GHS SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Ethanol, 200 Proof

PRODUCT CODE(S): 200PE-Q, 200PE-Q-C, 200PE-1G, 200PE-1G-C, 200PE-5G, 200PE-55GD, 200PE-275GT, 200PE-330GT, 200PE-T, 200PE-R

MANUFACTURER: Midwest Renewable Energy (MRE)
27532 West HWY 30 Sutherland NE 69165
(308) 386-2468

PRODUCT INTENDED USE AND RESTRICTION: For Professional Use Only

24HR EMERGENCY CONTACT: Chemtrec (800) 424-9300 CCN 691827

SECTION 2: HAZARDS IDENTIFICATION

GHS LABELING AND CLASSIFICATION

This product meets the definition of the following hazard class as defined by the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Hazard Classification: Flammable Liquid, Class 3, PG II

GHS LABELING AND CLASSIFICATION

Health	Environmental	Physical
Serious eye damage/eye irritation-2A Skin corrosion/irritation-3 STOT SE-2 Acute toxicity (Oral)-Category 5	Not Classified	Flammable Liquids-Category 2

SIGNAL WORD: Danger

SYMBOL/PICTOGRAM:

HAZARD STATEMENTS

H225: Highly flammable liquid and vapor.
H303: May be harmful if swallowed.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H336: May cause drowsiness or dizziness.

PRECAUTIONARY STATEMENTS

Preventive

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.
P261: Avoid breathing fume/gas/mist/vapors/spray.
P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response

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.
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.
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.

Storage

P403+235: Store in a well ventilated place. Keep cool.
P410: Protect from sunlight.

Disposal

P501: Dispose of contents/container to relevant local and national regulations.

Hazards Not Otherwise Classified: N/A

Any Regional Considerations: N/A

SECTION 3: HAZARDS IDENTIFICATION

Name	Synonyms	Formula	CAS#	EC#	ICSC#	Wt%	Vol %
Ethanol	Ethly Alcohol	C2H5OH	64-17-5	200-578-6	0044	100%	100%

SECTION 4: FIRST-AID MEASURES

General Advice

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. Irritating to eyes and skin. May cause irritation of respiratory tract. May affect central nervous system. Aspiration hazard if swallowed—can enter lungs and cause damage. This substance has caused adverse reproductive and fetal effects in humans.

Routes of Entry/First Aid

Eye Contact	Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.
Skin Contact	May be harmful in contact with skin. In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention. In case of serious skin contact, wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear. In case of serious inhalation, evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth esuscitation. Seek medical attention.
Ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Most Important Symptoms and Effects, Both Acute and Delayed

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11

Indications of Any Immediate Medical Attention and Special Treatment Needed

No Data Available

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Equipment	For **SMALL FIRE**: Use DRY chemical powder. **LARGE FIRE:** Use AR-AFFF alcohol resistant fire fighting foam, water spray or fog. Use water spray to cool fire-exposed containers. Water may be neffective. DO NOT use straight streams of water.
Specific Hazards	Carbon oxides (combustible)
Precautions for Firefighters	Wear self-contained breathing apparatus for firefighting if necessary.
Additional Information	Use water spray to cool unopened containers.

SECTION 6: ACCIDENTAL RELEASE MEASURE

Personal Precautions and Protective Equipment

In case of a large spill, wear splash googles, full suit, vapor respirator, boots, gloves. A self contained breathing apparatus should be used to avoid inhalation of the product.

Emergency Procedures

Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. For personal protection see section 8.

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 Clean Up

For SMALL SPILL, dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. For LARGE SPILL, keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities. Land spill, apply appropriate foam to diminish vapor and fire hazard. Water spill, use natural barriers or oil spill control booms to limit spill travel. Allow to aerate. Air spill, apply water spray or mist to knock down vapors

SECTION 7: HANDLING AND STORAGE

Precautions 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 breath vapors or spray mist. Do not get in eyes, on skin, or on clothing.

