

NEWKIRK

SALES CO.

E

Industrial - Medical - Welding Gases & Supplies

Municipal Pipe Tool
Water Test Syst.

Date 1-32-92

Hudson, IA

Account Number _____

Attn: Bruce Jensen

Per your request we are sending you the following Material Safety Data Sheets.

1. Argon - Gas
2. _____
3. _____
4. ARGON
5. _____
6. _____
7. _____
8. _____

If you require any additional information please contact us at your convenience.

Sincerely,

Douglas Chappelen

Joe Trost,
General Manager
Home Office Waterloo

515-955-3333

Bruce, could not get thru on the FAX
so I'm mailing this

Thanks

Day C

Home Office
306 Thorson Ave., Box 2395
Waterloo, Iowa 50704
Phone 319-233-3549

601 C Ave. N.E., Box 338
Cedar Rapids, Iowa 52406
Phone 319-366-1574

1175 Roosevelt Extension
Dubuque, Iowa 52001
Phone 319-557-7960

305 May Street, Box 66
Marshalltown, Iowa 50158
Phone 515-752-3216

MATERIAL SAFETY DATA SHEET

L-4563-C
Dec. 1986

An explanation of the terms used herein may be found in OSHA 29 CFR 1910.1200, available from OSHA regional or area offices.

(Essentially similar to U.S. Department of Labor Form OSHA-20 and generally accepted in Canada for information purposes)
Do Not Duplicate This Form. Request an Original.



I. PRODUCT IDENTIFICATION

PRODUCT	Argon		
CHEMICAL NAME	Argon	SYNONYMS	Shielding Gas, Argon-40
FORMULA	Ar	CHEMICAL FAMILY	(Rare Gas) Noble Gas
		MOLECULAR WEIGHT	39.948
TRADE NAME	Argon (This product is usually intended for electric welding use.)		

II. HAZARDOUS INGREDIENTS

This section covers the materials from which this product is manufactured. The fumes and gases produced during cutting with the normal use of this product are covered by Section VI. The term "hazardous" in "Hazardous Materials" should be interpreted as a term required and defined in OSHA 29 CFR 1910.1200 and does not necessarily imply the existence of any hazard.

MATERIAL (CAS NO.)	Vol (%)	1986-1987 ACGIH TLV-TWA (OSHA-PEL)	
Argon (7440-37-1)	100	Simple asphyxiant	(None currently established)

III. PHYSICAL DATA

BOILING POINT, 760 mm. Hg	-185.9°C (-302.6°F)	FREEZING POINT	-189.2°C (-308.6°F)
SPECIFIC GRAVITY (H₂O = 1)	Gas	VAPOR PRESSURE AT 20°C.	Gas
VAPOR DENSITY (air = 1)	1.378 @ 21.2°C (70°F)	SOLUBILITY IN WATER, % by wt.	Negligible
PERCENT VOLATILES BY VOLUME	100	EVAPORATION RATE (Butyl Acetate = 1)	Not Applicable
APPEARANCE AND ODOR	Colorless, odorless gas at normal temperature and pressure.		

EMERGENCY PHONE NUMBER

IN CASE OF EMERGENCIES involving this material, further information is available at all times:
In the USA 304 — 744-3487
In Canada 514 — 645-5311
For routine information contact your local supplier

Union Carbide requests the users 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 its 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.

UNION CARBIDE CORPORATION LINDE DIVISION
UNION CARBIDE CANADA LIMITED LINDE DIVISION

L-4563-C

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 salivation, vomiting, and unconsciousness.**SKIN CONTACT** — No harmful effect expected from vapor.**EYE CONTACT** — No harmful effect expected from vapor.**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 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.**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, 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 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 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 Linde'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, Linde Division, Communications Department, 39 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

FLASH POINT (test method)	Not Applicable	AUTOIGNITION TEMPERATURE	Not Applicable
FLAMMABLE LIMITS IN AIR, % by volume	LOWER Not Applicable	UPPER Not Applicable	

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 then move containers away from fire area if without risk. Shut off leak if without risk.

Arcs and sparks can ignite combustibles. Refer to American National Standard Z49.1 "Safety in Welding and Cutting" for fire 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 they are exposed to elevated temperature.

