



Argon and Oxygen (19.5 - 99.9999%) Mixture

Safety Data Sheet E-7025

according to the Hazardous Products Regulation (February 11, 2015)

Date of issue: 10-15-1979

Revision date: 05-26-2023

Supersedes: 01-01-2021

Version: 1.0

SECTION 1: Identification

1.1. Product identifier

Product form : Mixture
Product name : Argon and Oxygen (19.5 - 99.9999%) Mixture
Other means of identification : Oxygen: 19.5 - 99.9999 %
Argon (BAL)
Product group : Core Products

1.2. Recommended use and restrictions on use

Recommended uses and restrictions : Industrial use
Use as directed.

1.3. Supplier

Linde Canada inc.
500 — 5015 Spectrum Way
Mississauga - Canada L4W 0E4
T 1-905-803-1600 - F 1-905-803-1682
www.lindecana.ca

1.4. Emergency telephone number

Emergency number : 1-800-363-0042
Call emergency number 24 hours a day only for spills, leaks, fire, exposure, or accidents involving this product.
For routine information, contact your supplier or Linde sales representative.

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

GHS-CA classification

Oxidising Gases, Category 1 H270
Gases under pressure : Compressed gas H280

2.2. GHS Label elements, including precautionary statements

GHS-CA labelling

Hazard pictograms



Signal word

: DANGER

Hazard statements

: MAY CAUSE OR INTENSIFY FIRE; OXIDIZER
CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED

Precautionary statements

: Do not handle until all safety precautions have been read and understood
Keep away from clothing and other combustible materials
Keep valves and fittings free from oil and grease
IN CASE OF FIRE: Stop leak if safe to do so
Use and store only outdoors or in a well-ventilated place.
Use a back flow preventive device in the piping.
Use only with equipment rated for cylinder pressure.
Use only with equipment cleaned for oxygen service.
Open valve slowly.
Close valve after each use and when empty.
Protect from sunlight when ambient temperature exceeds 52°C (125°F).

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2.3. Other hazards

Other hazards which do not result in classification : Asphyxiant in high concentrations.

2.4. Unknown acute toxicity (GHS CA)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	CAS No.	% (Vol)	Common Name (synonyms)
Oxygen (Component)	(CAS No) 7782-44-7	19.5 – 99.9999	Oxygen (dissolved) / Oxygen gas / Oxygen, compressed / Oxygen, dissolved
Argon	(CAS No) 7440-37-1	0.0001 – 80.5	Argon, compressed

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, trained personnel should give oxygen. Call a physician.

First-aid measures after skin contact : Adverse effects not expected from this product.

First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Get immediate medical attention. Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Contact an ophthalmologist immediately.

First-aid measures after ingestion : Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/injuries : No additional information available

4.3. Immediate medical attention and special treatment, if necessary

Other medical advice or treatment : None.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

5.2. Unsuitable extinguishing media

No additional information available

5.3. Specific hazards arising from the hazardous product

Fire hazard : May accelerate combustion. Avoid contact with combustible materials.

Reactivity : None.

Reactivity in case of fire : No reactivity hazard other than the effects described in sub-sections below.

5.4. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with their provincial and local fire code regulations.

Protection during firefighting : Compressed gas: asphyxiant. Suffocation hazard by lack of oxygen.

Special protective equipment for fire fighters : Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.



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Specific methods	: Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas containers to rupture. Cool endangered containers with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems. Stop flow of product if safe to do so. Use water spray or fog to knock down fire fumes if possible.
Other information	: Containers are equipped with a pressure relief device. (Exceptions may exist where authorized.).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: No additional information available.
Personal Precautions, Protective Equipment and Emergency Procedures	: General measures : Ensure adequate ventilation. Personal Precautions, Protective Equipment and Emergency Procedures : EVACUATE ALL PERSONNEL FROM AFFECTED AREA. Use appropriate protective equipment. If leak is on user's equipment, be certain to purge piping before attempting repairs. If leak is on a container or container valve contact the closest Linde Canada location.

