

# Material Safety Data Sheet

## ETHYLENE

Revision 7/01

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Advanced Gas Technologies  
1401 Stauffer Road  
Palm, PA 18070

Telephone Number: (215) 541-4116

MSDS IDENTIFICATION CODE/NUMBER: EE

#### EMERGENCY TELEPHONE NUMBER

CHEMTREC (800) 424-9300

**PRODUCT NAME:** ETHYLENE

**GAS NUMBER:** 1-11-1

**CHEMICAL FAMILY:** Olefin

**CHEMICAL FORMULA:** C<sub>2</sub>H<sub>4</sub>

**SYNONYMS:** ELAYL  
ETHENE  
ETHERIN

### 2. COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENT NAME	EXPOSURE LIMITS	CONCENTRATION PERCENT BY WEIGHT
ETHYLENE GAS NUMBER: 74-85-1	ACGIH TLV-TWA: D	>98.0 to 99.95

### 3. HAZARDS IDENTIFICATION

This product does not contain oxygen and may cause asphyxia if released in a confined area. Simple hydrocarbons can cause irritation and central nervous system depression at high concentrations.

### 4. FIRST AID MEASURES

#### SKIN

For dermal contact or frostbite, flush affected area with lukewarm water. DO NOT USE HOT WATER. A physician should see the patient promptly if the cryogenic "burn" has resulted in blistering of the dermal surface or deep tissue freezing.

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### **INHALATION**

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.

Victims should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. If breathing stopped administer artificial resuscitation and supplement oxygen. Further treatment should be symptomatic and supportive. Keep victim warm and quiet.

## 5. FIRE FIGHTING MEASURES

### **FLAMMABLE PROPERTIES**

<b>FLASH POINT:</b>	<b>GAS</b>
<b>AUTOIGNITION:</b>	<b>968 F - 520C</b>
<b>LOWER EXPLOSIVE LIMIT:</b>	<b>(%): 3.1</b>
<b>UPPER EXPLOSIVE LIMIT:</b>	<b>(%): 32</b>

### **FIRE AND EXPLOSION HAZARDS**

Explodes spontaneously when mixed with chlorine in sunlight.

Electrical Classification: Group C; See NFPA No. 70

### **EXTINGUISHING MEDIA**

Carbon dioxide, dry chemical or water spray.

### **FIRE FIGHTING INSTRUCTIONS**

If possible, stop the flow of gas supply and allow fuel to consume itself. Use water to cool adjacent areas.

## 6. ACCIDENTAL RELEASE MEASURES

Evacuate all personnel from affected area. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with an inert gas prior to attempting repairs. If leak is in container or container valve, contact CHENTREC for emergency assistance or call ADVANCED GAS TECHNOLOGIES.

## 7. HANDLING AND STORAGE

### **HANDLING AND STORAGE PRECAUTIONS**

Earth bond and ground all lines and equipment associated with the product system. Electrical equipment should be non-sparking and explosion proof. Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide, or roll cylinders. Use a pressure regulator when connecting to lower pressure (250psig) piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder.

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130 F(54 C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders from being stored for excessive periods of time.

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Post "No Smoking" signs in storage or use areas.

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For additional recommendations consult Compressed Gas Association Pamphlet P-1. Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, asphyxiation or a toxic exposure.

Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in a fire, explosion, asphyxiation or toxic exposure.

## **8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

### **ENGINEERING CONTROLS**

Use local exhaust to prevent gas accumulation. Use general ventilation to prevent build up of flammable concentrations. Use a fume hood handling small quantities. If product is handled routinely where the potential for leaks exists, all electrical equipment must be rated for use in potentially flammable atmospheres. Consult the National Electrical Code for details.

### **EYE / FACE PROTECTION**

Safety goggles or glasses.

### **SKIN PROTECTION**

Plastic or rubber

### **RESPIRATORY PROTECTION**

A Type C respirator with full-face piece equipped with an escape bottle or a self-contained breathing apparatus should be available for emergency use. Operate this equipment in the positive pressure demand mode.

