

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Acetylene Gas

CHEMICAL NAME: Acetylene

CHEMICAL FAMILY: Alkyne

FORMULA: C₂H₂

PRODUCT USE: Fuel gas, chemical intermediates & carbon black production

MANUFACTURER'S NAME: Carbide Industries, LLC

ADDRESS: 4400 Bells Lane
Louisville, Kentucky 40211

P. O. Box 3727
Louisville, Kentucky 40201

PHONE: 1-800-626-2578

WEB ADDRESS: www.carbidellc.com

EMERGENCY PHONE: Carbide Industries 1-502-775-4123 (24 hr.)
Chemtrec 1-800-424-9300

SECTION 2 - HAZARDS IDENTIFICATION

OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

HAZARD CLASSIFICATION

- **Flammable Gas – Category 1**
- **Compressed Gas**
- **Simple Asphyxiant**

DANGER



HAZARD STATEMENTS:

- Extremely flammable gas
- Contains gas under pressure; may explode if heated
- May displace oxygen and cause rapid suffocation

PRECAUTIONARY STATEMENTS:

- No open flames, no sparks, and no smoking
- Do not use or store near heat or open flame
- Take precautionary measures against static charges

PHYSICAL AND CHEMICAL RISKS: Fire and explosion hazard. At higher levels in air, acetylene can act as an anesthetic. Acetylene will spontaneously react with Chlorine.

POTENTIAL HEALTH EFFECTS:

- **INHALATION:** Simple asphyxiant. Exposure to moderate amounts may cause dizziness, headache, and unconsciousness. Lack of sufficient oxygen may cause serious injury or death. Commercial grades can contain trace amounts of toxic impurities such as phosphine, hydrogen sulfide and ammonia.
- **EYES:** None
- **SKIN:** None
- **INGESTION:** None

CHRONIC EFFECTS: Contaminants in commercial grades can have toxic effects.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: None, simple asphyxiant.

OTHER EFFECTS OF OVEREXPOSURE: None

CARCINOGENICITY: None; acetylene is not listed by NTP, OSHA or IARC

POTENTIAL ENVIRONMENTAL EFFECTS: None

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	PERCENTAGE
Acetylene	74-86-2	Greater than 99.6%
Phosphine	7803-51-2	Less than 0.05%
Hydrogen Sulfide	7783-06-4	Less than 0.1%

SECTION 4 - FIRST AID MEASURES**FIRST AID PROCEDURES:**

- **INHALATION:** Remove to fresh air. If experiencing breathing difficulty, administer oxygen. If breathing has stopped, artificial respiration should be applied; get prompt medical attention.
- **EYES:** None
- **SKIN:** None
- **INGESTION:** None

NOTE TO PHYSICIANS: None

SECTION 5 - FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES: Acetylene is extremely flammable and potentially explosive. It may decompose violently in its free state under pressures in excess of 15 psig. Acetylene burns in air with an intensely hot flame. Acetylene ignites very easily due to a low minimum ignition energy and it also exhibits very wide explosive limits. The NFPA 704M rating for acetylene is 1-4-3.

EXTINGUISHER MEDIA:

Carbon dioxide, dry chemical, water (except in the presence of calcium carbide).

SPECIFIC HAZARDS ARISING FROM THE CHEMICAL: Potential explosion hazards exist from re-ignition if the fire is extinguished without shutting off the acetylene source. Acetylene has a density very close to air, and in the case of leaks it will dissipate slowly. Hazardous combustion products include carbon monoxide and carbon dioxide.

PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS: Full firefighting turn-out gear and respiratory protection (SCBA) is recommended. Shut off the source of acetylene if possible. Extinguish the fire only if the flow of acetylene can be stopped. If a flame is extinguished and the acetylene continues to escape, an explosive re-ignition can occur. Acetylene cylinders adjacent to fires should be sprayed with large amounts of water to cool them, otherwise the cylinders may rupture violently. See Compressed Gas Association Safety Bulletin SB-4 for additional information.

SECTION 6 - ACCIDENTAL RELEASE MEASURES**EMERGENCY PROCEDURES:**

- Evacuate immediate area
- Eliminate any possible source of ignition
- Provide maximum available explosion-proof ventilation

- Shut off source of acetylene, if possible
- Never enter an area where the acetylene concentration is greater than 10% of the Lower Explosive Limit (10% of 2.5% = 0.25% acetylene)

METHODS FOR CLEAN-UP: None

SECTION 7 - HANDLING AND STORAGE

HANDLING: Avoid abusive handling of acetylene storage and transmission equipment. Avoid the use of copper, silver and mercury unless the acetylene gas is in a dry, purified state. Pipelines and auxiliary equipment should be grounded and bonded to eliminate the build-up of static electricity.

