

***iSi Components* Material Safety Data Sheet****1. Chemical Product and Company Identification**

Product Name: Argon (Compressed)	Trade Name: Argon
Chemical Name: Argon	Synonyms: Shielding Gas, Argon 40
Formula: Ar	Chemical Family: (Rare Gas) Noble Gas
Telephone:	Company Name: <i>iSi North America, Inc.</i>
Emergencies: 1-800-424-9300*	175 Route 46 West
Routine: 1-973-227-2426	Fairfield, NJ 07004

*Call emergency number 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product. For routine information contact *iSi Components* or call the number listed above.

2. Composition / Information on Ingredients

Argon is supplied in cylinders as a liquid under its own vapor pressure, which varies depending on the temperature. It is non-toxic, non-flammable and heavier than air. Cylinders range in size from 10 ml. to 350 ml.

INGREDIENT NAME	CAS NUMBER	PERCENTAGE	OSHA PEL	ACGIH TLV-TWA
Argon	7440-37-1	>99%*	None currently established	Simple asphyxiant

*The symbol ">" means "greater than."

3. 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.
Odor: None**

THRESHOLD LIMIT VALUE: Simple asphyxiant. No occupational exposure limits have been established for this material.

EFFECTS OF A SINGLE (ACUTE) OVEREXPOSURE:

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

SKIN CONTACT–No harm expected.

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

EYE CONTACT–No harm expected.

EFFECTS OF REPEATED (CHRONIC) OVEREXPOSURE: No harm expected.

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

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: The toxicology and the physical and chemical properties of argon suggest that overexposure is unlikely to aggravate existing medical conditions.

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

CARCINOGENICITY: Argon is not listed by NTP, OSHA, or IARC.

4. First Aid Measures

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, qualified personnel may give oxygen. Call a physician.

SKIN CONTACT: Flush with water.

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

EYE CONTACT: Flush eyes with warm water. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly.

NOTES TO PHYSICIAN: There is no specific antidote. This product is inert. Treatment of over-exposure should be directed at the control of symptoms and the clinical condition. Refer to section 16.

5. Fire Fighting Measures

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:

CAUTION! High-pressure gas. 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.

Self-contained breathing apparatus may be required by rescue workers. On-site fire brigades must comply with OSHA 29 CFR 1910.156.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Argon cannot catch fire. Heat of fire can build pressure in cylinder and cause it to rupture. *Recommended storage temperature: -30 degrees C to +65 degrees C.*

HAZARDOUS COMBUSTION PRODUCTS: None known.

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

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

WASTE DISPOSAL METHOD: Prevent waste from contaminating the surrounding environment. Keep personnel away. Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal, state, and local regulations. If necessary, call your local disposal authority for assistance.

7. Handling and Storage

PRECAUTIONS TO BE TAKEN IN STORAGE: Store and use with adequate ventilation. If applicable, secure cylinders upright to keep them from falling or being knocked over and screw valve protection cap firmly in place by hand.

PRECAUTIONS TO BE TAKEN IN HANDLING: Protect cylinders from damage and high temperatures. For other information about argon, see section 16.

8. Exposure Controls/Personal Protection

VENTILATION/ENGINEERING CONTROLS:

LOCAL EXHAUST–Use a local exhaust system, if necessary, to prevent oxygen deficiency and keep hazardous fumes and gases below applicable TLVs in the worker's breathing zone.

MECHANICAL (general)–General exhaust ventilation may be acceptable if it can maintain an adequate supply of air and keep hazardous fumes and gases below the applicable TLVs in the worker's breathing zone.

SPECIAL–None

OTHER–None

RESPIRATORY PROTECTION: Use air-purifying or air-supplied respirators, as appropriate, where local or general exhaust ventilation is inadequate. Adequate ventilation must keep worker exposure below applicable TLVs and ensure greater than 19.5% oxygen is present. See section 16 for more information on hazards. An air-supplied respirator must be used in confined spaces. Respiratory protection must conform to OSHA rules as specified in 29 CFR 1910.134.

SKIN PROTECTION: Wear work gloves when handling cylinders.

EYE PROTECTION: Wear safety glasses when handling cylinders.

OTHER PROTECTIVE EQUIPMENT: Protective equipment for cylinder handling, select in accordance with OSHA 29 CFR 1910.132 and 1910.133.

