



# ARGON/HELIUM MIXTURES

## Safety Data Sheet

### 1. IDENTIFICATION

Product identifier

Product Name ARGON/HELIUM MIXTURES

Other means of identification

Safety data sheet number LIND-M0004

UN/ID no. UN1956

Synonyms VARIGON He25; VARIGON He50; VARIGON He75; ALUSHIELD LIGHT; ALUSHIELD UNIVERSAL

Recommended use of the chemical and restrictions on use

Recommended Use Industrial and professional use.

Uses advised against Consumer use

Details of the supplier of the safety data sheet

Linde Gas North America LLC - Linde Merchant Production Inc. - Linde LLC

575 Mountain Ave.

Murray Hill, NJ 07974

Phone: 908-464-8100

www.lindeus.com

Linde Gas Puerto Rico, Inc.

Road 869, Km 1.8

Barrio Palmas, Catano, PR 00962

Phone: 787-641-7445

www.pr.lindegas.com

Linde Canada Limited

5860 Chedworth Way

Mississauga, Ontario L5R 0A2

Phone: 905-501-1700

www.lindecana.com

\* May include subsidiaries or affiliate companies/divisions.

For additional product information contact your local customer service.

Emergency telephone number

Company Phone Number 800-232-4726 (Linde National Operations Center, US)  
905-501-0802 (Canada)

CHEMTREC: 1-800-424-9300 (North America) +1-703-527-3887 (International)

### 2. HAZARDS IDENTIFICATION

Classification

## OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

|                      |                |
|----------------------|----------------|
| Gases under pressure | Compressed gas |
| Simple asphyxiants   | Yes            |

Label elements

Signal word

Warning

## Hazard Statements

Contains gas under pressure; may explode if heated

May displace oxygen and cause rapid suffocation

## Precautionary Statements - Prevention

Do not handle until all safety precautions have been read and understood

Use and store only outdoors or in a well ventilated place

Use a backflow preventive device in piping

Use only with equipment rated for cylinder pressure

Close valve after each use and when empty

## Precautionary Statements - Response

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical attention/advice.

## Precautionary Statements - Storage

Protect from sunlight when ambient temperature exceeds 52°C/125°F

Hazards not otherwise classified (HNOC)

Not applicable

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name | CAS No.   | Volume % | Chemical Formula |
|---------------|-----------|----------|------------------|
| Helium        | 7440-59-7 | 25-75    | He               |
| Argon         | 7440-37-1 | 25-75    | Ar               |

### 4. FIRST AID MEASURES

Description of first aid measures

|                                    |   |
|------------------------------------|---|
| General advice                     | Show this safety data sheet to the doctor in attendance.  |
| 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. |
| Skin contact                       | None under normal use. Get medical attention if symptoms occur.   |
| Eye contact                        | None under normal use. Get medical attention if symptoms occur.   |
| Ingestion                          | Not an expected route of exposure.  |
| Self-protection of the first aider | RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.  |

#### Most important symptoms and effects, both acute and delayed

|          |   |
|----------|---|
| Symptoms | Simple asphyxiant. May cause suffocation by displacing the oxygen in the air. Exposure to oxygen-deficient atmosphere (<19.5%) may cause dizziness, drowsiness, nausea, vomiting, excess salivation, diminished mental alertness, loss of consciousness and death. Exposure to atmospheres containing 8-10% or less oxygen will bring about unconsciousness without warning and so quickly that the individuals cannot help or protect themselves. Lack of sufficient oxygen may cause serious injury or death. |
|----------|---|

#### Indication of any immediate medical attention and special treatment needed

|                    |                        |
|--------------------|------------------------|
| Note to physicians | Treat symptomatically. |
|--------------------|------------------------|

## **5. FIRE-FIGHTING MEASURES**

#### 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, MSHA/NIOSH (approved or equivalent) and full protective gear.

## **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. |
|----------------------|---|

#### 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. If leak is in container or container valve, contact the appropriate emergency telephone number in Section 1 or call your closest Linde location. |
|-------------------------|--|

Methods for cleaning up

Return cylinder to Linde or an authorized distributor.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

#### Advice on safe handling

Protect cylinders from physical damage; do not drag, roll, slide or drop. When moving cylinders, even for short distance, use a cart designed to transport cylinders. Never attempt to lift a cylinder by its valve protection cap. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Use only with adequate ventilation. Use only with equipment rated for cylinder pressure. Use a backflow preventive device in piping. Close valve after each use and when empty. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. Ensure the complete gas system has been checked for leaks before use.