Conditions for Safe Storage

Keep containers tightly closed in a dry, cool and well-ventilated area. 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.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Substance	CAS	OSHA-PEL	ACGIH	TLV	NIOSH
Ethanol	64-17-5	1000 ppm TWA; 1900 mg/m3 TWA	1000 ppm TWA	1000 ppm TWA	1000 ppm TWA; 1900 mg/m3 TWA 3300 ppm IDLH

Engineering Controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

PERSONAL PROTECTIVE EQUIPMENT(PPE):

Eye/Face Protection	Wear appropriate protective eyeglasses or chemical safety goggles.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134, Use a NIOSH/MSHA approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Skin Protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Protective Clothing or Equipment	In case of large spill, splash goggles, chemical suit, vapor respirator, rubber boots, chemical-resistant gloves and a self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient: consult a specialist BEFORE handling this product.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Property	Solvent	Data
Appearance:	Ethanol	Clear, Colorless Liquid
Odor:	Ethanol	Sweet
Odor Threshold:	Ethanol	No Data Available
pH:	Ethanol	Neutral
Melting/Freezing Point:	Ethanol	-173.4°F/-114.1°C
Initial Boiling Point/Range:	Ethanol	176°F/79°C
Flash Point:	Ethanol	55°F/12.8°C
Evaporation Rate:	Ethanol	No Data Available
Flammability:	Ethanol	No Data Available
Upper Flammability/Explosion Limit:	Ethanol	3.3%
Lower Flammability/Explosion Limit:	Ethanol	19.0%
Vapor Pressure:	Ethanol	59.3 mmHg @ 68°F/20°C
Vapor Density:	Ethanol	1.59 @ Ambient Air Temperature
Relative Density:	Ethanol	No Data Available
Solubility(ies):	Ethanol	Easily soluble in cold water, hot water, methanol, diethyl ether. Soluble in acetone.
Partition Coefficient:	Ethanol	-0.32 (logPow)
Auto-ignition Temperature:	Ethanol	689°F/365°C
Decomposition Temperature:	Ethanol	No Data Available
Viscosity:	Ethanol	1.200 cP @ 68°F/20°C
Specific Gravity:	Ethanol	0.79 @ 68°F/20°C
Molecular Weight:	Ethanol	46.0414

SECTION 10: STABILITY AND REACTIVITY

Reactivity	Ethanol rapidly absorbs moisture from the air. Can react vigorously with oxiders. The following oxidants have been demonstrated to undergo vigorous/explosive reaction with ethanol: barium perchlorate, bromine pentafluoride, calcium hypochlorite, chloryl perchlorate, chromium trioxide, chromyl chloride, dioxygen difluoride, disulfuryl difluoride, disulfuryl difluoride, fluorine nitrate, hydrogen peroxide, iodine heptafluoride, nitric acid nitrosyl perchlorate, perchloric acid, permanganic acid, peroxodisulfuric acid, potassium dioxide, potassium perchlorate, potassium, permanganate, ruthenium(VIII) oxide, silver perchlorate, silver peroxide, uranium hexafluoride, uranyl perchlorate. Ethanol reacts violently/explodes with the following compounds: acetyl bromide (evolves hydrogen bromide) acetyl chloride, aluminum, sesquibromide ethylate, ammonium hydroxide & silver oxide, chlorate, chromic anhydride, cyanuric acid + water, dichloromethane + sulfuric acid + nitrate (or) nitrite, hydrogen peroxide + sulfuric acid, iodine + methanol + mercuric oxide, manganese perchlorate + 2,2-dimethoxy propane, perchlorates, permanganates + sulfuric acid, potassium superoxide, potassium tert-butoxide, silver & nitric acid, silver perchlorate, sodium hydrazide, sulfuric acid + sodium dichromate, tetrachlorisilane + water. Ethanol is also incompatible with platinum, and sodium. No really safe conditions exist under which ethyl alcohol and chlorine oxides can be handled. Reacts vigorously with acetyl chloride.
Chemical Stability	Stable under normal conditions.

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 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.
Conditions to Avoid	Incompatible materials. Heat, source of ignition.
Incompatible Material	Strong oxidizing agents, acids, alkali metals, ammonia, hydrazine, peroxides, sodium, acid anhydrides, calcium hypochlorite, chromyl chloride, nitrosyl perchlorate, bromine pentafluoride, perchloric acid, silver nitrate, mercuric nitrate, potassium-tert-butoxide, magnesium perchlorate, acid chlorides, platinum, uranium hexafluoride, silver oxide, iodine heptafluoride, acetyl bromide, disulfuryl difluoride, tetrachlorosilane + water, acetyl chloride, permanganic acid, ruthenium (VIII) oxide, uranyl perchlorate, potassium dioxide.
Hazardous Decomposition Products	Carbon monoxide, carbon dioxide.

