### Material Safety Data Sheet

**Respiratory Protection**
- Use respirable lung respirator or air supplied respirator when working in confined space or where local exhaust or ventilation does not keep exposure below TLV. Select as per OSHA 29 CFR1910.134.

**Ventilation**
- Mechanical (General): Always work with enough ventilation.
- Special: Not applicable.
- Other: Depends on specific use conditions and location. Use adequate ventilation or personal respiratory protection. See Section IX and OSHA 29 CFR1910.252.

**Protective Gloves**
- Welding gloves recommended.

**Eye Protection**
- Wear goggles with filter lens as per ANSI Z87.1. Provide protective screens and goggles if necessary, to protect others. Select as per OSHA 29 CFR1910.133.

**Other Protective Equipment**
- As needed, wear hand, head, and body protection which help to prevent injury from radiation and sparks. See ANSI Z87.1. At a minimum this includes welder’s gloves and protective goggles, and may include arm protectors, aprons, hats, shoulder protection, as well as substantial clothing. Train the worker not to touch live electrical parts.

### Special Precautions
- Fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being worked, the process, procedure and electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include coatings on the metal being worked (such as paint, plating, or galvanizing), the number and volume of the work area, the quality and amount of ventilation, the position of the worker’s head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities).

### Physical Data
- **Boiling Point, 760 mm Hg**: Not Applicable
- **Sublimation Point**: -84°C (-119.2°F) @ 760mm Hg
- **Specific Gravity (H2O = 1)**: Not Applicable
- **Vapor Pressure at 21°C**: 635 mg/l
- **Vapor Density (air = 1)**: 0.91
- **Solvency in Water, % by wt.**: Slight
- **Percent Volatiles by Volume**: 100
- **Evaporation Rate (Butyl Acetate = 1)**: Not Applicable

### Appearance and Odor
- Colorless gas at normal temperature and pressure, garlic-like odor.

### Emergency Phone Number
- In case of emergencies involving this material, further information is available at all times: In the USA 1-800-UCC-HELP (1-800-822-4357) In Canada 514-645-6311 For routine information contact your local supplier.

### Linde Carbid
- Union Carbide requests the use of this product to study this Material Safety Data Sheet (MSDS) and become aware of product hazards and safety information. To promote safe use of this product a user should: (1) notify his employees, agents and contractors of the information on this MSDS and any product hazards and safety information, (2) furnish this same information to each of its customers for the product, and (3) request such customers to notify their employees and customers for the product of the same product hazards and safety information.

### Linde Division
Linde Division 123 Eglinton Avenue East Toronto, Ontario M4P 1J3

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**Product**: Acetylene

**Chemical Name**: Acetylene

**Synonyms**: Acetylene, Ethylene, Ethyne, Nercylene

**Formula**: C2H2

**Chemical Family**: Alkyne

** Molecular Weight**: 26.038

**Trade Name**: Acetylene (This product is intended for welding and cutting use.)

**Material (CAS No.)**: Vol (%): 1986-1987 ACGIH TLV-TWA (OSHA-PEL)

| Acetylene (74-80-2) | 100 | Simple saprophilant (none currently established) |

Acetylene cylinders are filled with a porous material containing acetone into which the acetylene is dissolved. ACGIH has established a TLV-TWA of 7 ppm for acetone and a STEL of 1000 ppm.
IV. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: Acetylene - Single asphyxiant ACGIH 1985-87; Acetone, 750ppm ACGIH 1988-87

EFFECTS OF SINGLE (ACUTE) OVEREXPOSURE

SWALLOWING — An unlikely route of exposure, but festering of the lips and mouth may result from contact with the liquid. If the liquid is swallowed, may cause nausea.

SKIN ABSORPTION — No evidence of adverse effects from available information.

INHALATION — Asphyxiant. Moderate concentrations of vapor may cause headache, dizziness, dizziness, nausea, vomiting, excitation, excess sensitivity, and unconsciousness.

SKIN CONTACT — No harmful effects expected from vapor. Liquid may cause irritate.

EYE CONTACT — Vapor may cause irritation. Liquid may cause irritation and frostbite.

EFFECTS OF REPEATED (CHRONIC) OVEREXPOSURE: No evidence of adverse effects from available information.

OTHER EFFECTS OF OVEREXPOSURE: None currently known.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: A knowledge of the available toxicology information and of the physical and chemical properties of the material suggest that overexposure is unlikely to aggravate existing medical conditions.

EMERGENCY AND FIRST AID PROCEDURES:

SWALLOWING — If liquid is swallowed, do not induce vomiting. Call a physician.

SKIN — For exposure to liquid, flush with water and warm fructose area with warm water (not to exceed 105°F). In case of massive exposure, remove clothing while showering with warm water. Call a physician.

INHALATION — Remove to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, oxygen may be given. Call a physician.

EYES — In case of splash contamination, immediately flush eyes thoroughly with water for at least 15 minutes. Seek the advice of a physician, preferably an ophthalmologist, urgently.