Never put cylinders into trunks of cars or unventilated areas of passenger vehicles. Never attempt to refill a compressed gas cylinder without the owner's written consent. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit.

Only experienced and properly instructed persons should handle gases under pressure. Always store and handle compressed gas cylinders in accordance with Compressed Gas Association, pamphlet CGA-P1, Safe Handling of Compressed Gases in Containers.

For additional recommendations consult Compressed Gas Association's (CGA) Safety Bulletin SB-2, Oxygen-Deficient Atmospheres.

### Conditions for safe storage, including any incompatibilities

#### Storage Conditions

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. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders from being stored for excessive periods of time. Stored containers should be periodically checked for general condition and leakage.

#### Incompatible materials

None known.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### Exposure Guidelines

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

### Appropriate engineering controls

#### Engineering Controls

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. Systems under pressure should be regularly checked for leakages.

### Individual protection measures, such as personal protective equipment

#### Eye/face protection

Wear safety glasses with side shields (or goggles).

#### Skin and body protection

Work gloves and safety shoes are recommended when handling cylinders.

#### 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.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

|                           |                   |
|---------------------------|-------------------|
| Physical state            | Compressed gas    |
| Appearance                | Colorless.        |
| Odor                      | Odorless.         |
| Odor threshold            | Not applicable    |
| pH                        | No data available |
| Melting point             | No data available |
| Evaporation rate          | Not applicable    |
| Lower flammability limit: | Not applicable    |
| Upper flammability limit: | Not applicable    |
| Flash point               | Not applicable    |
| Autoignition temperature  | No data available |
| Decomposition temperature | No data available |
| Water solubility          | Slightly soluble  |
| Partition coefficient     | No data available |
| Kinematic viscosity       | Not applicable    |

| Chemical Name | Molecular weight | Boiling point | Vapor Pressure             | Vapor density (air =1) | Gas Density kg/m <sup>3</sup> @20°C | Critical Temperature |
|---------------|------------------|---------------|----------------------------|------------------------|-------------------------------------|----------------------|
| Helium        | 4.00             | -268.9 °C     | Above critical temperature | 0.138                  | 0.165                               | -267.9 °C            |
| Argon         | 39.95            | -185.9 °C     | Above critical temperature | 1.38                   | 1.65                                | -122.3 °C            |

## 10. STABILITY AND REACTIVITY

### Reactivity

Not reactive under normal conditions

### Chemical stability

Stable under normal conditions.

### Explosion data

|                                  |       |
|----------------------------------|-------|
| Sensitivity to Mechanical Impact | None. |
| Sensitivity to Static Discharge  | None. |

### Possibility of Hazardous Reactions

None under normal processing.

### Conditions to avoid

None under recommended storage and handling conditions (see Section 7).

### Incompatible materials

None known.

### Hazardous Decomposition Products

None known.

## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

|              |                                    |
|--------------|------------------------------------|
| Inhalation   | Product is a simple asphyxiant.    |
| Skin contact | No data available.                 |
| Eye contact  | No data available.                 |
| Ingestion    | Not an expected route of exposure. |

Information on toxicological effects

|          |                           |
|----------|---------------------------|
| Symptoms | No information available. |
|----------|---------------------------|

Delayed and immediate effects as well as chronic effects from short and long-term exposure

|                          |   |
|--------------------------|---|
| Irritation               | Not classified.   |
| Sensitization            | Not classified.   |
| Germ cell mutagenicity   | Not classified.   |
| Carcinogenicity          | This product does not contain any carcinogens or potential carcinogens listed by OSHA, IARC or NTP. |
| Reproductive toxicity    | Not classified.   |
| STOT - single exposure   | Not classified.   |
| STOT - repeated exposure | Not classified.   |
| Chronic toxicity         | None known.   |
| Target Organ Effects     | None known.   |
| Aspiration hazard        | Not applicable.   |

Numerical measures of toxicity

|                     |                          |
|---------------------|--------------------------|
| Product Information |                          |
| Oral LD50           | No information available |
| Dermal LD50         | No information available |
| Inhalation LC50     | No information available |

## 12. ECOLOGICAL INFORMATION

Ecotoxicity

No known acute aquatic toxicity.

Persistence and degradability

Not applicable.

Bioaccumulation

No information available.