6.2. Methods and materials for containment and cleaning up

For containment	: Try to stop release if safe to do so.
Methods for cleaning up	: This material is an Asphyxiant Gas. Any leaks should be handled by Emergency Response personnel. For assistance call your supplier. Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. 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. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents. For other precautions in using this product, see section 16.
Additional hazards when processed	: When working with cryogenic/cold liquid or gas under pressure, avoid using materials that are incompatible with cryogenic use. Some metals, such as carbon steel, may fracture easily at low temperature. Use only transfer lines designed for cryogenic liquids. Prevent liquid or cold gas from being trapped in piping between valves. Equip the piping with pressure relief devices. Linde recommends piping all vents to the exterior of the building.



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7.2. Conditions for safe storage, including any incompatibilities

Storage conditions

: Store in a cool, well-ventilated place. Store and use with adequate ventilation. Store only where temperature will not exceed 52 °C (125 °F). Firmly secure containers upright to keep them from falling or being knocked over. Install valve protection cap firmly in place by hand. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods.

Store only where temperature will not exceed 52 °C (125 °F). Post "No Smoking/No Open Flames" signs in storage and use areas. There must be no sources of ignition. Separate packages and protect against potential fire and/or explosion damage following appropriate codes and requirements (e.g.: CSA, TSSA, or NFPA Codes), or according to the provincial requirements determined by the Authority Having Jurisdiction (AHJ). Always secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand when the container is not in use. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods. For other precautions in using this product, see section 16.

OTHER PRECAUTIONS FOR HANDLING, STORAGE, AND USE: When handling product under pressure, use piping and equipment adequately designed to withstand the pressures to be encountered. Never work on a pressurized system. Use a back flow preventive device in the piping. Gases can cause rapid suffocation because of oxygen deficiency; store and use with adequate ventilation. If a leak occurs, close the container valve and blow down the system in a safe and environmentally correct manner in compliance with all international, federal/national, state/provincial, and local laws; then repair the leak. Never place a container where it may become part of an electrical circuit.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls

: Oxygen detectors should be used when asphyxiating gases may be released. Consider work permit system e.g. for maintenance activities. Systems under pressure should be regularly checked for leakages. Ensure exposure is below occupational exposure limits (where available). Gas detectors should be used when oxidizing gases may be released. Provide adequate general and local exhaust ventilation.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment

: Gloves. Face shield. Safety glasses.



Hand protection

: Wear working gloves when handling gas containers. Wear work gloves when handling containers. Wear heavy rubber gloves where contact with product may occur.

Eye protection

: Wear safety glasses with side shields. Select in accordance with the current CSA standard Z94.3, "Industrial Eye and Face Protection", and any provincial regulations, local bylaws or guidelines. Safety eye wear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Select in accordance with the current CSA standard Z94.3, "Industrial Eye and Face Protection", and any provincial regulations, local bylaws or guidelines.

Skin and body protection

: Wear work gloves when handling containers. Wear heavy rubber gloves where contact with product may occur. Wear metatarsal shoes and work gloves for cylinder handling, and protective clothing where needed. Wear appropriate chemical gloves during cylinder changeout or wherever contact with product is possible.

Respiratory protection

: Choose in accordance with provincial directives and regulations. Selection should also be based on the current CSA standards Z94.4, "Selection, care and use of respirators." Respirators should be approved by NIOSH and MSHA. **Respiratory protection:** Use air supplied respirator when working in confined space or where local exhaust or ventilation does not keep exposure below OEL (if applicable). Select in accordance with provincial regulations, local bylaws or guidelines. Respirators should also be approved by NIOSH and MSHA. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).



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Thermal hazard protection	: Wear cold insulating gloves when transfilling or breaking transfer connections.
Other information	: Consider the use of flame resistant safety clothing. Other protection : Safety shoes for general handling at customer sites. Metatarsal shoes and cuffless trousers for cylinder handling at packaging and filling plants. Select in accordance with the current CSA standard Z195, "Protective Foot Wear", and any provincial regulations, local bylaws or guidelines. For working with flammable and oxidizing materials, consider the use of flame resistant anti-static safety clothing.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