### **OTHER / GENERAL PROTECTION**

Safety shoes, safety shower, eyewash "fountain", face shield.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

### **APPEARANCE**

A colorless gas.

### **ODOR**

Sweet odor

### **BASIC PHYSICAL PROPERTIES**

<b>BOILING POINT:</b>	- 154 F - 103.7 C
<b>MELTING POINT:</b>	- 272.6 F - 169 C
<b>VAPOR PRESSURE:</b>	Above critical temperature.
<b>VAPOR DENSITY (AIR=1):</b>	0.97 @ STP
<b>SOLUBILITY (H2O):</b>	Negligible

## **10. STABILITY AND REACTIVITY**

**STABILITY:** Stable

### **CONDITIONS TO AVOID (STABILITY)**

Cylinder Temperatures should not exceed 130 F (54 C)

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## **INCOMPATIBLE MATERIALS**

Chlorine, nitrogen dioxide, aluminum chloride, carbon tetrachloride.

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**HAZARDOUS POLYMERIZATION:** May occur

## **11. TOXICOLOGICAL INFORMATION**

### **SKIN EFFECTS**

Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

### **ACUTE INHALATION EFFECTS**

Ethylene is a simple asphyxiant. Oxygen levels should be maintained at greater than 19.5 percent at normal atmospheric pressure, which is equivalent to a partial pressure of 135 mm Hg.

High concentrations of ethylene so as to exclude an adequate supply of oxygen to the lung causes dizziness, deeper breathing due to air hunger, possible nausea and eventual unconsciousness.

Ethylene is relatively inactive biologically and essentially nontoxic; therefore, the major hazard is the exclusion of an adequate supply of oxygen to the lungs.

### **MISCELLANEOUS TOXICOLOGICAL INFORMATION**

Carcinogenicity: NTP: NO IARC: NO OSHA: NO

## **12. ECOLOGICAL INFORMATION**

NO DATA GIVEN

## **13. DISPOSAL CONSIDERATIONS**

Do not attempt to dispose of waste or unused quantities. Return in the shipping container PROPERLY LABELED, WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE TO Advanced Gas Technologies for proper disposal.

## **14. TRANSPORT INFORMATION**

**PROPER SHIPPING NAME:** Ethylene, Compressed

**HAZARD CLASS:** Flammable Gas

**DOT IDENTIFICATION NUMBER:** UN1962

**DOT SHIPPING LABEL:** Flammable Gas

## **15. REGULATORY INFORMATION**

### **SARA TITLE III NOTIFICATIONS AND INFORMATION**

SARA TITLE III - HAZARD CLASSES: Acute Health Hazard

Fire Hazard

Sudden Release of Pressure Hazard

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**SARA TITLE III - SECTION 313 SUPPLIER NOTIFICATION**

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right -To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

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<b><u>CAS NUMBER</u></b>	<b><u>INGREDIENT NAME</u></b>	<b><u>PERCENT BY</u></b>
<b><u>WEIGHT</u></b>		
74-85-1	ETHYLENE	>98.0 to 99.95

This information must be included on all MSDSs that are copied and distributed for this material.

**16. OTHER INFORMATION**

**NFPA HAZARD RATING - HEALTH** 1 Slight  
**FIRE** 4 Extreme  
**REACTIVITY** 2 Moderate

**MSDS IDENTIFICATION CODE / NUMBER: EE**

**REFERENCE DOCUMENTATION**

Ethylene is non - corrosive and may be used with any common structural.

Earth-ground and bond all lines and equipment associated with the ethylene system. Electrical equipment should be non-sparking or explosion-proof. Qualified producers of compressed gases should not refill except compressed gas cylinders. Shipment of a compressed gas cylinder, which has not been filled by the owner or with his (written) consent, is a violation of Federal Law (49CFR).

For additional recommendations, consult Compressed Gas Association Pamphlet P-1.

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