VI. REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID
UNSTABLE	STABLE	
	X	High pressure gas. Close valve when not in use and when empty. Use with equipment rated to adequately withstand pressures to be encountered. Do not strike arc on cylinder. Do not ground cylinder. See Section IX.

INCOMPATIBILITY (materials to avoid)

None currently known. Argon is chemically inert.

HAZARDOUS DECOMPOSITION PRODUCTS

Ozone and Nitrogen Oxides may be formed by the radiation from the arc. See Section IV. 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	
	X	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. Shut off cylinder if without risk. Ventilate area of leak or move cylinder to well ventilated area. Test area, especially confined areas, for sufficient oxygen content prior to permitting re-entry of personnel.

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

VIII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type) — Use respirable fume 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 OSHA29 CFR1910.134.

VENTILATION	LOCAL EXHAUST — Use enough ventilation, local exhaust or both, to keep the fumes and gases below TLV's in the worker's breathing zone and the general area. Train the worker to keep his head out of the fumes.
	MECHANICAL (general) ALWAYS WORK WITH ENOUGH VENTILATION
	SPECIAL — Avoid using electric arcs in the presence of chlorinated hydrocarbon vapors — highly toxic phosgene may be produced. Avoid arc operations on parts with phosphate residues (anti-rust, cleaning preparations) — highly toxic phosphine may be produced.
	OTHER Depends on specific use conditions, and location. Use adequate ventilation or personal respiratory protection. See Section IX and OSHA29 CFR1910.252.

PROTECTIVE GLOVES

Welding gloves recommended

EYE PROTECTION — Wear a helmet or use a face shield with a filter lens selected as per ANSI Z49.1. Provide protective screens and flash goggles, if necessary, to protect others. Select as per OSHA29 CFR1910.133.

OTHER PROTECTIVE EQUIPMENT — As needed, wear hand, head, and body protection which help to prevent injury from radiation, sparks and electrical shock. See ANSI Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the worker not to touch live electrical parts.

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 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 of workers and the 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 painting 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 helmet if worn or in the worker's breathing zone. See ANSI/AWS F1.1, available from the American Welding Society, 550 N.W. Le Jeune Rd., Miami, FL 33126.

Read and understand the manufacturer's instructions and the precautionary label on the product. See American National Standard Z49.1, "Safety In Welding And Cutting" published by the American Welding Society and OSHA Publication 2206 (29CFR1910), U.S. Government Printing Office, Washington, D.C. 20402 for more details. For further safety and health information refer to Linde's free publication "Precautions and Safe Practices for Electric Welding and Cutting" L52-529.

OTHER HANDLING AND STORAGE CONDITIONS

Arcs and sparks during use could be the source of ignition of combustible materials. Prevent fires. Refer to NFPA 51B "Cutting and Welding Processes." High pressure gas mixture. Use piping and equipment adequately designed to withstand pressures to be encountered. Gas can cause rapid suffocation due to oxygen deficiency. Store and use with adequate ventilation. Close valve when not in use and when empty. Do not strike arc on cylinder. The defect produced by an arc burn could lead to cylinder rupture. Do not ground cylinder. Never work on a pressurized system.

The opinions expressed herein are those of qualified experts within Union Carbide. We believe that 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 and the conditions of use of the product are not within the control of Union Carbide, it is the user's obligation to determine the conditions of safe use of the product.



GENERAL OFFICES

IN THE USA:
Union Carbide Corporation
Linde Division
39 Old Ridgebury Road
Danbury, CT 06817-0001

IN CANADA:
Union Carbide Canada Limited
Linde Division
123 Eglinton Avenue East
Toronto, Ontario M4P 1J3

Other offices in principal cities all over the world.



EMERGENCY CONTACT

CHEMTREC 800-424-9300

EMERGENCY RESPONSE INFORMATION

E

UN NUMBER	GUIDE NUMBER	NAME OF MATERIAL
1001	17	ACETYLENE
1002	12	AIR, COMPRESSED
1006	12	ARGON, COMPRESSED
1013	21	CARBON DIOXIDE
1046	12	HELIUM, COMPRESSED
1049	22	HYDROGEN, COMPRESSED
1066	12	NITROGEN, COMPRESSED
1072	14	OXYGEN, COMPRESSED
1073	23	OXYGEN, REFRIGERATED LIQUID
1075	22	LIQUIFIED PETROLEUM GAS
1077	22	PROPYLENE
1951	21	ARGON, REFRIGERATED LIQUID
1954	22	COMPRESSED GAS N.O.S. FLAMMABLE
1956	12	COMPRESSED GAS N.O.S. NON-FLAMMABLE
1971	17	METHANE, COMPRESSED
1977	21	NITROGEN, REFRIGERATED LIQUID

GUIDE 12

ERG 90

POTENTIAL HAZARDS

FIRE OR EXPLOSION

Some of these materials may burn, but none of them ignites readily. Cylinder may explode in heat or fire.

