



SAFETY DATA SHEET

Revised edition no : 2
Date : 12/05/2014


Ethylene

PG 013

SECTION 1. IDENTIFICATION OF THE PRODUCT AND COMPANY UNDERTAKING

Material Name	Ethylene
Trade names/Synonyms	Acetene; Ethene; Ethylene, compressed gas; Olefiant gas; Bicarburetted hydrogen
Chemical Family	Hydrocarbons, aliphatic
Product Use	industrial
Restrictions on Use	None known.
Company:	Puregas (Pty) Ltd PO Box 123884, Alrode, 1451, South Africa Tel : (011) 903 9760 Fax: (011) 903 9766 Cellphone: 082 889 6946 (1 st) 082 885 7475 (2 nd) Info@puregas.co.za Emergency Tel: 0800 172 743 (Rapid Spill Response)

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification	Flammable gas, Category 1 Gas under pressure, Compressed gas Specific Target Organ Toxicity - Single Exposure, Category 3 (central nervous system) Hazardous to the Aquatic Environment - Acute Hazard, Category 3
GHS LABEL ELEMENTS Symbol(s)	
Signal Word	DANGER
Hazard Statement(s)	Extremely flammable gas Contains gas under pressure; may explode if heated May cause drowsiness and dizziness Harmful to aquatic life
Precautionary Statement(s) Prevention	Keep away from heat, sparks, open flame, and hot surfaces - No smoking. Avoid breathing gas. Use only outdoors or in a well-ventilated area. Wear respiratory protection. Avoid release to the environment.
Response	Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell
Storage	Store in a well-ventilated place. Protect from sunlight. Keep container tightly closed. Store locked up.
Disposal	Dispose in accordance with all applicable regulations.
Other Hazards which do not Result in Classification	May cause asphyxia. May cause frostbite upon sudden release of compressed gas.



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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS	Component	Percent
74-85-1	ETHYLENE	100

SECTION 4. FIRST AID MEASURES

Inhalation	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.
Skin contact	If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.
Ingestion	If a large amount is swallowed, get medical attention.
Note to Physicians	For inhalation, consider oxygen.
Symptoms: Immediate	Frostbite, suffocation, central nervous system depression
Symptoms: Delayed	No information on significant adverse effects.

SECTION 5. FIRE-FIGHTING MEASURES

See Section 9 for Flammability Properties

Specific Hazards Arising from the Chemical	Severe fire hazard. Severe explosion hazard. Pressurized containers may rupture or explode if exposed to sufficient heat. Electrostatic discharges may be generated by flow or agitation resulting in ignition or explosion.
Extinguishing Media	Carbon dioxide, regular dry chemical Large fires: Flood with fine water spray
Unsuitable Extinguishing Media	None known.
Protective Equipment and Precautions for Firefighters	Wear full protective firefighting gear including self-contained breathing apparatus (SCBA) for protection against possible exposure.
Fire Fighting Measures	Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Stop leak if possible without personal risk. Let burn unless leak can be stopped immediately. For smaller tanks or cylinders, extinguish and isolate from other flammables. Evacuation radius: 800 meters (1/2 mile). Stop flow of gas.



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SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Wear personal protective clothing and equipment, see Section 8.
Environmental Precautions	Avoid release to the environment.
Methods for Containment	Keep unnecessary people away, isolate hazard area and deny entry. Remove sources of ignition. Ventilate closed spaces before entering.
Cleanup Methods	Avoid heat, flames, sparks and other sources of ignition. Do not touch spilled material. Stop leak if possible without personal risk. Reduce vapors with water spray.

SECTION 7. HANDLING AND STORAGE

Handling Procedures	Wash thoroughly after handling.
Storage Procedures	Store and handle in accordance with all current regulations and standards. Grounding and bonding required. Protect from physical damage. Store in a cool, dry place. Store in a well-ventilated area. Avoid heat, flames, sparks and other sources of ignition. Store in a tightly closed container. Protect from sunlight. Store locked up. Keep separated from incompatible substances.
Incompatibilities	Acids, halo carbons, halogens, metal salts, metals, oxidizing materials, peroxides

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

ETHYLENE (74-85-1)

ACGIH: 200 ppm TWA

Component Biological Limit Values

There are no biological limit values for any of this product's components.

Engineering Controls

Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Eyes/Face	For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.
Protective Clothing	For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.
Glove Recommendations	For the gas: Protective gloves are not required, but recommended. For the liquid: Wear insulated gloves.
Respiratory Protection	Under conditions of frequent use or heavy exposure, respiratory protection may be needed.



