



**Tel: 514-956-7503**  
**Fax: 514-956-7504**  
**Internet: [www.megs.ca](http://www.megs.ca)**  
**Email : [support@megs.ca](mailto:support@megs.ca)**

**Montreal**  
**Ottawa**  
**Quebec**

**St-Laurent**  
**Nepean**  
**Quebec**

**Tel : 514-956-7503**  
**Tel : 613-226-4228**  
**Tel : 418-834-7447**

**Fax : 514-956-7504**  
**Fax : 613-226-4229**  
**Fax : 418-834-3774**

**MSDS: Acetylene**

### PRODUCT INFORMATION

**PRODUCT:** Acetylene  
**TRADE NAME:** Acetylene  
**CHEMICAL NAME:** Acetylene  
**SYNONYMS:** Ethyne  
**FORMULA:** C<sub>2</sub>H<sub>2</sub>  
**CHEMICAL FAMILY:** Alkyne  
**SUPPLIER'S NAME:** MEGS Specialty Gases Inc.  
**SUPPLIER'S ADDRESS:** 2675 De Miniac  
Ville St-Laurent, Qc, H4S 1E5  
**EMERGENCY PHONE NUMBER:** (514) 956-7503  
**MOLECULAR WEIGHT:** 26.04  
**PRODUCT USE:** Fuel  
**PRODUCT IDENTIFICATION UN 1001**  
**NUMBER:**

### HAZARDOUS INGREDIENTS

CHEMICAL ID	CONCENTRATION	CAS #	LD(50)	LC(50)
Acetylene	100%	74-86-2	None	None

### PHYSICAL DATA

**PHYSICAL STATE:** Gas  
**APPEARANCE:** Pure acetylene gas is colorless with an ethereal odor. Commercial (carbide) acetylene has a distinctive garlic-like odor.  
**ODOR:** See above  
**ODOR THRESHOLD:** Unknown  
**SPECIFIC GRAVITY (H<sub>2</sub>O = 1):** See Vapor Density (air = 1)

**VAPOR PRESSURE:** 4378 kPa  
**VAPOR DENSITY (air = 1):** 0.906  
**EVAPORATION RATE:** Not Applicable (Gas)  
**BOILING POINT:** Sublimation Point = -83.8°C  
**FREEZING POINT:** Triple Point = -80.55°C  
**pH:** Not applicable (Gas)  
**GAS DENSITY:** 1.10 kg/m<sup>3</sup> @ 15°C, 101.3 kPa  
**COEFFICIENT OF WATER/OIL @ 15°C, Bunsen Coefficient = 1.163**  
**DISTRIBUTION:**

### **FIRE OR EXPLOSION HAZARD**

**CONDITIONS OF FLAMMABILITY:** As a gas in air, oxygen or other oxidizers. GASEOUS ACETYLENE IS SPONTANEOUSLY COMBUSTIBLE IN AIR AT PRESSURES ABOVE 207 kPa.

**MEANS OF EXTINCTION:** Carbon Dioxide; dry chemical. Use water spray to cool surrounding containers.  
"Stop flow of gas before extinguishing fire".

**FLASHPOINT AND METHOD OF DETERMINATION:** Not applicable (Gas)

**UPPER EXPLOSION LIMIT (% BY VOL):** 80-100  
**LOWER EXPLOSION LIMIT (% BY VOL):** 2.2  
**AUTO-IGNITION TEMPERATURE:** 305°C  
**FLAMMABILITY CLASSIFICATION:** Class 1, Group A  
**HAZARDOUS COMBUSTION PRODUCTS:** None

**EXPLOSION DATA:** Ignites by decomposition above 207 kPa

**SENSITIVITY TO STATIC DISCHARGE:** Yes

### **REACTIVITY DATA**

**CHEMICAL STABILITY:** See Explosion Data, above  
**INCOMPATIBLE MATERIALS:** Oxygen and other oxidizers. Forms explosive acetylides with copper, mercury and silver.  
**CONDITIONS OF REACTIVITY:** As a gas at normal pressures and temperatures.  
**HAZARDOUS DECOMPOSITION PRODUCTS:** None other than metal acetylides.

