Praxair Material Safety Data Sheet

1. Chemical Product and Company Identification

Product Name:	Argon	**Trade Name:**	Argon
Product Use:	Metal industry: Welding and cutting of metals.		
Chemical Name:	Argon	**Synonym:**	Shielding Gas, Argon 40
Chemical Formula:	Ar	**Chemical Family:**	(Rare Gas) Noble Gas
Telephone:	**Emergencies:** * 1-800-363-0042	**Supplier /Manufacture:**	Praxair Canada Inc. 1 City Centre Drive Suite 1200 Mississauga, ON L5B 1M2
		Phone:	905-803-1600
		Fax:	905-803-1682

**Call emergency numbers 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product. For routine information, contact your supplier or Praxair sales representative.*

2. Hazards Identification

Emergency Overview

CAUTION! **High-pressure gas. Can cause rapid suffocation. May cause dizziness and drowsiness. Self-contained breathing apparatus may be required by rescue workers.**

ROUTES OF EXPOSURE: Inhalation.

EFFECTS OF A SINGLE (ACUTE) OVEREXPOSURE:

INHALATION: Asphyxiant. Effects are due to lack of oxygen. Moderate concentrations may cause headaches, drowsiness, dizziness, excitation, excess salivation, vomiting, and unconciousness. Lack of oxygen can kill.

SKIN CONTACT: No harm expected.

SKIN ABSORPTION: No harm expected.

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

EYE CONTACT: No harm expected.

EFFECTS OF REPEATED (CHRONIC) OVEREXPOSURE:

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A knowledge of the available toxicology information and of the physical and chemical properties of the material suggests that overexposure is unlikely to aggravate existing medical conditions.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, 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, 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.

OTHER EFFECTS OF OVEREXPOSURE:
None known.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:
Repeated or prolonged exposure is not known to aggravate any medical condition.

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

CARCINOGENICITY:
Not listed as carcinogen by OSHA, NTP or IARC.

3. Composition and Information on Ingredients

COMPONENTS	CAS NUMBER	CONCENTRATION % by Mole
Argon	7440-37-1	100

4. First Aid Measures

INHALATION:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

SKIN CONTACT:
Flush with water.

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

EYE CONTACT:
Flush with water.

NOTES TO PHYSICIAN:
This product is inert. There is no specific antidote. Treatment of over-exposure should be directed at the control of symptoms and the clinical condition.

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5. Fire Fighting Measures

FLAMMABLE : No. **IF YES, UNDER WHAT CONDITIONS?** Not applicable.

EXTINGUISHING MEDIA:

This material cannot catch fire. Use media appropriate for surrounding fire.

PRODUCTS OF COMBUSTION:

None.

PROTECTION OF FIREFIGHTERS:

CAUTION! **High-pressure gas.** Asphxiant. Effects are due to lack of oxygen. Evacuate all personnel from danger area. Immediately deluge cylinders with water from maximum distance until cool; then move them away from fire area if without risk. Shutoff leak if without risk. Arcs and sparks can ignite combustion. Self-contained breathing apparatus may be required by rescue workers. Refer to American National Standard Z49.1 "Safety in Welding and Cutting" for fire prevention information during the use of welding and allies procedures.

SPECIFIC PHYSICAL AND CHEMICAL HAZARDS:

Heat of fire can build pressure in cylinder and cause it to rupture. No part of cylinder should be subjected to a temperature higher than 52 C. Cylinders containing this mixture are equipped with a pressure relief device. (Exceptions may exist where authorized by TDG Regulations.).

SENSITIVITY TO IMPACT:

Avoid impact against container.

SENSITIVITY TO STATIC DISCHARGE:

Not applicable.

PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS:

Firefighters should wear self-contained breathing apparatus and full fire-fighting turnout gear.

FLAMMABLE LIMITS IN AIR, % by volume:

LOWER: Not applicable. **UPPER:** Not applicable.

FLASH POINT: Not applicable.

AUTOIGNITION TEMPERATURE: Not applicable.

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Personal Precautions:

CAUTION! **High-pressure gas.** Evacuate all personnel from danger area. Use self-contained breathing apparatus where needed. Shut off flow if you can do so without risk. Ventilate area or move cylinder to a well-ventilated area. Test for sufficient oxygen, especially in confined spaces, before allowing reentry.

Environmental Precautions:

Slowly release into atmosphere. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, provincial, and local regulations. If necessary, call your local supplier for assistance.

