Right to Know Hazardous Substance Fact Sheet

Emergency Responders Quick Reference

Common Name: **ACETYLENE**

Synonyms: Ethyne; Narcilene; Ethenylene; Vinylene
CAS No: 74-86-2
Molecular Formula: C_2H_2
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

0 - Health

4 - Fire

3 - Reactivity

DOT#: UN 1001

ERG Guide #: 116

Hazard Class: 2.1 (Flammable)

Firefighting

Acetylene is a FLAMMABLE GAS.

Stop flow of gas or let fire burn itself out.

POISONOUS GASES ARE PRODUCED IN FIRE, including flammable *Hydrogen gas*.

CONTAINERS MAY EXPLODE IN FIRE.

Use water spray to disperse gas, keep fire-exposed cylinders cool, and protect individuals attempting to stop leak.

Vapors may travel to a source of ignition and flash back.

Reactivity

Acetylene reacts violently with OXIDIZING AGENTS (such as PERCHLORATES, PEROXIDES, PERMANGANATES, CHLORATES, NITRATES, CHLORINE, BROMINE and FLUORINE).

Acetylene 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 *Acetylide compounds* and *Hydrogen*.

Acetylene is not compatible with COBALT; CESIUM HYDRIDE; IODINE; NITRIC ACID; RUBIDIUM HYDRIDE; FERROSILICON; SODIUM HYDRIDE; BRASS; and OZONE.

Acetylene reacts with WATER to form toxic *Ammonia*.

Acetylene is shipped under pressure dissolved in *Acetone* or *Dimethylformamide* to prevent fires and explosions.

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:	581ºF (305ºC)
Vapor Density:	0.9 (air = 1)
Vapor Pressure:	4.04 x 10^4 mm Hg at 77ºF (25ºC)
Specific Gravity:	0.65 (water = 1)
Water Solubility:	Very slightly soluble
Boiling Point:	-118ºF (-83ºC)
Freezing Point:	-113ºF (-80.6ºC)
Critical Temp:	97.3ºF (36.3ºC)
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 = 65,000 ppm; PAC-2 = 230,000 ppm;
PAC-3 = 400,000 ppm

PROTECTIVE EQUIPMENT

Gloves: *Insulated* Neoprene, Viton and Viton/Butyl

Coveralls: *Insulated* materials

Respirator: < 19.5% *Oxygen* or 2,500 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.