



Material Safety Data Sheet Acetylene, Dissolved

SECTION I - IDENTIFICATION

Issue Date:	June, 1999
Last Revision:	January, 2003
Manufacturer's Name:	Island Equipment Company
Address:	388 S. Marine Drive Tamuning, Guam 96913
Emergency Phone No:	Chemtrec 1-800-424-9300 Guam 1-671-565-2485/888-2450
Chemical Name and Synonyms:	Acetylene, Ethyne
Trade Name and Synonyms:	Acetylene, Ethyne
Chemical Family:	Alkyne
Formula:	C ₂ H ₂
CAS No:	74-86-2
Molecular Weight:	26.0

SECTION II - HEALTH HAZARD DATA

Time Weighted Average Exposure Limit (TWA):

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.

Symptoms of Exposure:

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.

Toxicological Properties:

As a narcotic gas or intoxicant causes hypercapnia (an excessive amount of carbon dioxide in the blood). Repeated exposures to tolerable levels has not shown deleterious effects. The major property is the exclusion of an adequate supply of oxygen to the lungs.

Not listed in the National Toxicology Program (NTP) or I.A.R.C.; not regulated as carcinogen by OSHA

Recommended First Aid Treatment:

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 mouth-to-mouth resuscitation and supplemental oxygen. Medical assistance should be sought immediately.

Hazardous Mixtures of Other Liquids, Solids or Gases:

Flammable over an extreme wide range in air. Explosive reactions may occur on ignition. Reacts explosively with halogens and halogenated compounds.

SECTION III - PHYSICAL DATA

Boiling Point (Sublimation Point):	- 118.8 F (-83.8 C)
Liquid Density:(Solid Density @ sublimation point)	45.51 lb./cu. ft. (729 kg/cu. meter)
Vapor Pressure @ 70 F (21.1 C):	645 psia (4450 Kpa)
Gas Density @ 70 F, 1 ATM:	0.0691lb./cu. ft. (1.107 kg/cu. meter)
Solubility in water:	Bunsen Coefficient = 1.047 @ 68 F (20 C);
Freezing Point: (Triple Point)	- 113 F (-80.55 C)
Appearance and Odor:	Colorless, odorless gas
	Pure acetylene is a colorless gas with an ethereal odor. Commercial (carbide) acetylene has a distinctive garlic-like odor. Specific Gravity = 0.91 @ 70 F (Air = 1.0)

SECTION IV - FIRE AND EXPLOSION HAZARD DATA
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Auto Ignition Temperature:	565 F (296 C)
Flammable Limit:	LEL = 2.2 UEL = 80-85
	Note: Pure acetylene can ignite by decomposition above 30 psia (207 kPa); therefore, the UEL is 100 % if the ignition source is of sufficient intensity.

Electrical Classification:	Class 1, Group A
Extinguishing Media:	Carbon Dioxide, Dry chemical
Special Fire Fighting Procedure:	

If possible, stop flow of escaping gas. Use water spray to cool surrounding containers. Keep personnel away since heated or burning cylinders can rupture.

Unusual Fire and Explosion Hazard:

Gaseous Acetylene is spontaneously combustible in air at pressures above 30 psia (207 kPa).

It require a very low ignition energy so that fires which have been extinguished without stopping the flow of gas can easily reignite with possible explosive force. Acetylene has a density very similar to that of air so when leaking it does not readily dissipate.

SECTION V - REACTIVITY DATA

Stability:	Unstable
Conditions to avoid:	Do not allow the free gas (outside of cylinder) to exceed 30 psia. Cylinders should not be exposed to sudden shock or sources of heat.

Incompatibility (Materials to avoid):

Oxygen and other oxidizers including all of the halogens and halogen compounds. Forms explosive acetylide compounds with copper, mercury, silver, brasses containing more than 66% copper and brazing materials containing silver or copper.

Hazardous Decomposition Products:	Carbon and Hydrogen
Hazardous Polymerization:	Will Not Occur

SECTION VI - SPILL OR LEAK PROCEDURE

Steps to be taken in case material is released or spilled:

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 Island Equipment Company.

Waste Disposal Method:

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 Island Equipment Company for proper disposal.

SECTION VII - SPECIAL PROTECTION INFORMATION

Respiratory Protection:

Positive pressure air line with mask or self-contained breathing apparatus should be available for emergency use.

Ventilation:

Hood with forced ventilation.

Local Exhaust:

To prevent accumulation above the LEL.

Mechanical:

In accordance with electrical codes.

Protective Gloves:

PVC or rubber in laboratory; as require for cutting & welding.

Eye Protection:

Safety goggles or glasses

Other protective equipment:

Safety Shoes, safety shower.

SECTION VIII - SPECIAL PRECAUTION*

Special Labeling Information:

DOT Shipping Name Acetylene
 ID Number UN 1001
 DOT Shipping Label Flammable Gas
 DOT Hazard Class 2.1

Special Handling Recommendations:

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 suitable hand truck for cylinder movement. Use a pressure reducing regulator when removing gas from the cylinder. DO NOT ALLOW FREE GAS TO EXCEED 30 PSIA (207 kPa) @ 70 F (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.

Special Storage Recommendations:

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 130 F (54 C). Cylinders must be stored upright and firmly secured to prevent from 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.

Special Packaging Recommendation:

Since acetylene will explode or combust if its pressure exceeds 30 psia (207 kPa) it shipped dissolved in acetone or dimethylformamide which is dispersed in a porous mass within the cylinder. Follow instructions for maximum withdrawal rate for each 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.

Other Recommendation or Precaution:

Earth-ground and bond all lines and equipment associated with acetylene system. Electrical equipment should be non-sparking or explosion proof. Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. 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 (49 CFR).

Transport cylinders in well ventilated vehicles, upright and suitable restrained to prevent movement. Possible increasing fire intensity and explosion hazard if cylinders are so piled or stacked that burning gas escaping from a melted fuse plug (pressure relief device) plays on other cylinders.

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