

Material Safety Data Sheet

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Version 1.4

According to 91/155/EEC

1 - Product and Company Information

Product Name	ETHYLENE, PRESSURE TIN WITH 1 L
Product Number	00489
Company	Sigma-Aldrich Pte Ltd #08-01 Citilink Warehouse Singapore 118529 Singapore
Technical Phone #	65 271 1089
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2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
ETHYLENE	74-85-1	200-815-3	601-010-00-3

Formula	C2H4
Molecular Weight	28.05 AMU
Synonyms	Acetene * Athylen (German) * Bicarburretted hydrogen * Elayl * Ethene * Ethylene (ACGIH:OSHA) * Liquid ethylene * Olefiant gas

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT
Extremely flammable.

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

AFTER SKIN CONTACT

In case of contact, immediately wash skin with soap and copious amounts of water.

AFTER EYE CONTACT

Contamination of the eyes should be treated by immediate and prolonged irrigation with copious amounts of water. Assure adequate flushing of the eyes by separating the eyelids with fingers.

AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

Suitable: Use water spray or fog nozzle to keep cylinder cool. Move cylinder away from fire if there is no risk.

SPECIAL RISKS

Specific Hazard(s): Extremely flammable. Vapor may travel considerable distance to source of ignition and flash back. Emits toxic fumes under fire conditions.

Explosion Hazards: May form explosive mixtures with air Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

SPECIFIC METHOD(S) OF FIRE FIGHTING

Do not extinguish burning gas if flow cannot be shut off immediately. Use water spray or fog nozzle to keep cylinder cool. Move cylinder away from fire if there is no risk.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area and keep personnel upwind. Shut off all sources of ignition. Shut off leak if there is no risk.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe gas. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep tightly closed. Keep away from heat, sparks, and open flame. Cylinder temperature should not exceed 125°F (52°C).

Incompatible Materials: Mixtures of ethylene and aluminum chloride at 30-60 bar pressure will rapidly heat and explode in the presence of supported nickel catalysts, methyl chloride or nitromethane. The mixing of ethylene with trifluoromethyl hypofluorite in the absence of a diluent results in an explosion. Reaction with chlorine, ozone or nitrogen oxide is explosive. When ethylene is passed over heated lithium incandescence occurs and produces a mixture of lithium hydride and lithium acetylide. When 5A molecular sieves were used to dry a compressed ethylene gas stream, an exothermic reaction took place and caused an explosion. Smaller 3A molecular sieves are not catalytically active toward ethylene

SPECIAL REQUIREMENTS: Contents under pressure.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Mechanical exhaust required. Safety shower and eye bath. Warning: suck-back into cylinder may cause rupture. Use back-flow-preventive device in piping.

WORK PRACTICES

Store and use with adequate ventilation.

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

EXPOSURE LIMITS - SWEDEN

Source	Type	Value
	LLV (Level)	330 mg/m ³
		250 ppm

EXPOSURE LIMITS - SWITZERLAND

Source	Type	Value
OEL	OEL	11,500 mg/m ³
		10,000 ppm

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator in nonventilated areas and/or for exposure above the TLV or PEL.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

Appearance	Physical State: Compressed gas	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	-104 °C	760 mmHg
MP/MP Range	-169 °C	
Flash Point	-100 °C	Method: closed cup
Flammability	N/A	
Autoignition Temp	450 °C	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	Lower: 2.7 % Upper: 36 %	
Vapor Pressure	26630.4 mmHg	20 °C
SG/Density	N/A	
Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	0.97 g/l	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

10 - Stability and Reactivity

STABILITY

Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

11 - Toxicological Information

RTECS NUMBER: KU5340000

SIGNS AND SYMPTOMS OF EXPOSURE

Ethylene vapor will act as a simple asphyxiant by displacing the oxygen in the air. Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite. Exposure can cause: Nausea, dizziness, and headache. Narcotic effect. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: May cause eye irritation.
Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract. Can cause rapid suffocation.
Ingestion: May be harmful if swallowed.

TARGET ORGAN INFORMATION

Central nervous system.

CHRONIC EXPOSURE - CARCINOGEN

Result: This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC CARCINOGEN LIST

Rating: Group 3

12 - Ecological Information

ECOTOXICOLOGICAL EFFECTS

Test Type: LC100 Fish
Time: 24 h
Value: 22 - 25 mg/l

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations.

CONTAMINATED CONTAINER DISPOSAL

Caution: no-return cylinder. Do not reuse. Empty cylinder will contain hazardous residue. Follow proper disposal techniques.

14 - Transport Information

RID/ADR

UN#: 1962
Class: 2

Proper Shipping Name: Ethylene, compressed

IMDG

UN#: 1962

Class: 2.1

Proper Shipping Name: Ethylene, compressed

Marine Pollutant: No

Severe Marine Pollutant: No

IATA

UN#: 1962

Class: 2.1

Proper Shipping Name: Ethylene, compressed

Inhalation Packing Group I: No

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 601-010-00-3

INDICATION OF DANGER: F+

Extremely Flammable.

R-PHRASES: 12

Extremely flammable.

S-PHRASES: 9 16 33

Keep container in a well-ventilated place. Keep away from sources of ignition - no smoking. Take precautionary measures against static discharges.

COUNTRY SPECIFIC INFORMATION

Germany

WGK: No hazard to waters.

SWITZERLAND

SWISS POISON CLASS: 5

16 - Other Information

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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