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7. Handling and Storage

PRECAUTIONS TO BE TAKEN IN HANDLING:

Protect cylinders from damage. Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Open valve slowly. If valve is hard to open, discontinue use and contact your supplier. For other precautions, see section 16.

For additional information on storage and handling, refer to Compressed Gas Association (CGA) pamphlet P-1, *Safe Handling of Compressed Gases in Containers,* available from the CGA. Refer to section 16 for the address and phone number along with a list of other available publications.

PRECAUTIONS TO BE TAKEN IN STORAGE:

Store and use with adequate ventilation. Firmly secure cylinders upright to keep them from falling or being knocked over. Screw valve protection cap firmly in place by hand. Store only where temperature will not exceed 52 C. Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods.

OTHER HAZARDOUS CONDITIONS OF HANDLING, STORAGE, AND USE:

High pressure gas. 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 after each use; keep closed even when empty. **Prevent reverse flow.** Reverse flow into cylinder may cause rupture. Use a check valve or other protective device in any line or piping from the cylinder. **Never work on a pressurized system.** If there is a leak, close the cylinder valve. Blow the system down in an environmentally safe manner in compliance with all federal, provincial, and local laws, then repair the leak. **Never place a compressed gas cylinder where it may become part of an electrical circuit.**

Fumes and gases cannot be classified simply. The compostion and quantity of both are dependent upon the metal being worked and the process, procedure, equipment, and supplies 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 beign 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 int he atmosphere (such as chlorinated hydrocarbon vapours from cleaning and degreasing activities). One recommended way to determine the composition and quantity of fumes and gases to which the workers are exposed is to tkae and air sample from inside the worker's helmet if worn or in the worker's breathing zone. See ANSI/AWSF1.1, availbale from the Amercan 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 Society.

RECOMMENDED PUBLICATIONS:

Additional information on storage, handling, and use of this product is provided in **NFPA 55: *Standard for the Storage, Use, and Handling of Compressed and Liquefied Gases in Portable Cylinders***, published by the National Fire Protection Association.

See also Praxair publication P-14-153, *Guidelines for Handling Gas Cylinders and Containers*. Obtain from your local supplier.

8. Exposure Controls/Personal Protection

INGREDIENTS	CAS NUMBER	LD_{50} (Species & Routes)	LC_{50} (Rat, 4 hrs.)	Exposure Limits
Argon	7440-37-1	Not applicable.	Not available.	Simple asphyxiant.

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IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH):

VENTILATION/ENGINEERING CONTROLS:

LOCAL EXHAUST: Use a local exhaust system, if necessary, to maintain an adequate supply of oxygen in the worker's breathing zone. Adequate ventilation must keep worker exposure below applicable exposure limits for fumes, gases, and other by-products of welding with argon.

MECHANICAL (General): General exhaust ventilation may be acceptable if it can maintain an adequate supply of air.

SPECIAL: None.

OTHER: None.

PERSONAL PROTECTION:

RESPIRATORY PROTECTION: Use fume respirator or air supplied respiator when working in confined space or where local exhaust or ventilation does not keep exposure below TLV. Select in accordance with provincial regulations, local bylaws or guidelines. Selection should also be based on the current CSA standard Z94.4, "Selection, Care and Use of Respirators". Respirators should also be approved by NIOSH and MSHA.

SKIN PROTECTION: Wear work gloves when handling cylinders.

EYE PROTECTION: Wear goggles with filter lens. Provide protective screens and goggles, if necessary to protect others.

Select in accordance with the current CSA standard Z94.3, "Industrial Eye and Face Protection", and any provincial regulations, local bylaws or guidelines.

OTHER PROTECTIVE EQUIPMENT: Metatarsal shoes for cylinder handling. Protective clothing where needed. Cuffless trousers should be worn outside the shoes. Select in accordance with the current CSA standard Z195, "Protective Foot Wear" and any provincial regulations, local bylaws or guidelines.

9. Physical and Chemical Properties

PHYSICAL STATE:	Gas. (Compressed Gas)	**FREEZING POINT:**	-189.2°C (-308.6°F)	**pH:**	Not available.
BOILING POINT	-185.9°C (-302.6°F)	**VAPOUR PRESSURE**	Not applicable.	**MOLECULAR WEIGHT:**	39.95 g/mole
SPECIFIC GRAVITY: LIQUID (Water = 1)	Not applicable.	**SOLUBILITY IN WATER,**	Partially soluble in cold water.		
SPECIFIC GRAVITY: VAPOUR (air = 1)	1.38 g/ml @ 21.1C	**EVAPORATION RATE** (Butyl Acetate=1):	Not available.	**COEFFICIENT OF WATER/OIL DISTRIBUTION:**	Not applicable.
VAPOUR DENSITY:	0.0016 g/ml @ 21.1C	**% VOLATILES BY VOLUME:**	100% (v/v).	**ODOUR THRESHOLD:**	Odourless.
APPEARANCE & ODOUR:	Colourless. Odourless.				

