC50=34900 mg/L; 5-30 min

Microtox test: When spilled on land it is apt to volatilize, biodegrade, and leach into the ground water, but no data on the rates of these processes could be found. Its fate in ground water is unknown. When released into water, it will volatilize and probably biodegrade. It would not be expected to adsorb to sediment or bioconcentrate in fish

PERSISTENCE AND DEGRADABILITY: 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

BIOACCUMULATIVE POTENTIAL: Bioaccumulation is not significant. This product is readily biodegradable.

MOBILITY IN SOIL: Very high mobility

OTHER ADVERSE EFFECTS: No information available.

SECTION 12 NOTES: None Available

SECTION 13: DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: 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 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification

RCRA HAZARD CLASS: RCRA P-Series-None listed; RCRA U-Series-None listed; Benzene is listed in RCRA U-list

DESCRIPTION OF WASTE RESIDUES AND INFORMATION ON THEIR SAFE HANDLING AND METHODS OF DISPOSAL, INCLUDING ANY CONTAMINATED PACKAGING: Carbon dioxide, carbon monoxide, ethanol vapor can go through rapid photochemical reaction in atmosphere

SECTION 13 NOTES: None Available

SECTION 14: TRANSPORT INFORMATION

U.N. GHS TRANSPORT REQUIREMENT

UN NUMBER: UN 1987 or UN 3475

PROPER SHIPPING NAME: Alcohol n.o.s.

TRANSPORT HAZARD CLASS: 3

PACKING GROUP: II

LABEL STATEMENT: N/A

MARINE POLLUTANT: Leaded gasoline is marine pollutant; this product is not listed as a marine pollutant by the Department of Transportation.

SPECIAL PRECAUTIONS FOR USER: Extremely flammable liquid

SECTION 14 NOTES: None Available

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

TOXIC SUBSTANCE CONTROL ACT (TSCA): All components are listed or exempted

OCCUPATIONAL, SAFETY AND HEALTH ADMINISTRATION (OSHA): Not defined as highly hazardous chemicals according to OSHA 1910.119 App A

COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT (CERCLA): Benzene is regulated in CERCLA



GHS SAFETY DATA SHEET

DENATURED ETHANOL

SDS DATE: 09/28/2017

CLEAN WATER ACT (CWA): N/A

CLEAN AIR ACT (CAA): Benzene is regulated in CAA

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) TITLE III INFORMATION:

SARA SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES: N/A

SARA SECTION 311/312 (40 CFR 370) HAZARD CATEGORIES: 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

SARA 313 REPORTABLE INGREDIENTS: Benzene (71-43-2) D018;

STATE REGULATIONS:

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

INTERNATIONAL REGULATIONS:

European Labeling in Accordance with EC Directives
Hazard Symbols: F
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

WGK (Water Danger/Protection)
CAS# 64-17-5: 0
Canada-WHMIS
Class B-2: Flammable liquid
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic)
Canadian Ingredient Disclosure List
CAS# 64-17-5 is listed on the Canadian Ingredient Disclosure List

SECTION 15 NOTES: None Available

SECTION 16: OTHER INFORMATION

DISCLAIMER: The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Green Plains Inc. be liable for any claims, losses or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Green Plains Inc. has been advised of the possibility of such damages.

REFERENCES:

GHS Annex II
GHS SDS Instruction

ACRONYMS/ABBREVIATIONS:

ACGIH-American Conference of Governmental Industrial Hygienists
CAA-Clean Air Act
CAS-Chemical Abstracts Service
CERCLA-Comprehensive Response Compensation and Liability Act
CHEMTREC-It serves as a round-the-clock resource for obtaining immediate response information for incidents involving hazardous material and dangerous goods.
CWA-Clean Water Act
EC-European Commission
GHS-Globally Harmonized System of Classification and Labeling of Chemicals
IARC-International Agency for the Research on Cancer
ICSC-International Chemical Safety Cards



Green Plains

GHS SAFETY DATA SHEET

DENATURED ETHANOL

SDS DATE: 09/28/2017

LC50-The concentration of a chemical in air or of a chemical in water which causes the death of 50% of a group of test animals.

LD50-The amount of a chemical, given all at once, which causes the death of 50% of a group of test animals.

NIOSH-The National Institute for Occupational Safety and Health

NTP-National Toxicology Program

OSHA-Occupational Safety and Health Administration

RCRA-Resource Conservation and Recovery Act

RQ-Reportable Quantity

SARA-Superfund Amendments and Reauthorization Act

STOST-SE-Specific Target Organ Toxicity Single Exposure

TPQ-Threshold Planning Quantity

TSCA-Toxic Substance Control Act

U.N.-United Nation

UNCED-United Nations Conference on Environment and Development

VOL-Volume

WT-Weight