VIII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type) — Use a respirator with a high efficiency particulate arrestance filter. For welding and cutting operations, use an supplied air respirator with a high efficiency particulate arrestance filter. See ANSI Z88.1 and OSHA 1910.134.

VENTILATION

LOCAL EXHAUST — Use source (local exhaust or exhaust system) to remove fumes and gases from the work area.

VENTILATION (general) — ALWAYS WORK WITH ENOUGH VENTILATION

MECHANICAL (general) —

SPECIAL — Avoid using equipment in the presence of chlorinated hydrocarbon vapors. If exposure to these vapors is unavoidable, consult your physician.

OTHER — Use an air purifying respirator with a high efficiency particulate filter. See ANSI Z88.1 and OSHA 1910.134.

PROTECTIVE GLOVES

Welding gloves recommended.

EYE PROTECTION — Wear a helmet or a face shield with a filter lens selected as per ANSI Z87.1. Provide protective screens and flash goggles, if necessary, to protect others. See OSHA 1910.132.

OTHER PROTECTIVE EQUIPMENT — As needed, wear hand, head, and body protection which help to prevent injury from radiation, sparks, and electrical shock. See ANSI Z89.4-1989 and OSHA 1910.132. Other protective equipment may include: gloves, aprons, and safety glasses.

IX. 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, equipment, and protective clothing. Conditions which influence the composition and quantity of the fumes and gases which may be formed also include: the method of welding, the volume of the work area, the quality and amount of ventilation, the position of the welding head relative to the fume plume, and the position of the worker relative to the fume plume. Welding may produce a variety of hazardous substances, such as chlorinated hydrocarbon vapors from cleaning and degreasing activities.

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample from inside the worker's breathing zone. See ANSI Z88.1, 1985, available from the American Welding Society, 550 N.W. LeJeune Rd., Miami, FL 33126.


OTHER HANDLING AND STORAGE CONDITIONS

Avoid exposure to chlorinated hydrocarbon vapors. If exposure to these vapors is unavoidable, consult your physician.

The information contained herein is current as of the date of this Material Safety Data Sheet. Since the use of this information and these opinions is at the user's own risk, the user should refer to all the information contained herein before using the product. The opinions expressed herein are those of qualified experts within Union Carbide. We believe that the information contained herein is accurate and complete. However, we cannot guarantee the accuracy of the information provided and assume no responsibility for any errors or omissions.
PRODUCT: Argon  

IV. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: Simple asphyxiant — ACGIH (1986-1987)

EFFECTS OF A SINGLE (ACUTE) OVEREXPOSURE:

SWALLOWING — This product is a gas at normal temperature and pressure.

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

INHALATION — Asphyxiant. Moderate concentrations may cause headache, drowsiness, dizziness, excitation, excess salivaflow, vomiting, and unconsciousness.

SKIN CONTACT — No harmful effect expected from contact.

EYE CONTACT — No harmful effect expected from contact.

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

OTHER EFFECTS OF OVEREXPOSURE: Argon is an asphyxiant. Lack of oxygen can cause death.

MEDICAL CONDITIONS AGRGAVATED 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.

SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH HAZARD EVALUATION: None currently known.

EMERGENCY AND FIRST AID PROCEDURES:

SWALLOWING — This product is a gas at normal temperature and pressure.

SKIN CONTACT — Flush with water.

INHALATION — Remove to fresh air. Give artificial respiration if not breathing. Give oxygen if breathing is difficult. Call a physician.

EYE CONTACT — Flush with water.

NOTES TO PHYSICIAN:

This product is inert. There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition.

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. Possible dangerous materials may be found in fluxes, coatings, gases, 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, 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 pains.

Chronic — Protracted 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 chest 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 Electric Welding and Cutting." L52-529. 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, gases and liquids have properties which can cause serious injury or death.

V. FIRE AND EXPLOSION HAZARD DATA

<table>
<thead>
<tr>
<th>FLAMMABLE LIMITS</th>
<th>AUTIGNITION TEMPERATURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOWER</td>
<td>UPPER</td>
</tr>
<tr>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

EXTINGUISHING MEDIA

Argon cannot catch fire. Use media appropriate for surrounding fire.

SPECIAL FIRE FIGHTING PROCEDURES

Evacuate all personnel from danger area. Immediately cool cylinders with water spray from maximum distance until cool. Move containers away from fire area if not in use. Continue to spray until cool. Arcs and sparks can ignite combustibles. Refer to American National Standard Z49.1 "Safety in Welding and Cutting" for prevention information during the use of welding and allied procedures.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Argon cannot catch fire. Container may rupture due to heat of fire. No part of a container should be subjected to a temperature higher than 52°C (approximately 125°F). Most containers are provided with a pressure relief device designed to vent contents when exposed to elevated temperature.

VI. REACTIVITY DATA

STABILITY

<table>
<thead>
<tr>
<th>INCOMPATIBILITY (materials to avoid)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None currently known. Argon is chemically inert.</td>
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</tbody>
</table>

HAZARDOUS DECOMPOSITION PRODUCTS

Ozone and Nitrogen Oxides may be formed by the radiation from the arc. See Section IV. Other decomposition products of operation originate from the volatilization, reaction or oxidation of the material being worked.

HAZARDOUS POLYMERIZATION

None currently known.

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

Argon is an asphyxiant. Evacuate all personnel from danger area. Use self contained breathing apparatus where needed. Cylinders if not in use. Cool the area outside of the cylinder if not in use. Ventilate area of leak with move cylinder to a well ventilated area. Test area, especially confined areas, for oxygen content prior to permitting re-entry or personnel.

WASTE DISPOSAL METHOD: Slowly release into atmosphere. Discard any product, residue, disposable container or lid environmentally acceptable manner in full compliance with Federal, State and local regulations.