



## Safety Data Sheet

Material Name: Ethylene

SDS ID: 00244285

### Section 1 - PRODUCT AND COMPANY IDENTIFICATION

**Material Name**

Ethylene

**Synonyms**

Acetene; Ethene; Ethylene, compressed gas; Olefiant gas; Bicarburetted hydrogen

**Chemical Family**

Hydrocarbons, aliphatic

**Product Description**

Classification determined in accordance with Compressed Gas Association standards.

**Product Use**

Industrial and Specialty Gas Applications.

**Restrictions on Use**

None known.

**Details of the supplier of the safety data sheet**

MATHESON TRI-GAS, INC.

150 Allen Road, Suite 302

Basking Ridge, NJ 07920

General Information: 1-800-416-2505

Emergency #: 1-800-424-9300 (CHEMTREC)

Outside the US: 703-527-3887 (Call collect)

### Section 2 - HAZARDS IDENTIFICATION

**Classification in accordance with paragraph (d) of 29 CFR 1910.1200.**

Flammable Gases - Category 1

Gases Under Pressure - Compressed gas

Specific Target Organ Toxicity - Single Exposure - 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 or dizziness.

**Precautionary Statement(s)**

**Prevention**

Keep away from heat/sparks/open flame/hot surfaces - No smoking.

Use only outdoors or in a well-ventilated area.

Avoid breathing dust/fume/gas/mist/vapors/spray.

**Response**



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Leaking gas fire: Do not extinguish, unless leak can be stopped safely.  
Eliminate all ignition sources if safe to do so.  
IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.  
Call a POISON CENTER or doctor if you feel unwell.

**Storage**

Protect from sunlight. Store in a well-ventilated place.  
Keep container tightly closed.  
Store locked up.

**Disposal**

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

**Other Hazards**

Rapid release of compressed gas may cause frostbite.

<b>Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS</b>		
<b>CAS</b>	<b>Component Name</b>	<b>Percent</b>
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**

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.

**Eyes**

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.

**Ingestion**

If swallowed, get medical attention.

**Most Important Symptoms/Effects**

**Acute**

frostbite, depression of central nervous system

**Delayed**

no information on significant adverse effects.

**Indication of any immediate medical attention and special treatment needed**

For inhalation, consider oxygen.

**Section 5 - FIRE FIGHTING MEASURES**

**Extinguishing Media**

**Suitable Extinguishing Media**

carbon dioxide, regular dry chemical, Large fires: Flood with fine water spray.

**Unsuitable Extinguishing Media**

None known.

**Special 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.

**Hazardous Combustion Products**



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Oxides of carbon.

**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, Evacuation radius: 1600 meters (1 mile). 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. Stop flow of gas.

**Special Protective Equipment and Precautions for Firefighters**

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

**Section 6 - ACCIDENTAL RELEASE MEASURES**

**Personal Precautions, Protective Equipment and Emergency Procedures**

Wear personal protective clothing and equipment, see Section 8.

**Methods and Materials for Containment and Cleaning Up**

Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Avoid heat, flames, sparks and other sources of ignition. Stop leak if possible without personal risk. Reduce vapors with water spray. Keep unnecessary people away, isolate hazard area and deny entry. Remove sources of ignition. Ventilate closed spaces before entering. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304).

**Environmental Precautions**

Avoid release to the environment.

**Section 7 - HANDLING AND STORAGE**

**Precautions for Safe Handling**

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only outdoors or in a well-ventilated area. Wash hands thoroughly after handling. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid release to the environment.

**Conditions for Safe Storage, Including any Incompatibilities**

Protect from sunlight. Store in a well-ventilated place.

Keep container tightly closed.

Store locked up.

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. Avoid heat, flames, sparks and other sources of ignition. Keep separated from incompatible substances.

**Incompatible Materials**

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

**ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)**

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



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

**Individual Protection Measures, such as Personal Protective Equipment****Eye/face protection**

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.

**Skin Protection**

For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.

**Respiratory Protection**

Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use. 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.

**Glove Recommendations**

For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.

**Section 9 - PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance</b>	colorless gas	<b>Physical State</b>	gas
<b>Odor</b>	sweet odor	<b>Color</b>	colorless
<b>Odor Threshold</b>	Not available	<b>pH</b>	Not available
<b>Melting Point</b>	-169 °C (-272 °F)	<b>Boiling Point</b>	-104 °C (-155 °F)
<b>Boiling Point Range</b>	Not available	<b>Freezing point</b>	Not available
<b>Evaporation Rate</b>	Not available	<b>Flammability (solid, gas)</b>	Not available
<b>Autoignition Temperature</b>	450 °C (842 °F)	<b>Flash Point</b>	(Flammable gas)
<b>Lower Explosive Limit</b>	2.7 %	<b>Decomposition temperature</b>	Not available
<b>Upper Explosive Limit</b>	36 %	<b>Vapor Pressure</b>	760 mmHg @ -104 °C
<b>Vapor Density (air=1)</b>	1	<b>Specific Gravity (water=1)</b>	Not available
<b>Water Solubility</b>	22.6 %	<b>Partition coefficient: n-octanol/water</b>	281.84
<b>Viscosity</b>	0.0093 cp	<b>Kinematic viscosity</b>	Not available