## TOXICOLOGICAL PROPERTIES

### **ROUTES OF ENTRY:**

**SKIN CONTACT:** None

**SKIN ABSORPTION:** None

**EYE:** None

**INHALATION:** Acetylene is defined as a simple asphyxiant. Oxygen levels should be maintained at greater than 18 molar percent at normal atmospheric pressure which is equivalent to a partial pressure of 135 mm Hg. (ACGIH, 1995-1996).

**INGESTION:** No

**ACUTE OVER EXPOSURE EFFECTS:** Inhalation: Low concentrations (10-20% in air) cause symptoms similar to that of being intoxicated. Higher concentrations so as to exclude an adequate supply of oxygen to the lungs cause unconsciousness.

**CHRONIC OVER EXPOSURE EFFECTS:** None

**EXPOSURE LIMITS:** A simple asphyxiant (ACGIH 1995-1996)

**IRRITANCY OF PRODUCT:** None

**SENSITIZATION TO MATERIAL:** None

**CARCINOGENICITY, REPRODUCTIVE EFFECTS:** None

**TERATOGENICITY, MUTAGENICITY:** None

**TOXICOLOGICALLY SYNERGISTIC PRODUCTS:** None

## PREVENTIVE MEASURES

**PERSONAL PROTECTIVE EQUIPMENT:** Gloves: as required in welding. Eye Protection: Safety goggles or glasses. Other: Safety shoes, safety shower.

**SPECIFIC ENGINEERING CONTROLS:** Follow MEGS Specialty Gases's instructions for the maximum withdrawal rate for each size cylinder so that solvent is not withdrawn with the acetylene. Most metals, except silver, copper,

mercury or brasses with more than 66% copper, are compatible (non corrosive) with acetylene.

**LEAK AND SPILL PROCEDURES:** 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 on container or container valve, contact the closest MEGS Specialty Gases location.

**WASTE DISPOSAL:** Do not attempt to dispose of waste or unused quantities. Return in the shipping container properly labelled, with any valve outlet plugs or caps secured and valve protection cap in place to MEGS Specialty Gases for proper disposal. For emergency disposal, contact the closest MEGS Specialty Gases location.

**HANDLING PROCEDURES AND EQUIPMENT:** USE ONLY IN WELL-VENTILATED AREAS.

Valve protection caps must remain in place unless container is secured with valve outlet piped to the point of use. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when removing gas from the cylinder. DO NOT ALLOW THE FREE GAS TO EXCEED 207 kPa at 21.1°C. 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.

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

**STORAGE REQUIREMENTS:** Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of non combustible construction away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 52°C. Cylinders must 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 being stored for excessive periods of time. Post "No Smoking or Open Flames" signs in the storage or use area. There should be no sources of ignition in the storage or use area.

**TDG CLASSIFICATION:** 2.1

**WHMIS CLASSIFICATION:** A, B, F

**SPECIAL SHIPPING INFORMATION:** Since acetylene cylinders contain a porous mass and a solvent in which the acetylene is dissolved, the cylinders should always be shipped in an upright position.

## FIRST AID MEASURES

**SPECIFIC FIRST AID PROCEDURES:** PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO ACETYLENE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS AND BE COGNIZANT OF EXTREME FIRE AND EXPLOSION HAZARD.

**INHALATION:** 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 an uncontaminated area, given assisted resuscitation and supplemental oxygen. Medical assistance should be sought immediately.

**EYE CONTACT:** PERSONS WITH POTENTIAL EXPOSURE TO ACETYLENE SHOULD NOT WEAR CONTACT LENSES.

\*Note: Acetylene is dissolved in acetone although the risk may be small, acetone has a defatting and drying effect.

Flush contaminated eye(s) with copious quantities of water. Part eyelids to assure complete flushing. Continue for a minimum of 15 minutes.

**SKIN CONTACT:** Not applicable

## PREPARATION INFORMATION

**PREPARED BY:** Safety Department

**DATE PREPARED:** 01/01/1999

**LAST REVISION DATE:** 04/01/2011

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