NOTES TO PHYSICIAN: Aspirated acetone may cause serious lung damage. If a large quantity of material has been inhaled, stomach contents should be evacuated quickly in a manner which avoids aspiration. Otherwise, treatment should be directed at the control of symptoms and the clinical condition. No specific antidote is known.

WORKING WITH WELDING AND CUTTING MAY CREATE ADDITIONAL HEALTH HAZARDS.

FUMES AND GASES can be dangerous to your health and may cause serious lung disease.*

Keep your head out of the fumes. Do not breathe fumes and gases caused by the process. Use enough ventilation, local exhaust, or both to keep fumes and gases from your breathing zone and the general area. The type and amount of fumes and gases depend on the equipment and supplies used. Possibly dangerous materials may be found in fluxes, coolings, gasses, metals, etc. Get a Material Safety Data Sheet (MSDS) for every material used. Air samples can be used to find out what respiratory protection is needed.

Short term overexposure to fumes may result in discomfort such as dizziness, nausea, or dryness or irritation of nose, throat, or eyes.

NOTES TO PHYSICIAN:

Acute — Gases, fumes, and dusts may cause irritation to the eyes, lungs, nose, and throat. Some toxic gases associated with welding and related processes may cause pulmonary edema, asphyxiation, and death. Acute overexposure may include signs and symptoms such as watery eyes, nose and throat irritation, headache, dizziness, difficulty breathing, frequent coughing, or chest pain.

Chronic — Prolonged inhalation of air contaminants may lead to their accumulation in the lungs, a condition which may be seen as dense areas on chest x-rays. The severity of change is proportional to the length of exposure. The changes seen are not necessarily associated with symptoms or signs of reduced lung function or disease. In addition, the changes on x-rays may be caused by non-work related factors such as smoking, etc.

A detailed description of the Health Hazards and their consequences may be found in Linda’s free publication “Precautions and Safe Practices for Electrolyte Welding and Cutting,” LSE-320. You may obtain copies from your local supplier, or by writing to Union Carbide Corporation, Linda Division, Communications Department, 38 Old Ridgebury Road, Danbury, Connecticut, 06817-0001.

MIXTURES: When two or more gases, or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist, or other trained person when you make your safety evaluation of the end product. Remember, gasses and liquids have properties which can cause serious injury or death.

Shockwave Operations

V. FIRESH AND EXPANSION HAZARD DATA

FLASH POINT (test method) — 17.8°C (64°F) T.C.C.

AUTOMATIC TEMPERATURE — 29°C (57°F)

EXTINGUISHING MEDIA — See paragraphs below.

SPECIAL FIRE FIGHTING PROCEDURES — Refer to CGA pamphlet 55-4, “Handling Acetylene Cylinders in Fire Situations.”

Evacuate all personnel from danger area. Immediately cool containers with water spray from maximum distance taking care not to extinguish flames. Remove ignition sources if not required. If fire is accidental or extinguished, explosive re-ignition may occur. Use self-contained breathing apparatus. Stop flow of gas if not required while containing cooling water spray. Remove all contents from area of fire if not required. Allow fire to burn out. On-site fire brigades must comply with OSHA 26 CFR 1910.156.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Extremely flammable gas. Forms explosive mixture with air and oxidizing agents. Container may rupture due to heat of fire. Do not extinguish flames due to possibility of explosive re-ignition. Flammable vapors may spread from leak. Explosive atmospheres may exist. Before entering area, especially confined areas, check atmosphere with approved explosion meter. No part of a container should be subjected to a temperature higher than 52°C (approximately 125°F). All containers are provided with a pressure relief device designed to vent contents when they are exposed to elevated temperature. Contact with copper, silver, or mercury or their alloys or halogens can cause explosion and be ignited by pilot lights, other flames, smoldering, sparks, heated electrical equipment, static discharge or other ignition sources at locations distant from exposed handling points.

VI. REACTIVITY DATA

STABILITY — CONDITION TO AVOID

UNSTABLE — STABLE

Stable as shipped. Avoid use at pressures above 15 psig.

INCOMPATIBILITY (materials to avoid)

Copper, silver, mercury or their alloys, oxidizing agents, acids, halogens, moisture.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide and carbon dioxide. Other decomposition products of normal operation originate from the volatilization, reaction or oxidation of the material being worked.

HAZARDOUS POLYMERIZATION — CONDITIONS TO AVOID

May Occur — Will not Occur

Elevated temperature and pressure under the presence of a catalyst.

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

Forms explosive mixture with air (See Section V). Immediately evacuate all personnel from danger area. Use self-contained breathing apparatus where necessary. Remove all sources of ignition if not required. Reduce vapors with fog or fine water spray. Shut off leak if not required. Ventilate area of leak or move leaking container to well-ventilated area. Flammable gas may spread from leak. Before entering area, especially confined areas, check atmosphere with appropriate device.

WASTE DISPOSAL METHOD: Prevent waste from contaminating surrounding environment. Keep personal equipment. Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with Federal, State and local regulations.

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