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<b>Solubility (Other)</b>	Not available	<b>Bioconcentration Factor (BCF)</b>	0.58
<b>Density</b>	1.261 g/L at 0 °C	<b>Henry's Law Constant</b>	0.00012412 atm-m <sup>3</sup> /mole
<b>KOC</b>	779.83 (estimated from water solubility )	<b>Physical Form</b>	compressed gas
<b>Taste</b>	sweet taste	<b>Volatility</b>	100 %
<b>Molecular Formula</b>	C-H <sub>2</sub> -C-H <sub>2</sub>	<b>Molecular Weight</b>	28.05

**Solvent Solubility****Soluble**

alcohol, ether, acetone, Benzene

**Section 10 - STABILITY AND REACTIVITY****Reactivity**

May polymerize when heated. Store in a cool dry place.

**Chemical Stability**

May polymerize. Avoid storage and use above room temperature.

**Possibility of Hazardous Reactions**

Polymerizes with evolution of heat. Store in a cool, dry place.

**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.

**Incompatible Materials**

Acids, halo carbons, halogens, metal salts, metals, oxidizing materials, peroxides

**Hazardous decomposition products**

Oxides of carbon

**Section 11 - TOXICOLOGICAL INFORMATION****Information on Likely Routes of Exposure****Inhalation**

nausea, vomiting, symptoms of drunkenness, bluish skin color, suffocation, convulsions, coma

**Skin Contact**

blisters, frostbite

**Eye Contact**

frostbite, blurred vision

**Ingestion**

frostbite

**Acute and Chronic Toxicity****Component Analysis - LD50/LC50**

The components of this material have been reviewed in various sources and no selected endpoints have been identified.

**Product Toxicity Data****Acute Toxicity Estimate**

No data available.

**Immediate Effects**



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frostbite, depression of central nervous system

**Delayed Effects**

no information on significant adverse effects.

**Irritation/Corrosivity Data**

No animal testing data available for skin or eyes.

**Respiratory Sensitization**

No data available.

**Dermal Sensitization**

No data available.

**Component Carcinogenicity**

<b>Ethylene</b>	<b>74-85-1</b>
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 )

**Germ Cell Mutagenicity**

No data available.

**Tumorigenic Data**

No data available

**Reproductive Toxicity**

No data available.

**Specific Target Organ Toxicity - Single Exposure**

central nervous system

**Specific Target Organ Toxicity - Repeated Exposure**

No information on significant adverse effects.

**Aspiration hazard**

Not applicable.

**Medical Conditions Aggravated by Exposure**

None known.

**Additional Data**

Interactions with drugs may occur.

**Section 12 - ECOLOGICAL INFORMATION**

**Component Analysis - Aquatic Toxicity**

No LOLI ecotoxicity data are available for this product's components.

**Persistence and Degradability**

No information available for the product.

**Bioaccumulative Potential**

No information available for the product.

**Mobility**

No information available for the product.

**Section 13 - DISPOSAL CONSIDERATIONS**

**Disposal Methods**

Dispose in accordance with all applicable regulations.

**Component Waste Numbers**

The U.S. EPA has not published waste numbers for this product's components.



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#### Section 14 - TRANSPORT INFORMATION

**US DOT Information:**

Shipping Name: ETHYLENE

Hazard Class: 2.1

UN/NA #: UN1962

Required Label(s): 2.1

**IMDG Information:**

Shipping Name: ETHYLENE

Hazard Class: 2.1

UN#: UN1962

Required Label(s): 2.1

**International Bulk Chemical Code**

This material does not contain any chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

#### Section 15 - REGULATORY INFORMATION

**U.S. Federal Regulations**

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (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 % de minimis concentration

**SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories**

Flammable; Gas Under Pressure; Specific Target Organ Toxicity

**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 listed under California Proposition 65**

**Canada Regulations**

**Canadian WHMIS Ingredient Disclosure List (IDL)**

The components of this product are either not listed on the IDL or are present below the threshold limit listed on the IDL.

**Component Analysis - Inventory**

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

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes



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**Material Name: Ethylene****SDS ID: 00244285****Section 16 - OTHER INFORMATION****NFPA Ratings**

Health: 2 Fire: 4 Reactivity: 2

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

**Summary of Changes**

Updated: 03/20/2017

**Key / Legend**

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania\*; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC - European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; F - Background (for Venezuela Biological Exposure Indices); IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL) , KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX - Mexico; Ne- Non-specific; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; Nq - Non-quantitative; NSL - Non-Domestic Substance List (Canada); NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL - Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH - Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; Sc - Semi-quantitative; STEL - Short-term Exposure Limit; TCCA - Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW - Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); VN (Draft) - Vietnam (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada).

**Other Information****Disclaimer:**

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