## 13. DISPOSAL CONSIDERATIONS

Waste treatment methods

|                    |   |
|--------------------|---|
| Disposal of wastes | Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY LABELED WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to Linde for proper disposal. |
|--------------------|---|

## 14. TRANSPORT INFORMATION

DOT

UN/ID no.

UN1956

|                                 |  |
|---------------------------------|--|
| Proper shipping name            | Compressed gas, n.o.s.                             |
| Hazard Class                    | 2.2  |
| Description                     | UN1956, Compressed gas, n.o.s.(Argon, Helium), 2.2 |
| Emergency Response Guide Number | 126  |

TDG

|                      |  |
|----------------------|--|
| UN/ID no.            | UN1956   |
| Proper shipping name | Compressed gas, n.o.s.                             |
| Hazard Class         | 2.2  |
| Description          | UN1956, Compressed gas, n.o.s.(Argon, Helium), 2.2 |

MEX

|                      |  |
|----------------------|--|
| UN/ID no.            | UN1956   |
| Proper shipping name | Compressed gas, n.o.s.                             |
| Hazard Class         | 2.2  |
| Description          | UN1956, Compressed gas, n.o.s.(Argon, Helium), 2.2 |

IATA

|                      |  |
|----------------------|--|
| UN/ID no.            | UN1956   |
| Proper shipping name | Compressed gas, n.o.s.                             |
| Hazard Class         | 2.2  |
| ERG Code             | 2L   |
| Description          | UN1956, Compressed gas, n.o.s.(Argon, Helium), 2.2 |

IMDG

|                      |  |
|----------------------|--|
| UN/ID no.            | UN1956   |
| Proper shipping name | Compressed gas, n.o.s.                             |
| Hazard Class         | 2.2  |
| EmS-No.              | F-C, S-V   |
| Special Provisions   | 274  |
| Description          | UN1956, Compressed gas n.o.s. (Argon, Helium), 2.2 |

ADR

|                         |   |
|-------------------------|---|
| UN/ID no.               | UN1956  |
| Proper shipping name    | Compressed gas, n.o.s.                                  |
| Hazard Class            | 2.2   |
| Classification code     | 1A  |
| Tunnel restriction code | (E)   |
| Special Provisions      | 274, 655  |
| Description             | UN1956, Compressed gas, n.o.s.(Argon, Helium), 2.2, (E) |
| Labels                  | 2.2   |

|                                   |
|-----------------------------------|
| <b>15. REGULATORY INFORMATION</b> |
|-----------------------------------|

International Inventories

|               |          |
|---------------|----------|
| TSCA          | Complies |
| DSL/NDSL      | Complies |
| EINECS/ELINCS | Complies |

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory  
 DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List  
 EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

US Federal RegulationsSARA 313

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.

SARA 311/312 Hazard Categories

|                                   |     |
|-----------------------------------|-----|
| Acute Health Hazard               | No  |
| Chronic Health Hazard             | No  |
| Fire Hazard                       | No  |
| Sudden release of pressure hazard | Yes |
| Reactive Hazard                   | No  |

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product does not contain any substances regulated as hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act Amendments of 1990.

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Risk and Process Safety Management Programs

This material, as supplied, does not contain any regulated substances with specified thresholds under 40 CFR Part 68. This product does not contain any substances regulated as Highly Hazardous Chemicals pursuant to the 29 CFR Part 1910.110.

US State RegulationsCalifornia Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

| Chemical Name      | New Jersey | Massachusetts | Pennsylvania |
|--------------------|------------|---------------|--------------|
| Argon<br>7440-37-1 | X          | X             | X            |

International Regulations**16. OTHER INFORMATION**

|             |                  |                |               |  |
|-------------|------------------|----------------|---------------|--|
| <u>NFPA</u> | Health hazards 0 | Flammability 0 | Instability 0 | Physical and Chemical<br>Properties Simple<br>asphyxiant |
|-------------|------------------|----------------|---------------|--|

Note: Ratings were assigned in accordance with Compressed Gas Association (CGA) guidelines as published in CGA Pamphlet P-19-2009, CGA Recommended Hazard Ratings for Compressed Gases, 3rd Edition.

|               |                  |
|---------------|------------------|
| Issue Date    | 08-Apr-2015      |
| Revision Date | 08-Apr-2015      |
| Revision Note | Initial Release. |

General Disclaimer



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End of Safety Data Sheet