1. PRODUCT AND COMPANY IDENTIFICATION

Product Code: 00015
Product Name: Liquid Ethylene

Company Name: Gas Innovations
18005 E. Hwy 225
La Porte, TX 77571

Web site address: www.gasinnovations.com
Phone Number: +1 (281)471-2200

Emergency Contact: 3E (within United States) +1 (866)303-2640
Information: Infotrac (outside of United States) +1 (352)323-3500

2. HAZARDS IDENTIFICATION

Flammable Gases: **Category 1**

Gas Under Pressure: **Liquified gas**

Specific Target Organ Toxicity (single exposure) **Category 3**

Symbol:

GHS Signal Word: **Danger**

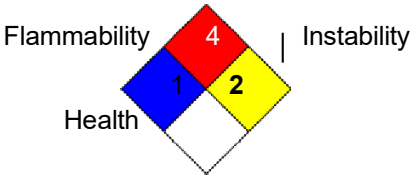
GHS Hazard Phrases:
H220 - Extremely flammable gas.
H280 - Containers gas under pressure; may explode if heated.
H281: Contains refrigerated gas; may cause cryogenic burns or injury.
H336 - May cause drowsiness or dizziness. May displace oxygen and cause rapid suffocation.

GHS Precaution Phrases:
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P261 - Avoid breathing gas/vapors.
P271 - Use only outdoors or in a well-ventilated area.
P282: Wear cold insulating gloves/face shield/eye protection.

GHS Response Phrases:
P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 - Eliminate all ignition sources if safe to do so.
P304+340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P312 - Call a POISON CENTER or doctor/physician if you feel unwell
P336+P315: Thaw frosted parts with lukewarm water. Do not rub affected areas. Get immediate medical advice / attention.

GHS Storage and Disposal Phrases:
P501 - Dispose of contents/containers to an appropriate treatment and disposal facility in accordance with applicable law local/regional/national/international regulations, and product characteristics at time of disposal.
P405 Store locked up.
P410 + P403 Protect from sunlight. Store in a well-ventilated place.
501 - Dispose of contents/ container to an approved waste disposals Plant

Hazard Rating System:



NFPA: Special Hazard

3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS #	Hazardous Components (Chemical Name)	Concentration
74-85-1	Ethylene	100 %

4. FIRST AID MEASURES

In Case of Inhalation: Move to fresh air. If breathing stops, provide artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately

In Case of Skin Contact: Contact with evaporating liquid may cause freeze injury. DO NOT USE HOT WATER. Get medical attention. Gently wash with plenty of soap and water. Thaw frosted parts with lukewarm water. Do not rub affected areas. Remove non-adhering contaminated clothing. Do not remove adherent material or clothing.

In Case of Eye Contact: Contact with evaporating liquid may cause freeze injury. DO NOT USE HOT WATER. Flush eyes with warm water. Get medical attention. Remove contact lenses, if present and easy to do.

In Case of Ingestion: Not likely, due to form of the product

Signs and Symptoms of Exposure: Narcotic effect. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Treat symptomatically. Frostbite, headache, dizziness, nausea, confusion, loss of appetite, loss of consciousness, heartbeat irregularities, possible cardiac sensitization. Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels.

5. FIRE FIGHTING MEASURES

General fire hazards: Extremely flammable liquid and gas – may cause flash fire. Stop flow of gas. Allow gas to burn if flow cannot be shut off immediately. Apply water from safe distance to cool container and protect surrounding area. USE WATER WITH CAUTION. Material will float and may ignite.
Consider the need for immediate emergency isolation and evacuation. When pressure in a container needs to be controlled consider setting up emergency flaring.

Suitable Extinguishing Media: Water spray. Dry chemical. Carbon Dioxide. Foam.

Unsuitable extinguishing media: Do not use a water jet as an extinguisher, as this will spread the fire. Adding water directly to pooled liquid will heat liquid and increase evolution of extremely flammable gas.

Fire Fighting Instructions: Keep upwind. Keep unauthorized personnel away. Move containers from the fire area if you can do so without risk. Fight fire from a protected location. Water may be ineffective in fighting fire. Do not direct water at source of leak or safety devices as icing may occur. Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Immediately withdraw in case of fire and container venting or heat discoloration of a container.

Flammable Properties and Hazards: Gas may cause a flash fire or ignite explosively. Gas may travel considerable distance to a source of ignition and flash back. Prevent buildup of vapors or gases to explosive concentrations. Fire or excessive heat may result in rupture of container due to release of significant amounts of gases. Fire or excessive heat may result in rupture of container due to bulk polymerization. Heating may cause an explosion.

