



## MATERIAL SAFETY DATA SHEETS

8

Acetylene

### 1. CHEMICAL IDENTITY

**Chemical Name :** Acetylene

**Chemical Classification:** Flammable , Reactive **Trade Name :**

**Synonyms:** Ethyne, Ethine.

**Formula :** C<sub>2</sub>H<sub>2</sub>

**CAS No:** 74-86-2

**UN No:** 1001

#### Regulated Identification

**Shipping Name :** Acetylene

**Hazchem Code :** 2SE

**Codes / Label :** Class 2.1, Flammable

**Hazardous Waste ID No :** 17

HAZARDOUS INGREDIENTS	C.A.S. No.	HAZARDOUS INGREDIENTS	C.A.S. No.
1 Acetylene	74-86-2	3	
2		4	

### 2. PHYSICAL / CHEMICAL DATA

**Boiling** -84.7

**Pt. °C:** (Sublimes)

**Physical State:** Gas

**Appearance:** Colourless

**Melting** -80.7

**Pt °C:**

**Vapour Pressure** 30400 mmHg at  
**@ 35°C mmHg:** 16.8°C

**Odour:** Garlic like odour

**Vapour** 0.91

**Density(Air =1):**

**Solubility in**  
**water at 30°C**  
**g/100ml:** Soluble

**Others:** Slightly soluble in ethanol, carbon disulfide, soluble in acetone, benzene, chloroform.

**Specific Gravity (Water =1 ):** 0.613 at -80°C

**pH :** Neutral

### 3. FIRE / EXPLOSION HAZARD DATA

**Flammability :** Yes

**LEL:** 2.5

**Flash Point °C in OC:** -18

**TDG Flammability:** 2

**UEL:** 100

**Flash Point °C in CC:**

**Autoignition Temperature °C :** 305

**Explosion sensitivity to impact:** Stable

**Explosion sensitivity to static Electricity:** Explodes

**Hazardous Combustion Products :** Fire may produce irritating and/or toxic gases.

**Hazardous Polymerization :** The heating of acetylene may lead to polymerization reactions which are highly exothermic.

**Combustible Liquid:** No

**Explosive Material:** No

**Corrosive Material** No

**Flammable Material:** Yes

**Oxidiser :** No

**Others:**

**Pyrophoric Material:** No

**Organic Peroxide :** No

### 4. REACTIVITY DATA

**Chemical Stability :** Stable

**Incompatibility with other material :** With brass, copper salts, copper carbide, powdered Co, Hg, Hg salts, K, Ag, Ag salts, RbH, CsH, halogens, HNOV NaOH, oxidants.

**Reactivity :** Reacts vigorously with oxidising agents. Also reacts vigorously with

trifluoromethyl hypofluorite.

**Hazardous** : Reacts with copper to form the explosive copper acetylide.

**Reaction Products**

**5. HEALTH HAZARD DATA**

**Routes of entry:** Inhalation, Ingestion, skin and eyes

**Effects of Exposure / Symptoms:**

Inhalation causes headache, dizziness and loss of consciousness. Death from asphyxiation may occur if oxygen content of the air is severely reduced by dilution with acetylene. Dermal exposure may cause frostbite injury. Severe tissue burns have been reported. Eye exposure may result in decreased night vision, visual acuity, and visual fields (tunnel vision) may occur. Frothy mucous may be seen.

**Emergency Treatment :**

**Inhalation:** Remove the victim to fresh air area and keep him warm and quiet. Recovery is usually rapid. If breathing has stopped give artificial respiration and administer oxygen if necessary. Seek medical aid.

**Skin:** Rewarming and a variety of topical treatments are indicated for frostbite injury.

**Eyes:** Irrigate exposed eyes with copious amounts of tepid water for at least 15 minutes. If irritation, pain, swelling, lacrimation, or photophobia persist, the patient should be seen in a health care facility.

**Ingestion:** Seek medical assistance.

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<b>LD50 (oral-rat) mg/kg:</b>		<b>STEL:</b>	Asphyxiant
<b>LC50 (rat) mg/kg:</b>		<b>Odour Threshold:</b>	Air: 620 ug/L
<b>Permissible Exposure Limit:</b>	Asphyxiant	<b>TLV (ACGIH) :</b>	Asphyxiant

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<b>NFPA Hazard</b>	<b>Health</b>	<b>Flammability</b>	<b>Reactivity</b>	<b>Special</b>
<b>Signals</b>	0	4	3	

**6. PREVENTIVE MEASURES**

**Personal Protective :** Provide leather hand gloves, apron, gas mask, goggles.

**Equipment**

**Handling** : Store acetylene cylinders in a cool, well ventilated area away from heat, flame and oxidising agents.

**Storage** : Keep in a cool, dry, dark location in a tightly sealed container or cylinder. Keep away from incompatible materials, ignition sources and untrained individuals. Secure and label area. Protect containers/cylinders from physical damage.

**Precautions** : Avoid exposure to gas. Provide air-supply respirator in the areas of high concentrations. Avoid all sources of ignition.

**7. EMERGENCY / FIRST AID MEASURES**

**FIRE:**

**Fire Extinguishing Media :** CO2, water spray, dry chemical powder.

**Special Procedure** : Keep the containers cool by spraying water if exposed to heat or flame.

**Unusual Hazards** : Flashback along gas trail may occur.

**EXPOSURE: First Aid Measures:**

**Inhalation:** Remove the victim to fresh air area and keep him warm and quiet. Recovery is usually rapid. If breathing has stopped give artificial respiration and administer oxygen if necessary. Seek medical aid.

**Skin:** Rewarming and a variety of topical treatments are indicated for frostbite injury.  
**Eyes:** Irrigate exposed eyes with copious amounts of tepid water for at least 15 minutes. If irritation, pain, swelling, lacrimation, or photophobia persist, the patient should be seen in a health care facility.  
**Ingestion:** Seek medical assistance.  
**Antidotes / Dosages:**

**SPILLS :**

**Steps To Be Taken** : Shut off leaks if without risk. Warn everybody and evacuate. Keep material out of water sources and sewers.

**Waste Disposal Method:**

**8. ADDITIONAL INFORMATION / REFERENCES**

A simple asphyxiant.  
In general industrial practice, acetylene does not constitute a serious toxic hazard. It is a very dangerous fire hazard when exposed to heat, flame or oxidising materials. At high pressures and at moderate temperatures and in the absence of air, it has been known to decompose explosively. When mixed with O<sub>2</sub> in proportion of 40% or more, it acts as a narcotic. It has been used as an anesthetic. 10% in air produces slight intoxication. 20% produces staggering gait, 30% produces general non-coordination. 33% leads to unconsciousness in 7 mins. Up to 80% causes complete anesthesia, increased blood pressure, narcosis and stimulated respiration.

**9. MANUFACTURERS / SUPPLIERS DATA**

<b>NAME OF FIRM :</b>	<b>Contact person</b>
<b>MAILING ADDRESS :</b>	<b>in Emergency :</b>
<b>TELEPHONE / TELEX NOS :</b>	<b>Local Bodies involved :</b>
<b>TELEGRAPHIC ADDRESS :</b>	<b>Standard Packing :</b>
<b>OTHERS :</b>	<b>Trem Card Details / Ref :</b>

**10. DISCLAIMER**

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