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Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.
For Unknown Concentrations or Immediately Dangerous to Life or Health -
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Gas	Appearance: colorless, gas
Color: colorless	Physical Form: compressed gas
Odor: sweet odor	Odor Threshold: Not available
Taste: sweet taste	pH: Not available
Melting/Freezing Point: -169 °C	Boiling Point: -104 °C
Flash Point: flammable gas	Decomposition: Not available
UEL: 36%	LEL: 2.70%
Evaporation Rate: Not available	Vapor Pressure: 760 mmHg @ -104 °C
Henry's Law Constant: 0.00012412 atm-m ³ /mol	Vapor Density (air = 1): 1
Density: 1.261 g/L @ 0 °C	Water Solubility: 22.60%
KOW: 281.84 estimated from water solubility	LOG KOW: Not available
Coeff. Water/Oil Dist: Not available	KOC: 779.83 estimated from water solubility
Auto Ignition: 450 °C	Viscosity: 0.0093 cP @ 0 °C
Volatility: 100%	Molecular Weight: 28.05
Molecular Formula: C-H ₂ -C-H ₂	

Solvent Solubility

Soluble: alcohol, ether, acetone, benzene

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability	May polymerize. Avoid storage and use above room temperature.
Conditions to Avoid	Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Containers may rupture or explode if exposed to heat.
Possibility of Hazardous Reactions	Polymerizes with evolution of heat. Store in a cool, dry place.
Incompatible Materials Decomposition Products	Acids, halo carbons, halogens, metal salts, metals, oxidizing materials, peroxides oxides of carbon

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SECTION 11. TOXICOLOGICAL INFORMATION**Acute and Chronic Toxicity
Component Analysis -
LD50/LC50**

The components of this material have been reviewed in various sources and the following selected endpoints are published:

Ethylene (74-85-1)

Inhalation LC50 Mouse 95 ppm 2 h

**RTECS Acute Toxicity
(selected)**

The components of this material have been reviewed, and RTECS publishes the following endpoints:

Ethylene (74-85-1)

Inhalation: 95 ppm/2 hour Inhalation Mouse LC50

Acute Toxicity Level**Ethylene (74-85-1)**

Highly Toxic: Inhalation

Immediate Effects

frostbite, suffocation, central nervous system depression

Delayed Effects

No information on significant adverse effects.

Irritation/Corrosivity Data

No animal testing data available for skin or eyes.

RTECS Irritation

The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

Target Organs**Ethylene (74-85-1)**

central nervous system

Respiratory Sensitizer

No data available

Dermal Sensitizer

No data available

**Carcinogenicity
Component Carcinogenicity****Ethylene (74-85-1)**

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Monograph 60 [1994]; Supplement 7 [1987] (Group 3 (not classifiable))

DFG: Category 3B (could be carcinogenic for man)

Mutagenic Data

No data available.

RTECS Mutagenic

The components of this material have been reviewed, and RTECS publishes data for one or more components.

Reproductive Effects Data

No data available.

**Tumorigenic Data
RTECS Tumorigenic**

No data available.

The components of this material have been reviewed, and RTECS publishes data for one or more components.

**Specific Target Organ
Toxicity - Single Exposure**

central nervous system



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Specific Target Organ Toxicity - Repeated Exposure	No data available.
Aspiration Hazard	Not applicable
Medical Conditions Aggravated by Exposure	None known. Interactions with drugs may occur.
Additional Data	

SECTION 12. ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity	Ethylene (74-85-1) Invertebrate: 96 Hr EC50 Daphnia magna: 53.402 mg/L
Persistence and Degradability	No data available
Bioaccumulative Potential	No data available
Mobility in Environmental Media	No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods	Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001. D003.
Disposal packaging	The U.S. EPA has not published waste numbers for this product's components

SECTION 14. TRANSPORT INFORMATION

US DOT Information	Shipping Name: Ethylene UN/NA #: UN1962 Hazard Class: 2.1 Required Label(s): 2.1
TDG Information	Shipping Name: Ethylene UN #: UN1962 Hazard Class: 2.1

SECTION 15. REGULATORY INFORMATION

Component Analysis
U.S. Federal Regulations This material contains one or more of the following chemicals required to be identified under SARA Section 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan. Ethylene (74-85-1) SARA 313: 1.0 % de minimis concentration SARA 311/312 Hazardous Categories
Acute Health: Yes Chronic Health: No Fire: Yes Pressure: Yes Reactive: Yes



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U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
ETHYLENE	74-85-1	No	Yes	Yes	Yes	Yes

Not regulated under California Proposition 65

Component	CAS	US	CA	EU	AU	PH	JP	KR	CN	NZ
ETHYLENE	74-85-1	Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	Yes

SECTION 16. OTHER INFORMATION

NFPA Ratings: Health: 2 Fire: 4 Reactivity: 2

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

Other Information

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