6. ACCIDENTAL RELEASE MEASURES

Protective Precautions, Protective Equipment and Emergency Procedures: Wear appropriate personal protective equipment. Alert stand-by emergency and fire-fighting personnel. Monitor the surrounding area for a buildup of flammable concentrations in the air.

Environmental Precautions: Avoid release to the environment

Steps To Be Taken in Case Material Is Released or Spilled: Evacuate the area. Ventilate well, stopping the flow of gas or liquid if possible. Remove ignition sources. Do not allow chemicals to enter confined spaces such as sewers due to the explosion risk. Sewers designed to preclude the formation of explosive concentrations of vapor may be permitted. Use water spray to protect workers attempting to stop the leak. Prevent runoff from entering drains, sewers, or streams. All equipment used when handling the product must be grounded.

7. HANDLING AND STORAGE

Precautions To Be Taken in Handling: Avoid contact with eyes, skin, and clothing. Avoid breathing gas. Use only with adequate ventilation. Wash thoroughly after handling. Use explosion-proof equipment. Use non-sparking tools. Take action to prevent static discharges. Liquid ethylene must first be drained and/or flared, and then the system must be de-pressured before opening pipes/equipment containing ethylene.

Precautions To Be Taken in Storing: Keep away from heat. Store in a cool place. Protect from contamination. Protect from light. Contents under pressure. Do not puncture or incinerate the container. Have appropriate extinguishing capability in the storage area. Do not be exposed to heat. Do not enter the storage area unless it is adequately ventilated. Keep the container tightly closed in a cool, well-ventilated place. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CAS #	Partial Chemical Name	Type	Exposure Limit values	Source
74-85-1	**Ethylene**	TWA	**200 ppm**	US. ACGIH Threshold Limit Values (01 2010)

Respiratory Equipment (Specify Type): If engineering controls do not maintain airborne concentrations below recommended exposure limits or to an acceptable level, an approved respirator must be worn. If respirators are used in the USA, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1198. Respiratory type: Air-purifying respirator with an appropriate, government-approved air-purifying filter, cartridge, or canister. Contact a health and safety professional or manufacturer for specific information.

General Information: Eye baths, washing facilities, safety showers, and personal protective equipment (PPE) should not be considered long-term solutions to exposure control.

Eye Protection: Wear safety glasses with side shields (or goggles) and a face shield. Wear a full-face respirator, if needed.

Skin protection & Hand protection: Wear chemical-resistant gloves, footwear, and protective clothing appropriate for the risk of exposure. Contact health and safety professional or manufacturer for specific information.

Engineering Controls (Ventilation etc.): Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Work/Hygienic/Maintenance Practices: Observe good industrial hygiene practices

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical States:	[X] Gas [X] Liquid [ ] Solid
Appearance and Odor:	Colorless & sweetish odor.
Freezing Point:	-169 C (-272 F)
Boiling Point:	-104 C
Autoignition Pt:	425 °C (797 °F)
Flash Pt:	-136 C Method Used: Unknown
Explosive Limits:	Lower level:2.4% (Volume in air) Upper-level EL:36 % (Volume in air)
Specific Gravity (Water = 1):	1.26 at 0 C
Density:	568 kg/m3
Vapor Pressure (vs. Air or mm Hg):	40,432 MBAR at -1.5 C
Vapor Density(air=1)	0.974
Evaporation Rate:	Immediate at 20 °C (68 °F).
Solubility in Water:	0.131 g/l (20 °C (68 °F)
Saturated Vapor Concentration:	NA
Viscosity:	NA
pH:	NA
Percent Volatile	No data

10. STABILITY AND REACTIVITY

Stability:	Unstable [ ] Stable [X]
Conditions To Avoid - Instability:	Heat, flames and sparks. High pressure. Sunlight
Incompatibility Materials to Avoid:	Strong oxidizing agents, Polymerization initiators. Accelerators contaminate Chlorine. Acids, oxidizing agents, chlorine, halogens, organic peroxides, ozone and nitrogen dioxide. Product can react with water to form hydrates.
Hazardous Decomposition or Byproducts:	Carbon monoxide. Carbon Dioxide. low molecular weight hydrocarbons.
Possibility of Hazardous Reactions:	Will occur [X] Will not occur [ ]
Conditions To Avoid - Hazardous Reactions:	Keep away from heat, sparks and open flame.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure Inhalation	May cause drowsiness or dizziness. Gas reduces oxygen available for breathing.
Ingestion:	No data available
Skin Contact:	Contact with evaporating liquid may cause frostbite or freezing of skin.
Eye Contact:	Ethylene gas is not irritating to the eyes. The liquefied form will cause freezing burns
Toxicological Effect Acute Toxicity Oral Product:	No data available
Dermal Product:	No data available
Inhalation Product:	
Repeated dose toxicity Product:	No data available
Skin corrosion/irritation Product:	No data available
Serious eye damage/eye Product:	No data available
Respiratory or skin sensitization Product:	No data available
Serious eye damage/eye Product:	No data available