STORAGE: Storage and processing areas must meet National Electrical Codes (N.E.C.) for Class 1, Division 1, Group A hazardous areas. No smoking, flames or open lights should be permitted in storage area. Indoor container storage must be well ventilated to avoid dangerous concentrations of acetylene.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

COMPONENT	THRESHOLD LIMIT VALUE	PERMISSIBLE EXPOSURE LIMIT
Acetylene	None	None
Phosphine	0.3 ppm TWA ACGIH	0.3 ppm OSHA
Hydrogen Sulfide	10 ppm TWA ACGIH	10 ppm OSHA

ENGINEERING CONTROLS:

- LOCAL EXHAUST Yes
- MECHANICAL Yes
- SPECIAL Explosion-proof

PERSONAL PROTECTIVE EQUIPMENT (PPE):

- Eye/face protection – safety glasses
- Cotton work gloves
- Cotton clothing is recommended to prevent static electricity build-up

RESPIRATORY PROTECTION: None

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Colorless gas. While the purified gas has no odor, commercial grade exhibits a garlic-like odor due to the presence of low levels of impurities.

BOILING POINT: -75(C) at 10 psig.

RELATIVE DENSITY at 20(C): 0.91 (where Air = 1)

SOLUBILITY IN WATER: 1.1 grams / milliliter at 15.5(C)

ACETYLENE FLAMMABILITY LIMITS (IN AIR): Lower limit - 2.5% Upper limit - 82%

ACETYLENE AUTOIGNITION TEMPERATURE: 581° F (305° C)

SECTION 10 - STABILITY AND REACTIVITY

CHEMICAL STABILITY: Unstable: acetylene can decompose explosively at elevated pressures. Special precautions should be used when handling the gas at pressures exceeding 15 psig. Flammable gas can form explosive mixtures with air. Pressure and shock sensitive, and can spontaneously decompose at pressures above 15 psig.

CONDITIONS TO AVOID: Heat, electrical discharge or sudden shock.

INCOMPATIBLE MATERIALS: Chlorine and other halogens. Additionally, contact with copper, silver and mercury in the presence of moisture or alkali compounds may form explosive acetylides.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrogen, carbon

POSSIBILITY OF HAZARDOUS REACTIONS: Acetylene can react explosively when combined with oxygen and other oxidizers including all halogens and halogen compounds. The presence of moisture, certain acids or alkaline materials tends to enhance the formation of explosive acetylides.

SECTION 11 - TOXICOLOGICAL INFORMATION

Acetylene gas is a simple asphyxiant. At higher levels in oxygen, it can serve as an anesthetic.

TOXICITY DATA: There are no toxicological data available for acetylene.

CARCINOGENICITY: Acetylene is not listed as cancer causing in either the National Toxicology Program, I.A.R.C Monographs or by OSHA.

SECTION 12 - ECOLOGICAL INFORMATION

No ecotoxicity studies on acetylene have been performed. Nonetheless, no adverse ecological effects are expected. Acetylene is not a Class I or Class II ozone-depleting chemical (40 CFR Part 82). Acetylene is not listed as a marine pollutant by DOT (49 CFR Part 171). Acetylene is a volatile organic compound (VOC).

SECTION 13 - DISPOSAL CONSIDERATIONS

Due to the flammability and explosion hazards associated with acetylene, great care should always be taken during disposal. Whenever possible, acetylene should be consumed in an approved process. Venting and flaring of unused gas should only be done in a proper device, meeting all state, local and federal regulations.

SECTION 14 - TRANSPORT INFORMATION

BASIC SHIPPING DESCRIPTION:

- **PROPER SHIPPING NAME:** Acetylene
- **HAZARD CLASS:** 2.1 (Flammable Gas)
- **UN NUMBER:** UN 1001

ADDITIONAL INFORMATION:

- **DOT LABEL(S) / PLACARD(S):** Flammable Gas
- **MARINE POLLUTANT:** Acetylene is not designated by the DOT to be a Marine Pollutant
- **REPORTABLE QUANTITY (RQ):** None
- **PACKAGING:** Pipeline delivery. Also available from third parties compressed in specially designed cylinders containing a porous mass and liquid solvent.

SECTION 15 - REGULATORY INFORMATION

APPLICABLE REGULATIONS:

- D.O.T. 49 CFR 172.101 Transportation
- E.P.A. 40 CFR Part 68 Risk Management
- OSHA 29 CFR 1910.119 Process Safety Management
- SARA 304 (40 CFR Table 302.4) Emergency Planning
- TSCA: Acetylene is listed in the TSCA inventory

SECTION 16 - OTHER INFORMATION

SDS REVISION: 3.1

SDS AUTHORIZATION DATE: May 15, 2015