



Common Name: **ACETYLENE**

Synonyms: Ethyne; Narcilene; Ethenylene; Vinylene

CAS No: 74-86-2

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

RTK Substance No: 0015

Description: Colorless, odorless gas or the commercial product may have an *Ether*-like or garlic-like odor

**HAZARD DATA**

Hazard Rating	Firefighting	Reactivity
<p><b>0 - Health</b></p> <p><b>4 - Fire</b></p> <p><b>3 - Reactivity</b></p> <p><b>DOT#:</b> UN 1001</p> <p><b>ERG Guide #:</b> 116</p> <p><b>Hazard Class:</b> 2.1 (Flammable)</p>	<p><b>Acetylene</b> is a FLAMMABLE GAS.</p> <p>Stop flow of gas or let fire burn itself out.</p> <p>POISONOUS GASES ARE PRODUCED IN FIRE, including flammable <i>Hydrogen gas</i>.</p> <p>CONTAINERS MAY EXPLODE IN FIRE.</p> <p>Use water spray to disperse gas, keep fire-exposed cylinders cool, and protect individuals attempting to stop leak.</p> <p>Vapors may travel to a source of ignition and flash back.</p>	<p><b>Acetylene</b> reacts violently with OXIDIZING AGENTS (such as PERCHLORATES, PEROXIDES, PERMANGANATES, CHLORATES, NITRATES, CHLORINE, BROMINE and FLUORINE).</p> <p><b>Acetylene</b> reacts with ALKALI METALS (such as POTASSIUM, SODIUM, MAGNESIUM and ZINC) and POWDERED METALS and their SALTS (such as COPPER, MERCURY and SILVER) to form explosive and shock-sensitive <i>Acetylde compounds</i> and <i>Hydrogen</i>.</p> <p><b>Acetylene</b> is not compatible with COBALT; CESIUM HYDRIDE; IODINE; NITRIC ACID; RUBIDIUM HYDRIDE; FERROSILICON; SODIUM HYDRIDE; BRASS; and OZONE.</p> <p><b>Acetylene</b> reacts with WATER to form toxic <i>Ammonia</i>.</p> <p><b>Acetylene</b> is shipped under pressure dissolved in <i>Acetone</i> or <i>Dimethylformamide</i> to prevent fires and explosions.</p>

**SPILL/LEAKS**

**Isolation Distance:**  
 Small Spill: 100 meters (330 feet)  
 Large Spill: 800 meters (1/2 mile)  
 Fire: 1,600 meters (1 mile)

Keep **Acetylene** out of confined spaces, such as sewers, because of the possibility of an explosion.  
 Use only non-sparking tools and equipment.

**PHYSICAL PROPERTIES**

**Odor Threshold:** 226 ppm (with contaminants)  
**Flash Point:** Extremely flammable gas  
**LEL:** 2.5%  
**UEL:** 100%  
**Auto Ignition:** 581°F (305°C)  
**Vapor Density:** 0.9 (air = 1)  
**Vapor Pressure:** 4.04 x 10<sup>4</sup> mm Hg at 77°F (25°C)  
**Specific Gravity:** 0.65 (water = 1)  
**Water Solubility:** Very slightly soluble  
**Boiling Point:** -118°F (-83°C)  
**Freezing Point:** -113°F (-80.6°C)  
**Critical Temp:** 97.3°F (36.3°C)  
**Ionization Potential:** 11.4 eV  
**Molecular Weight:** 26

**EXPOSURE LIMITS**

**NIOSH:** 2,500 ppm, Ceiling  
**ACGIH:** Maintain 19.5% Oxygen content

The Protective Action Criteria values are:  
 PAC-1 = 350 ppm PAC-2 = 2,500 ppm PAC-3 = 6,000 ppm

**PROTECTIVE EQUIPMENT**

**Gloves:** *Insulated* Neoprene, Viton and Viton/Butyl  
**Coveralls:** *Insulated* materials  
**Respirator:** <19.5% Oxygen or 350 ppm - SCBA

**HEALTH EFFECTS**

**Eyes:** Contact with the *liquid* can cause frostbite

**Skin:** Contact with the *liquid* can cause frostbite

**Inhalation:** Headache, dizziness, lightheadedness, and passing out

**FIRST AID AND DECONTAMINATION**

**Remove** the person from exposure.

**Immediately** flush with large amounts of warm water for at least 30 minutes, lifting upper and lower lids. Remove contact lenses, if worn, while flushing. Seek medical attention immediately.

**Immerse** affected part in warm water.

**Begin** artificial respiration if breathing has stopped and CPR if necessary.

**Transfer** to a medical facility.