Mutagenicity	No data available
In vitro Product:	No data available
In vivo Product:	No data available
Carcinogenicity Product:	All tests on ethylene for genotoxicity and carcinogenicity were negative indicating that ethylene should not be considered a risk for cancer in humans.
Reproductive toxicity Product:	No data available
Specified target organ toxicity- single exposure Product:	May cause drowsiness or dizziness.
Aspiration hazard Product:	No data available

12. ECOLOGICAL INFORMATION

Toxicity	No data available
Acute toxicity Fish Product:	Ethene is not considered harmful to aquatic life.
Aquatic invertebrates Product:	Ethene is not considered harmful to aquatic life.
Chronic toxicity Fish Product:	NOEC (Fathead minnow, 28 d): 13 mg/l
Aquatic invertebrates Product:	NOEC (16 d): 37.4 mg/l
Toxicity to Aquatic Plants Product:	No data available
Persistence and degradability	No data available
Biodegradation Product:	Expected to be readily biodegradable. The lifetime of ethylene in the atmosphere ranges from 0.4 to 4 days, with an average of 1.5 days, and is strongly dependent on the amount of sunlight.
Biological Oxygen Demand Product:	No data available
Chemical Oxygen Demand Product:	No data available
BOD/COD Product:	No data available
bioaccumulate potential Product:	No data available
Mobility in soil:	No data available
Results of PBT and vPvB assessment:	No data available
Other adverse effects	No data available

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods General Information:	No Data Available
Waste Disposal Method:	Discharge, treatment, or disposal may be subject to national, state, or local laws. Contract with a licensed chemical disposal agency. Since emptied containers retain product residue, follow label warnings even after container is emptied. Residual vapors may explode on ignition; do not cut, drill, grind, or weld on or near this container. Waste gas should be flared through a suitable burner with flash back arrestor. Do not discharge into any place where its accumulation could be dangerous. Contact supplier if guidance is required.

14. TRANSPORT INFORMATION

LAND TRANSPORT (US DOT):

DOT Proper Shipping name: ETHYLENE, REFRIGERATED LIQUID

DOT Hazard Class: 2

UN/NA number: UN1038

Labels:

Sea Transport:

Transport document description (IMDG):

UN-No. (IMDG): UN1038

Proper Shipping Name (IMDG): ETHYLENE, REFRIGERATED LIQUID

Class: 2.1

Air Transport:

Transport document description (IATA):

UN-No. (IATA): UN1038

Proper Shipping Name (IATA): ETHYLENE, REFRIGERATED LIQUID

Class: 2.1

15. REGULATORY INFORMATION

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

CAS #	Hazardous Components (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
74-85-1	Ethylene	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
74-85-1	Ethylene	TSCA: Yes - Inventory; CA PROP.65: No; CA TAC, Title 8: TAC; MA Oil/HazMat: Yes; MI CMR, Part 5: No; NC TAP: No; NJ EHS: Yes - 0873; NY Part 597: No; PA HSL: Yes - E; SC TAP: No; WI Air: No; TSCI: Yes;

CAS #	Hazardous Components (Chemical Name)	International Regulatory Lists
74-85-1	Ethylene	Canadian DSL: Yes; Canadian NDSL: No; Mexico INSQ: Yes - 1962; Australia ICS: Yes; New Zealand IOC: Yes; China IECSC: Yes; Japan ENCS: Yes - (2)-12; Korea ECL: Yes - KE-13226; Philippines ICCS: Yes; REACH: Yes - (R), (P); ISHL: Yes;

16.OTHER INFORMATION

Revision Date:	08/16/2024
Revision Information:	No data available
Key literature references and sources for data:	No data available
Training Information:	No data available
NFPA Ratings:	0= Minimal Hazard 1= Slight Hazard 2= Moderate Hazard 3= Serious Hazard 4= Severe Hazard
Company Policy or Disclaimer:	The information, recommendations, and suggestions herein were compiled from reference material and other sources believed to be reliable. However, the SDS's accuracy or completeness is not guaranteed by Gas Innovations or its affiliates, nor is any responsibility assumed or implied for any loss or damage resulting from inaccuracies or omissions. Since conditions of use are beyond our control, no warranties of merchantability of fitness for a particular purpose are expressed or implied. This SDS is not intended as a license to operate under, or a recommendation to infringe on, any patents. Appropriate warnings and safe handling procedures should be provided to handlers and users