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	Under normal conditions of use and handling, no inhalation hazard is present. It may cause irritation to respiratory system if inhaling concentrated vapor of this liquid. Symptoms may include coughing, drowsiness, dizziness and tightness in chest.
Ingestion	Harmful by ingestion. May cause irritation to intestinal tract, stomach, liver and kidney. Symptoms may include nausea, vomiting, belly ache and diarrhea.
Skin Contact	Irritant to skin. For long-time or repeated contact, it can cause skin dryness.
Eye Contact	It can cause serious irritation to eyes and symptoms may include redness, tearing and soreness.

Delayed, Immediate, or Chronic Effects

Short-Term Exposure	The substance irritates the eyes. Inhalation of high concentration of vapor may cause irritation of the eyes and respiratory tract. The substance may cause effects on central nervous system.
Long-Term Exposure	The liquid defats the skin. The substance may have effects on the upper respiratory tract and central nervous system, resulting in irritation, headache, fatigue and lack of concentration. Chronic ingestion of ethanol may cause liver cirrhosis.

Numerical Measures of Toxicity and Irritation

LD50/LC50	Inhalation, mouse: LC50 = 39 gm/m3/4H; 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;<BR
Irritation Data	Draize test, rabbit, eye: 500 mg Severe; Draize test, rabbit, eye: 500 mg/24H Mild; Draize test, rabbit, skin: 20 mg/24H Moderate

Information on Toxicological Effects

Carcinogenicity	Not listed by ACGIH, IARC, NTP, or CA Prop 65.
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).
Germ Cell 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).
Additional Information	CHROMATID EXCHANGE: Human, Lymphocyte = 500 ppm/72H (Continuous)

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

Aquatic	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: Phytobacterium phosphoreum: EC50 = 34900 mg/L; 5-30 min; Microtox test.
Terrestrial	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: Biodegradation is expected to occur rapidly in the environment based on numerous screening tests using different types of inocula and incubation periods. Ethanol was degraded with half-lives on the order of a few days using microcosms constructed with a low organic sandy soil and groundwater, indicating it is unlikely to be persistent in the environment.

Bioaccumulative Potential: Bioaccumulation is not significant. This product is readily biodegradable.

Mobility in Soil: Very high mobility.

Other Adverse Effects: No Information Available

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal Containers: Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

Disposal Method: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous water. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification. Ultimate disposal of the chemical must consider: the material's impact on air quality; potential migration in soil or water; effects on animals, aquatic, and plant life; and conformance with environmental and public health regulations.

Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: TRANSPORT INFORMATION

UN Number: UN1170

Proper Shipping Name: Ethanol

Hazard Class: 3

Packing Group: II

Label Statement: UN1170 ETHANOL 3 PG II

Marine Pollutant: N/A

SECTION 15: REGULATORY INFORMATION

SARA 302/304: Component Not Listed

SARA 311/312: Component Not Listed

SARA 313: Component Not Listed

CERCLA: Component Not Listed

PROP 65: Component Not Listed

TSCA: ACTIVE

CAA: This material does not contain any hazardous air pollutants.

CWA: Component Not Listed

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 Midwest Renewable Energy 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 Midwest Renewable Energy has been advised of the possibility of such damages.

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 Community
GHS:	Globally Harmonized System of Classification and Labelling of Chemicals
IARC:	International Agency for the Research on Cancer
IBC Code:	International Bulk Chemical Code
ICSC:	International Chemical Safety Cards
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
OSHA:	Occupational Safety and Health Administration
OSHA-PEL:	OSHA Permissible Exposure Limits
Prop 65:	Safe Drinking Water and Toxic Enforcement Act
SARA:	Superfund Amendments and Reauthorization Act
TSCA:	Toxic Substance Control Act
TLV:	Threshold Limit Values
U.N.:	United Nation
VOL:	Volume
WT:	Weight