9. Physical and Chemical Properties

MOLECULAR WEIGHT: 39.95	EXPANSION RATIO: Not applicable
SPECIFIC GRAVITY (air=1): At 70°F (21.1°C) and 1 atm: 1.38	SOLUBILITY IN WATER: % by wt., vol/vol at 32°F (0°C): 0.056
GAS DENSITY: At 70°F (21.1°C) and 1 atm: 0.103 lbs/ft ³ (1.650 kg/m ³)	VAPOR PRESSURE: AT 68°F (20°C): Not applicable
PERCENT VOLATILES BY VOLUME: 100	EVAPORATION RATE: Gas, not applicable
BOILING POINT (1 atm): -302.6°F (-185.9°C)	pH: Not applicable
MELTING POINT (1 atm): -308.6°F (-189.2°C)	
APPEARANCE, ODOR, AND STATE: Colorless, odorless, tasteless gas at normal temperature and pressure.	

10. Stability and Reactivity

STABILITY:	Unstable		Stable	X
INCOMPATIBILITY (materials to avoid): None currently known. Argon is chemically inert.				
HAZARDOUS DECOMPOSITION PRODUCTS: Ozone and nitrogen oxides may be formed by radiation from arc. Other decomposition products of normal operation may originate from many processes including volatilization, reaction, or oxidation of the material being worked.				
HAZARDOUS POLYMERIZATION:	May Occur		Will Not Occur	X

CONDITIONS TO AVOID: None currently known.

11. Toxicological Information

Argon is a simple asphyxiant.

12. Ecological Information

No adverse ecological effects expected. Argon does not contain any Class I or Class II ozone-depleting chemicals. Argon is not listed as a marine pollutant by DOT.

13. Disposal Considerations

WASTE DISPOSAL METHOD: Do not attempt to dispose of residual or unused quantities. Return cylinder to supplier. For emergency disposal, secure cylinder in a well-ventilated area or outdoors, then slowly discharge gas to the atmosphere.

14. Transport Information

DOT/IMO SHIPPING NAME: Argon, compressed	HAZARD CLASS: 2.2
IDENTIFICATION NUMBER: UN 1006	PRODUCT RQ: Not applicable
SHIPPING LABEL(s): NONFLAMMABLE GAS	PLACARD (When required): NONFLAMMABLE GAS

SPECIAL SHIPPING INFORMATION: Cylinders should be transported in a secure position, in a well-ventilated vehicle. Cylinders transported in an enclosed, nonventilated compartment of a vehicle can present serious safety hazards.

Shipment of compressed gas cylinders that have been filled without the owner's consent is a violation of federal law [49 CFR 173.301(b)].

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, state, and local regulations.

U.S. FEDERAL REGULATIONS:

EPA (Environmental Protection Agency)

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (40 CFR Parts 117 and 302):

Reportable Quantity (RQ): None

SARA: Superfund Amendment and Reauthorization Act:

- **SECTIONS 302/304:** Require emergency planning based on Threshold Planning Quantity (TPQ) and release reporting based on Reportable Quantities (RQ) of extremely hazardous substances (40 CFR Part 355):

Threshold Planning Quantity (TPQ): None.

Extremely Hazardous Substances (40 CFR 355): None.

- **SECTIONS 311/312:** Require submission of Material Safety Data Sheets (MSDSs) and chemical inventory reporting with identification of EPA hazard categories. The hazard categories for this products are as follows:

IMMEDIATE: No

DELAYED: No

PRESSURE: Yes

REACTIVITY: No

FIRE: No

- **SECTION 313:** Requires submission of annual reports of release of toxic chemicals that appear in 40 CFR Part 372.

Argon does not require reporting under Section 313.

40 CFR 68: Risk Management Program for Chemical Accidental Release Prevention: Requires development and implementation of risk management programs at facilities that manufacture, use, store, or otherwise handle regulated substances in quantities that exceed specified thresholds.

Argon is not listed as a regulated substance.

TSCA: Toxic Substances Control Act: Argon is listed on the TSCA inventory.

OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION):

29 CFR 1910.119 : Process Safety Management of Highly Hazardous Chemicals: Requires facilities to develop a process safety management program based on Threshold Quantities (TQ) of highly hazardous chemicals.

Argon is not listed in Appendix A as a highly hazardous chemical.

STATE REGULATIONS:

CALIFORNIA: This product is **not** listed by California under the Safe Drinking Water Toxic Enforcement Act of 1986 (Proposition 65).

PENNSYLVANIA: This product is subject to the Pennsylvania Worker and Community Right-To-Know Act (35 P.S. Sections 7301-7320).

16. Other Information

HAZARD RATING SYSTEMS:

- **NFPA RATINGS:**

HEALTH = 0
FLAMMABILITY = 0
REACTIVITY = 0
SPECIAL = SA

- **HMIS RATINGS:**

HEALTH = 0
FLAMMABILITY= 0
REACTIVITY = 0
(CGA recommends this rating to designate Simple Asphyxiant.)

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