

# Material Safety Data Sheet

## CYCLOPROPANE

Revision 9/04

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Advanced Gas Technologies  
1401 Stauffer Road  
Palm, PA 18070.

Telephone Number: (215) 541-4116

#### EMERGENCY TELEPHONE NUMBER

CHEMTREC (800) 424-9300

MSDS IDENTIFICATION CODE / NUMBER: CY

PRODUCT NAME: CYCLOPROPANE

CAS NUMBER: 75-19-4

CHEMICAL FAMILY: Cyclic Alkane

CHEMICAL FORMULA: C<sub>3</sub>H<sub>6</sub>

#### SYNONYMS:

Trimethylene

### 2. COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENT NAME	EXPOSURE LIMITS	CONCENTRATION PERCENT BY WEIGHT
CYCLOPROPANE	ACGIH-TLV-TWA: D Simple Asphyxiant Maintain oxygen levels above 19.5%	99.0 to 99.98
CAS NUMBER: 75-19-4	OSHA PEL-TWA: Not Established	

### 3. HAZARDS IDENTIFICATION

NO DATA GIVEN

### 4. FIRST AID MEASURES

#### EYES

None anticipated.

#### 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. Seek medical treatment as soon as possible.

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### **INGESTION**

Ingestion is unlikely.

### **INHALATION**

Product is relatively nontoxic. Inhalation of high concentrations may cause dizziness, disorientation, in-coordination, narcosis, nausea or narcotic effects.

This product may displace oxygen if released in a confined space. Maintain oxygen levels above 19.5% at sea level to prevent asphyxiation.

Effects of oxygen deficiency resulting from simple asphyxiants may include: rapid breathing, diminished mental alertness, impaired muscular coordination, faulty judgment, depression of all sensations, emotional instability, and fatigue. As asphyxiation progresses, nausea, vomiting, prostration, and loss of consciousness may result, eventually leading to convulsions, coma, and death.

Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to uncontaminated area, given artificial resuscitation and supplement oxygen. Further treatment should be symptomatic and supportive.

## 5. FIRE FIGHTING MEASURES

### **FLAMMABLE PROPERTIES**

**FLASH POINT:** Not Available

**AUTOIGNITION:** 928 °F (497.8°C)

**LOWER EXPLOSIVE LIMIT (%):** 2.4

**UPPER EXPLOSIVE LIMIT (%):** 10.4

### **FIRE AND EXPLOSION HAZARDS**

Flammable gas. Rapid flame propagation and flashback are possible. Cyclopropane is heavier than air and may travel a considerable distance to a source of ignition. Should flame be extinguished and flow of gas continue, increase ventilation to prevent flammable mixture formation in low areas or pockets. Cyclopropane may burn with invisible flame in bright light. May rapidly form explosive mixtures with air.

Electrical Classification: Class 1, Group D.

### **EXTINGUISHING MEDIA**

Water, Carbon dioxide, Dry chemical. Use water spray to cool fire exposed containers.

### **FIRE FIGHTING INSTRUCTIONS**

If possible, stop the flow of cyclopropane using a remote valve. Never enter a flammable atmosphere. Use water spray to cool surrounding containers by spraying the containers above their liquid level. Be cautious of a BLEVE, Boiling Liquid Evaporating Vapor Explosion, if flame is impinging on surrounding containers. Limit the number of personnel in proximity of a fire and evacuate the surrounding area.

Firefighters should wear respiratory (SCBA) and full turnout or Bunker gear. Continue to cool fire-exposed cylinders until well after flames are extinguished.

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**6. ACCIDENTAL RELEASE MEASURES**

Immediately extinguish all ignition sources. Evacuate all personnel from affected area. Use appropriate protective equipment including self-contained breathing apparatus and fire turnout gear. 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 CHEMTREC for emergency assistance or call Advanced Gas Technologies.

**7. HANDLING AND STORAGE**

**HANDLING AND STORAGE PRECAUTIONS**

Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve protection outlet piped to use point. Do not drag, roll or slide cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure (<250 psig) piping or systems. Do not heat cylinders 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 them in a cool, dry, well-ventilated area of non-combustible construction. Keep away from heavy trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130 F. 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. Post "NO SMOKING OR OPEN FLAMES" signs in the storage or use area. There should be no source of ignition in storage or use area.

For additional storage recommendations, consult Compressed Gas Association's Pamphlets P-1, P-14, and safety bulletin SB-2.

Earth-ground and bond all lines and equipment associated with the propane system. All electrical equipment should be non-sparking or explosion proof.

Compressed gas cylinders must not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas cylinder that has not been filled by the owner or with his (written) consent is a violation of Federal Law (49CFR).

Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in a enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, asphyxiation or a toxic exposure.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**ENGINEERING CONTROLS**

Use laboratory hood with forced ventilation for small quantities. Local exhaust should be used to prevent accumulation above the exposure limit. All components must be in accordance with electrical codes.

**EYE / FACE PROTECTION**

Safety goggles or glasses

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### **SKIN PROTECTION**

Plastic, leather or rubber gloves for potential evaporating contact.

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### **RESPIRATORY PROTECTION**

Positive pressure airline with mask or self-contained breathing apparatus should be available for emergency use and routine use when exposure levels are above exposure limits.

### **OTHER / GENERAL PROTECTION**

Safety shoes.

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

### **APPEARANCE**

A colorless, odorless gas shipped as a liquefied gas under its own vapor pressure.

### **ODOR**

Odorless.

### **BASIC PHYSICAL PROPERTIES**

**BOILING POINT:** -27.15 °F ( -32.86°C)

**MELTING POINT:** -197.7°F ( -127.62°C)

**VAPOR PRESSURE:** 75 Psig @70 F 6.19 Bar (absolute)

**VAPOR DENSITY (AIR=1):** 1.46

**SOLUBILITY (H2O):** Negligible

## **10. STABILITY AND REACTIVITY**

**STABILITY:** Stable

### **INCOMPATIBLE MATERIALS**

Oxidizers.

### **HAZARDOUS DECOMPOSITION PRODUCTS**

Carbon dioxide, Carbon monoxide if sufficient oxygen is present.

## **11. TOXICOLOGICAL INFORMATION**

### **EYE EFFECTS**

Contact with liquid may cause tissue freezing and cryogenic "burns" causing pain and irritation..

### **SKIN EFFECTS**

Contact with evaporating liquid can cause cryogenic "burn" or frostbite. Frostbite effects are a change in color of skin to gray or white, possibly followed by blistering.

### **ACUTE ORAL EFFECTS**

Contact of mucous membrane with liquid may cause tissue freezing and cryogenic burns, although ingestion is unlikely.

### **ACUTE INHALATION EFFECTS**

Cyclopropane 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. Oxygen deficiency during pregnancy has produced developmental abnormalities in humans and experimental animals.

Inhalation of Cyclopropane produced mutagenic effects in chickens at 200,000 ppm/3H.

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High concentrations of Cyclopropane 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.

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

**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:** Cyclopropane  
**HAZARD CLASS:** Flammable Gas  
**DOT IDENTIFICATION NUMBER:** UN 1027  
**DOT SHIPPING LABEL:** Flammable Gas

OR:

**PROPER SHIPPING NAME:** Liquefied Petroleum Gas  
**HAZARD CLASS:** Flammable Gas  
**DOT IDENTIFICATION NUMBER:** UN1075  
**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

**16. OTHER INFORMATION**

**NFPA HAZARD RATING - HEALTH** 1 Slight  
**FIRE** 4 Extreme  
**REACTIVITY** 0 Negligible

**MSDS IDENTIFICATION CODE / NUMBER: CY**

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