

Material Safety Data Sheet

LIQUID ARGON

Section 1 - Product Identification

Product Name : Liquid Argon
CAS No. : 7440-37-1
Synonym : Cryogenic Liquid Argon, Liquid Argon, Argon Refrigerated Liquid
Company Identification : Tradeasia International Pte. Limited
Address :
133 Cecil Street # 12-03 Keck Seng Tower, Singapore
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Section 2 – Composition/Information on Ingredients

Substances

Name of substance	Liquid Argon
Identifiers	
CAS No	7440-37-1
Molecular formula	Ar
Molar Mass	39.95 g/mol

Section 3 – Hazardous Ingredients & Occupational Exposure Limits

Classification of the substances or mixture

Classification acc. to Regulation (EC) No 1272/2008/EC (CLP/GHS)

Press. Gas - Contains refrigerated gas; may cause cryogenic burns or injury.

Classification acc. to Directive 67/548/EEC & 1999/45/EC

Not classified as hazardous to health.

Asphyxiant in high concentrations.

Label Elements

Hazard Pictogram(s):



Signal Word: Warning

Hazard Statements:

H281 - Contains refrigerated gas; may cause cryogenic burns or injury.

EIGA-As - Asphyxiant in high concentrations.

Precautionary Statements

P282 - Wear cold insulating gloves/face shield/eye protection.

P336+P315 - Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.

P403 - Store in a well-ventilated place.

Prevention: Wear cold insulating gloves and face shield. Use and store only outdoors or in a well ventilated place.

Response: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice or attention.

Disposal: No data available

Hazards Not Otherwise Classified: Liquid can cause burns similar to frostbite.

Section 4 – First-Aid Measures

Inhalation Remove to fresh air and keep comfortable for breathing. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Get medical attention immediately.

Eye contact: If frostbite is suspected, flush eyes with cool water for 15 minutes and obtain immediate medical attention.

Skin Contact: For dermal contact or suspected frostbite, remove contaminated clothing and flush affected areas with lukewarm water. DO NOT USE HOT WATER. A physician should see the patient promptly if contact with the product has resulted in blistering of the dermal surface or in deep tissue freezing.

Ingestion: Not an expected route of exposure.

Notes to physician: No specific treatment. Treat symptomatically.

Section 5 – Employee Protection

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Specific extinguishing methods

Continue to cool fire exposed cylinders until flames are extinguished. Damaged cylinders should be handled only by specialists.

Specific hazards arising from the chemical

Non-flammable gas. Cylinders may rupture under extreme heat.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH (approved or equivalent) and full protective gear.

Section 6 – Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Personal precautions: Evacuate personnel to safe areas. Ensure adequate ventilation, especially in confined areas. Monitor oxygen level. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

Other Information: When in contact with refrigerated/cryogenic liquids, many materials become brittle and are likely to break without warning.

Environmental precautions

Environmental precautions: Prevent spreading of vapors through sewers, ventilation systems and confined areas.

Methods and material for containment and cleaning up

Methods for containment: Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk.

Methods for cleaning up: Follow proper waste disposal methods.

Section 7 – Handling and Storage

Handling: Never allow any unprotected part of the body to touch uninsulated pipes or vessels that contain cold fluids. The extremely cold metal of the container will cause moist flesh to stick fast and tear when one attempts to withdraw from it. Protect system components against physical damage. Check all hoses and transfer equipment before filling them with the liquid. Replace any worn or cut hoses prior to use. Liquid Argon is extremely cold and is under pressure. A complete hose failure can result in a large release of Argon and violent movement of the hose and associated equipment, which may cause severe injury or death. Special care must be taken when depressurizing and disconnecting hoses.

Storage: Store in cool, dry, well-ventilated area of non-combustible construction away from heavily trafficked areas and emergency exits. Keep at temperatures below 52°C / 125°F. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling. Use a "first in-first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Full and empty cylinders should be segregated. Stored containers should be periodically checked for general condition and leakage.