HEALTH HAZARDS

Vapors may cause dizziness or suffocation.
Contact with liquid may cause frostbite.
Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

Keep unnecessary people away; isolate hazard area and deny entry.
Stay upwind; keep out of low areas.
Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters protective clothing will provide limited protection.
Isolate for 1/2 mile in all directions if tank, rail car or tank truck is involved in fire.
CALL CHEMTREC at 1-800-424-9300 AS SOON AS POSSIBLE, especially if there is no local hazardous materials team available.

FIRE

Small Fires: Dry chemical or CO₂.
Large Fires: Water spray, fog or regular foam.
Move container from fire area if you can do it without risk.
Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Stay away from ends of tanks.
Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank due to fire.
Some of these materials, if spilled, may evaporate leaving a flammable residue.

SPILL OR LEAK

Stop leak if you can do it without risk.

FIRST AID

Move victim to fresh air and call emergency medical care; if not breathing, give artificial respiration; if breathing is difficult, give oxygen.

GUIDE 14

ERG 90

POTENTIAL HAZARDS

FIRE OR EXPLOSION

May ignite other combustible materials (wood, paper, oil, etc)
Mixture with fuels may explode.
Cylinder may explode violently in heat of fire.
Vapor explosion hazard indoors, outdoors or in sewers.

HEALTH HAZARDS

Vapors may cause dizziness or suffocation.
Contact with liquid may cause frostbite.
Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

Keep unnecessary people away; isolate hazard area and deny entry.
Stay upwind; out of low areas, and ventilate closed spaces before entering.
Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters protective clothing will provide limited protection.

FIRE

Small Fires: Dry chemical or CO₂.
Large Fires: Water spray, fog or regular foam.
Move container from fire area if you can do it without risk.
Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Stay away from ends of tanks.
For massive fire in cargo area, use unmanned hose holder or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SPILL OR LEAK

Keep combustibles (wood, paper, oil, etc) away from spilled material.
Stop leak if you can do it without risk.
Isolate area until gas has dispersed.

FIRST AID

Move victim to fresh air and call emergency medical care.
Keep victim quiet and maintain normal body temperature.

POTENTIAL HAZARDS**FIRE OR EXPLOSION**

Extremely flammable.
May be ignited by heat, sparks or flames.
Vapors may travel to a source of ignition and flash back.
Container may explode violently in heat of fire.
Vapor explosion hazard indoors, outdoors or in sewers.

HEALTH HAZARDS

May be poisonous if inhaled.
Contact may cause burns to skin and eyes.
Vapors may cause dizziness or suffocation.
Contact with liquid may cause frostbite.
Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

Keep unnecessary people away; isolate hazard area and deny entry.
Stay upwind; out of low areas, and ventilate closed spaces before entering.
Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters protective clothing will provide limited protection.
Isolate for 1/2 mile in all directions if tank, rail car or tank truck is involved in fire.
CALL CHEMTREC at 1-800-424-9300 AS SOON AS POSSIBLE, especially if there is no local hazardous materials team available.

FIRE

Let tank, tank car or tank truck burn unless leak can be stopped; with smaller tanks or cylinders, extinguish/isolate from other flammables.
Small Fires: Dry chemical or CO₂.

Large Fires: Water spray, fog or regular foam.

Move container from fire area if you can do it without risk.

For massive fire in cargo area, use unmanned hose holder or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank due to fire.

Cool container with water using unmanned device until well after fire is out.

SPILL OR LEAK

Shut off ignition sources; no flares, smoking or flames in hazard area.

Stop leak if you can do it without risk.

Water spray may reduce vapor; but it may not prevent ignition in closed spaces.
Isolate area until gas has dispersed.