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10. Stability and Reactivity

STABILITY:	The product is stable.
CONDITIONS OF CHEMICAL INSTABILITY:	None.
INCOMPATIBILITY (materials to avoid):	None currently known. Product is inert.
HAZARDOUS DECOMPOSITION PRODUCTS:	None.
HAZARDOUS POLYMERIZATION:	Will not occur.
CONDITIONS TO AVOID:	None.
CONDITIONS OF REACTIVITY:	None.

11. Toxicological Information

ACUTE DOSE EFFECTS: Argon is a simple asphyxiant. The welding process may generate hazardous fumes and gases. (See sections 10 and 16.)

STUDY RESULTS:

NO KNOWN EFFECT.

12. Ecological Information

No adverse ecological effects expected. This product does not contain any Class I or Class II ozone-depleting chemicals. The components of this mixture are not listed as marine pollutants by TDG Regulations.

13. Disposal Considerations

WASTE DISPOSAL METHOD: Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier.

14. Transport Information

TDG/IMO SHIPPING NAME: Argon, Compressed

HAZARD CLASS:	CLASS 2.2: Non-flammable, and Non-toxic gas.	**IDENTIFICATION #:**	UN1006	**PRODUCT REPORTABLE QUANTITY (PRQ):** **Any accidental release in a quantity that could pose a danger to public safety or any sustained release of 10 minutes or more.**

SHIPPING LABEL(s):	Non-flammable, non- toxic gas
PLACARD (When Required):	Non-flammable, non-toxic gas

SPECIAL SHIPPING INFORMATION:

Cylinders should be transported in a secure position, in a well-ventilated vehicle. Cylinders transported in an enclosed, non-ventilated compartment of a vehicle can present serious safety hazards.

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15. Regulatory Information

The following selected regulatory requirements may apply to this product. Not all such requirements are identified. Users of this product are solely responsible for compliance with all applicable federal, provincial, and local regulations. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

WHMIS (Canada): CLASS A: Compressed gas.

This product is on the DSL list.

International Regulations:

EINECS: Not available.

DSCL (EEC): This product is not classified according to the EU regulations.

International Lists: No products were found.

16. Other Information

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.

HAZARD RATING SYSTEM:

HMIS RATINGS:

HEALTH	**0**
FLAMMABILITY	**0**
PHYSICAL HAZARD	**2**

STANDARD VALVE CONNECTIONS FOR U.S. AND CANADA:

THREADED: CGA-295

PIN-INDEXED YOKE: Not available.

ULTRA-HIGH-INTEGRITY CONNECTION: Not available.

Use the proper CGA connections. **DO NOT USE ADAPTERS.** Additional limited-standard connections may apply. See CGA pamphlets V-1 and V-7 listed below.

Ask your supplier about free Praxair safety literature as referred to in this MSDS and on the label for this product. Further information about this product can be found in the following pamphlets published by the Compressed Gas Association, Inc. (CGA), 4221 Walney Road, 5th Floor, Chantilly, VA 20151-2923, Telephone (703) 788-2700, Fax (703) 961-1831, website: www.cganet.com.

AV-1	Safe Handling and Storage of Compressed Gas
G-11.1	Commodity Specification for Argon
P-1	Safe Handling of Compressed Gases in Containers
P-14	Accident Prevention in Oxygen-Rich, Oxygen-Deficient Atmosphere
SB-2	Oxygen-Deficient Atmospheres
V-1	Compressed Gas Cylinder Valve Inlet and Outlet Connections
V-7	Standard Method of Determining Cylinder Valve Outlet Connections for Industrial Gas Mixtures
---	Handbook of Compressed Gases, Fourth Edition

Praxair asks users of this product to study this MSDS and become aware of product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this MSDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

PREPARATION INFORMATION:

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DATE: **October 15, 2016**
DEPARTMENT: **Safety and Environmental Services**
TELEPHONE: **905-803-1600**

The opinions expressed herein are those of qualified experts within Praxair Canada Inc. 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 the conditions of use of the product are not within the control of Praxair Canada Inc., it is the user's obligation to determine the conditions of safe use of the product.

Praxair Canada Inc. requests the users of this product to study this Material 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 nformation, (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.

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