Section 8 – Exposure Controls/Personal Protection (later)

Exposure Limits/Guidelines:

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Controls: : Ventilation systems. Local exhaust ventilation to prevent accumulation of high concentrations and maintain air-oxygen levels at or above 19.5%. Oxygen detectors should be used when asphyxiating gases may be released. Showers. Eyewash stations

Personal Protective Equipment

Eye/face protection: Wear safety glasses with side shields (or goggles). If splashes are likely to occur, wear:. Face-shield. Goggles.

Skin and body protection: Work gloves and safety shoes are recommended when handling cylinders. Wear cold insulating gloves when handling liquid.

Respiratory protection: Use positive pressure airline respirator with escape cylinder or self contained breathing apparatus for oxygen-deficient atmospheres (<19.5%).

General Hygiene Considerations: Handle in accordance with good industrial hygiene and safety practice. Do not get in eyes, on skin, or on clothing.

Section 9 – Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance/Colour: Colourless liquid.

Odour: None.

Important information on environment, health and safety

Molecular weight: 40,00 g/mol

Melting point: -189 °C

Boiling point: -186,00 °C

Critical temperature: -122,3 °C

Flammability range: Not applicable.

Relative density, gas: 1,38

Relative density, liquid: 1,4

Solubility mg/l water: 61 mg/l

Other data

Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

Section 10 – Stability and Reactivity

Reactivity: Not reactive under normal conditions.

Chemical Stability: Stable under normal conditions.

Possibility of Hazardous Reactions: Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to Avoid: No specific data.

Incompatible Materials: No specific data.

Hazardous Decomposition Products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization: Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11 – Toxicological Information

Acute Toxicity: No data available

Carcinogenicity: No data available

Reproductive toxicity: No data available

Specific target organ toxicity following single exposure: No specific target organs noted

Specific target organ toxicity following repeated exposure: No specific target organs noted

Aspiration hazard: No data available

Information on likely routes of exposure

Inhalation: Product is a simple asphyxiant.

Skin contact: Contact with liquid may cause cold burns/frostbite.

Eye contact: Contact with liquid may cause cold burns/frostbite.

Ingestion: Not an expected route of exposure.

Information on toxicological effects

Symptoms: Adverse symptoms may include the following:, frostbite.

Potential health effects

Eye contact: Extremely cold material. Liquid can cause burns similar to frostbite.

Inhalation: No known significant effects or critical hazards.

Skin Contact: Extremely cold material. Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Ingestion: Ingestion of liquid can cause burns similar to frostbite.

Section 12 – Ecological Information

Toxicity: no data available

Persistence and degradability: no data available

Bioaccumulative potential: no data available

Mobility in soil: no data available

PBT and vPvB assessment: no data available

Other adverse effects: Can cause frost damage to vegetation.

Section 13 – Disposal Considerations

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging

should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14 – Transport Information

DOT/TDG/MEX/IATA/IMDG/ADR

UN: UN1951

Proper shipping name: Argon, refrigerated liquid

Hazard class: 2.2

Description: UN1951, Argon, refrigerated liquid, 2.2

Additional Information:

DOT: Special Provision - T75, TP5

IATA: ERG Code – 2L

IMDG: EmS-No. - F-C, S-V

ADR: Classification code - 3A, Tunnel restriction code - (C/E), Special Provisions - 593

Section 15 – Regulatory Information

1. US Federal regulations

TSCA 8(a) CDR Exempt/Partial exemption: This material is listed or exempted.

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

2. International regulations

CANADA

No data available

EU-Regulations

No data available

3. National regulations

No additional information available

4. US State regulations

LIQUID ARGON

State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List
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Section 16 - Additional Information

References: Not available.

Other Special Considerations: Not available.

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall Tradeasia International Pte. Ltd. be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Tradeasia International Pte. Ltd. has been advised of the possibility of such damages.