Move victim to fresh air and call emergency medical care; if not breathing, give artificial respiration; if breathing is difficult, give oxygen.

In case of frostbite, thaw frosted parts with water.

Keep victim quiet and maintain normal body temperature.

POTENTIAL HAZARDS**FIRE OR EXPLOSION**

Extremely flammable; may be ignited by heat, sparks or flames.
Vapors may travel to a source of ignition and flash back.
Container may explode violently in heat of fire.
Vapor explosion hazard indoors, outdoors or in sewers.

HEALTH HAZARDS

Vapors may cause dizziness or suffocation.
Contact will cause frostbite.
Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

Keep unnecessary people away; isolate hazard area and deny entry.
Stay upwind; out of low areas, and ventilate closed spaces before entering.
Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters protective clothing will provide limited protection.
Isolate for 1/2 mile in all directions if tank, rail car or tank truck is involved in fire.
CALL CHEMTREC at 1-800-424-9300 AS SOON AS POSSIBLE, especially if there is no local hazardous materials team available.

FIRE

Let tank, tank car or tank truck burn unless leak can be stopped; with smaller tanks or cylinders, extinguish/isolate from other flammables.

Small Fires: Dry chemical or CO₂.

Large Fires: Water spray, or fog.

Move container from fire area if you can do it without risk.

Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Stay away from ends of tanks.

For massive fire in cargo area, use unmanned hose holder or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

Withdraw immediately in case of rising sound from venting safety device or any discoloration of tank due to fire.

SPILL OR LEAK

Shut off ignition sources; no flares, smoking or flames in hazard area.

Do not touch or walk through spilled material; stop leak if you can do it without risk.

Use water spray to reduce vapors; isolate area until gas has dispersed.

FIRST AID

Move victim to fresh air and call emergency medical care; if not breathing, give artificial respiration; if breathing is difficult, give oxygen.

In case of frostbite, thaw frosted parts with water.

Keep victim quiet and maintain normal body temperature.

POTENTIAL HAZARDS**FIRE OR EXPLOSION**

Cannot catch fire.
Container may explode violently in heat of fire.

HEALTH HAZARDS

Vapors may cause dizziness or suffocation.
Contact with liquid may cause frostbite.

EMERGENCY ACTION

Keep unnecessary people away; isolate hazard area and deny entry.
Stay upwind; out of low areas, and ventilate closed spaces before entering.
Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters protective clothing will provide limited protection.
Isolate for 1/2 mile in all directions if tank, rail car or tank truck is involved in fire.
CALL CHEMTREC at 1-800-424-9300 AS SOON AS POSSIBLE, especially if there is no local hazardous materials team available.

FIRE

Move container from fire area if you can do it without risk.

Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Stay away from ends of tanks.

SPILL OR LEAK

Do not touch or walk through spilled material.

Stop leak if you can do it without risk.

FIRST AID

Move victim to fresh air and call emergency medical care; if not breathing, give artificial respiration; if breathing is difficult, give oxygen.

In case of frostbite, thaw frosted parts with water.

Keep victim quiet and maintain normal body temperature.

POTENTIAL HAZARDS**FIRE OR EXPLOSION**

May ignite other combustible materials (wood, paper, oil, etc).
Mixture with fuels may explode.
Container may explode violently in heat of fire.
Vapor explosion hazard indoors, outdoors or in sewers.

HEALTH HAZARDS

Vapors may cause dizziness or suffocation.
Contact will cause severe frostbite.
Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

Keep unnecessary people away; isolate hazard area and deny entry.
Stay upwind; out of low area.
Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters protective clothing will provide limited protection.
Isolate for 1/2 mile in all directions if tank, rail car or tank truck is involved in fire.
CALL CHEMTREC at 1-800-424-9300 AS SOON AS POSSIBLE, especially if there is no local hazardous materials team available.

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Small Fires: Dry chemical or CO₂.

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For massive fire in cargo area, use unmanned hose holder or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SPILL OR LEAK

Keep combustibles (wood, paper, oil, etc.) away from spilled material.

Do not touch or walk through spilled material.

Stop leak if you can do it without risk.

Isolate area until gas has dispersed.

FIRST AID

Move victim to fresh air and call emergency medical care.

In case of frostbite, thaw frosted parts with water.

Keep victim quiet and maintain normal body temperature.