**Material Safety Data Sheets (MSDS)**

IDENTIFICATION

**ACETYLENE**

Chemical formula : C2H2

Product Use Description : General Industrial

**CHEMICAL AND COMMON NAMES**

Synonyms : Acetylene (dissolved), Ethine, Ethyne, Welding Gas

COMPOSITION/INFORMATION ON INGREDIENTS

Components:Acetylene

CAS Number: 74-86-2

Concentration (Volume): 100 %

HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH = 0 FIRE =4 REACTIVITY = 3

Immediate fire and explosion hazard exists when mixed with air at concentrations exceeding the lower flammability limit (LFL).

Zinc; oxygen & other oxidizing agents such as halogens [Note: Forms explosive acetylide compounds with copper, mercury, silver & brasses (containing more than 66% copper).]

Inhalation : Can cause anesthetic effects. In high concentrations may cause asphyxiation.

Skin or Eye contact: Can cause frostbite.

FIRST AID

For inhalation, skin and/or eye contact (liquid):

**Inhalation**: Immediately remove victim to fresh air, or give artificial respiration if not breathing and/or administer supplemental oxygen if necessary. Seek medical attention.

**Skin:** Frostbite. Rinse with running water a minimum of 15 minutes. Remove exposed or contaminated clothing. Seek medical attention.  
**Eyes:** Frostbite. Rinse with gentle running water for a minimum of 15 minutes, have victim “roll” eyes. Seek medical attention.

FIRE FIGHTING MEASURES

This material ignites to produce toxic gases including carbon monoxide and carbon dioxide. Extremely flammable and can readily form explosive mixtures with air over a very wide range. Stop the leak before extinguishing fire. Extinguish fires of this gas by shutting off the source of the gas. Cool containers with water spray until well after the fire is out. If the fire is extinguished before the leak is sealed, the still leaking gas could explosively re-ignite without warning. Because of the potential for a GBLEVE, evacuation of non-emergency personnel is essential. Structural fire-fighters must wear self-contained breathing apparatus (SCBA) and full protective gear.

ACCIDENTAL RELEASE MEASURES

Stop leak if possible without personal risk. Keep unnecessary people way, isolate hazard area and deny entry. Stay upwind and keep out of low areas. NEVER direct water jet on liquid. Use only non-sparking tools and equipment. Locate and seal the source of the leaking gas. Protect personnel attempting the shut off with water spray Allow the gas to dissipate. Monitor the surrounding area for oxygen and combustible gas levels. Combustible gas concentration must be below 10% of the LEL (LEL = 2.5%) prior to entry of any response personnel.

Minimum Personal Protective Equipment should be Level B: fire-retardant protective clothing, mechanically-resistant gloves and self-contained Breathing Apparatus. Attempt to close the main source valve prior to entering area. If this does not stop the release or if it is not possible to reach the valve, allow the gas to release in place or remove it to a safe area and allow the gas to be released there.

HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards. Protect from sunlight. Store and use in cool, dry, well-ventilated area away from sources of heat. Avoid storage for over 6 months as it may decompose violently. The higher the pressure, the smaller the initial force necessary to cause a reaction. Keep in upright cylinders and firmly secure to prevent falling. Use a check valve or trap in the discharge line to prevent hazardous backflow. Keep apart from incompatible substances. Avoid breathing gas.

EXPOSURE CONTROLS/PERSONAL PROTECTION

**VENTILATION**: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

**RESPIRATORY PROTECTION:** Use supplied air respiratory protection if oxygen levels are below 19.5% or during emergency response to a release of Acetylene.

**EYE PROTECTION**: Splash goggles or safety glasses.

**HAND PROTECTION:** Wear mechanically resistant gloves. Wear Solvex or neoprene gloves if exposed to acetone.

**CLOTHING**: Protective clothing appropriate for the task.

PHYSICAL & CHEMICAL PROPERTIES

Physical State: Gas Color: colorless

Odor: garlic-like Molecular Weight: 26.04 g/mole

Molecular Formula: C2-H2 Vapor Pressure: 635 (psig)

Freezing Point: Sublimation temperature: -81.8°C (-115.2 to °F)

Vapor Density (air=1): 0.907 Volatility: 35.3°C (95.5°F)

STABILITY AND REACTIVITY

Stable at normal temperatures and pressure. Gaseous acetylene may decompose violently at elevated temperatures and pressures. Must not use above pressure greater than 15 psig. Hazardous polymerization can occur when heated or under pressure.

Decomposition products are carbon and hydrogen. When ignited in the presence of oxygen, carbon monoxide and carbon dioxide are formed.

Incompatible materials: chlorine, bromine pentafluoride, oxygen, oxygen difluoride and nitrogen trifluoride, brass (with a copper content exceeding 65%), calcium hypochlorite, various heavy metals (copper, silver, mercury) and salts of halogen (bromine, chlorine, iodine, fluorine), hydrides (sodium hydride, cesium hydride), ozone, perchloric acid and potassium.

Conditions to avoid: contact with incompatible materials; exposure to heat, sparks, or other sources of ignition.

TOXICOLOGICAL INFORMATION

Simple asphyxiate.

ECOLOGICAL INFORMATION

Fish: moderately toxic.

Plants and animals: related to oxygen deficient environments and the anesthetic properties at high concentrations of exposure. Sweep pea: declined in seedling. Tomato: epinasty in petiole.

Biodegradation by plant and bacterial systems.

DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations.

TRANSPOSRT INFORMATION

Proper Shipping name: Argon, Compressed

U.S. DOT 49 CFR 172.101

ID NUMBER: UN1001

HAZARD CLASS: 2.1

LABELING REQUIREMENTS: 2.1

REGULATORY INFORMATION

**U.S. REGULATIONS**

CERCLA Sections 102a/103 Hazardous Substances (40 CFR 302.4): Not regulated

SARA Title III Section 302 Extremely Hazardous Substances (40 CFR 355 Subpart B): Not regulated

SARA Title III Section 304 Extremely Hazardous Substances (40 CFR 370 Subparts B and C): Not regulated

SARA Title III Section 313 (40 CFR 372.65): Not regulated

OSHA Process Safety (29 CFR 1910.119): Not regulated

**OTHER U.S. FEDERAL REGULATIONS:** Acetylene is subject to the reporting requirement so Section 112® of the Clean Air Act. The Threshold Quantity for this gas is 10,000 lb. Depending on specific operations involving the use of Acetylene, the regulation of the Process Safety management of Highly Hazardous Chemicals may be applicable (29 DFR 1910.119). Under this regulation Acetylene is not listed in Appendix A. ; however, any process that involves a flammable gas on-site, in one location, in quantities of 10,000 lb (4,553 kg) or greater is covered under this regulation unless it is used as a fuel.

**STATE REGULATIONS**

Alaska: Designated Toxic and Hazardous Substances

California: Permissible Exposure Limits for Chemical Contaminants

Florida: Substance List

Illinois: Toxic Substance List

Massachusetts: Substance List

Minnesota: List of Hazardous Substances

Missouri: Employer Information/Toxic Substance List

New Jersey: Right to Know Hazardous Substance List

Pennsylvania: Hazardous Substance List

Rhode Island: Hazardous Substance List

**CANADIAN REGULATIONS**

WHMIS Classification: A

**NATIONAL INVENTORY STATUS**

U.S. Inventory (TSCA): Listed on inventory

TSCA 12(b) Export Notification: Not listed

Canada inventory (DSL/NDSL): Listed on inventory