(a) Physical state	: Gas
(b) Colour	: Colourless.
(c) Odour	: Odourless.
Odour threshold	: No data available
(d) Melting point	: No data available
Freezing point	: No data available
(e) Boiling point	: No data available
(f) Flammability	: Non flammable
(g) Flammability (solid, gas)	:
(h) Flash point	: No data available
(i) Auto-ignition temperature	: No data available
(j) Decomposition temperature	: No data available
(k) pH	: Not applicable.
(l) Viscosity, kinematic	: Not applicable.
(m) Solubility	: Water: No data available
(n) Partition coefficient – n-octanol/water [log Pow/log Kow]	: Not applicable.
(o) Vapour pressure	: Not applicable.
(p) Density	: 1.65 kg/m ³ Vapor density, 70°F (21.1°C), 1 atm (Based on the Argon component)
Relative gas density	: 1.38 (Based on the Argon component)
(r) Particle characteristics	: No data available
(v) Oxidizing properties	: Oxidizer.
(w) Relative evaporation rate (butylacetate=1)	: No data available
Relative evaporation rate (ether=1)	: Not applicable.

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

Reactivity	: None.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: Violently oxidizes organic material.
Incompatible materials	: May react violently with combustible materials. May react violently with reducing agents.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced. Using this product in welding and cutting may create additional hazards. The arc from electric arc welding may form gaseous reaction products such as carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc. Other decomposition products of arc welding and cutting originate from the volatilization, reaction, and oxidization of the material being worked.

SECTION 11: Toxicological information

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11.1 Likely routes of exposure

: Inhalation

11.2 Symptoms related to the physical, chemical, and toxicological characteristics

: No additional information available

11.3 Delayed and immediate effects and chronic effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified
Skin corrosion/irritation	: Not classified pH: Not applicable.
Serious eye damage/irritation	: Not classified pH: Not applicable.
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified

11.4 Toxicity

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LC50 inhalation rat (ppm)	No data available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : No ecological damage caused by this product.

12.2. Persistence and degradability

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Persistence and degradability	No ecological damage caused by this product.
Oxygen (7782-44-7)	
Persistence and degradability	No data available.
Argon (7440-37-1)	
Persistence and degradability	No ecological damage caused by this product.

12.3. Bioaccumulative potential

Argon and Oxygen (19.5 - 99.9999%) Mixture	
Log Pow	Not applicable.
Log Kow	Not applicable.
Bioaccumulative potential	No ecological damage caused by this product.

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Oxygen (7782-44-7)

Log Pow	Not applicable.
Log Kow	Not applicable.
Bioaccumulative potential	No ecological damage caused by this product.

Argon (7440-37-1)

Log Pow	Not applicable.
Log Kow	Not applicable.
Bioaccumulative potential	No ecological damage caused by this product.

12.4. Mobility in soil

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Mobility in soil	No data available.
Log Pow	Not applicable.
Log Kow	Not applicable.

Oxygen (7782-44-7)

Mobility in soil	No data available.
Log Pow	Not applicable.
Log Kow	Not applicable.
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution. Partition into soil is unlikely.

Argon (7440-37-1)

Mobility in soil	No data available.
Log Pow	Not applicable.
Log Kow	Not applicable.
Ecology - soil	No ecological damage caused by this product.

12.5. Other adverse effects

Other adverse effects	: Can cause frost damage to vegetation.
Effect on the ozone layer	: None.

SECTION 13: Disposal considerations

Product/Packaging disposal recommendations	: Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements. Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.
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SECTION 14: Transport information

14.1. Basic shipping description

In accordance with TDG

TDG

UN-No. (TDG)	: UN3156
TDG Primary Hazard Classes	: 2.2 - Class 2.2 - Non-Flammable, Non-Toxic Gases
TDG Subsidiary Classes	: 5.1
Proper shipping name	: COMPRESSED GAS, OXIDIZING, N.O.S. Oxygen, Argon

ERAP Index	: 3000
Explosive Limit and Limited Quantity Index	: 0
Passenger Carrying Ship Index	: Forbidden
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	: 75 L

14.2. Air and sea transport

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IMDG

UN-No. (IMDG)	: 3156
Proper Shipping Name (IMDG)	: COMPRESSED GAS, OXIDIZING, N.O.S.
Class (IMDG)	: 2 - Gases

IATA

UN-No. (IATA)	: 3156
Proper Shipping Name (IATA)	: Compressed gas, oxidizing, n.o.s.
Class (IATA)	: 2 - Gases

SECTION 15: Regulatory information

15.1. National regulations

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Listed on the Canadian DSL (Domestic Substances List)

Oxygen (7782-44-7)

Listed on the Canadian DSL (Domestic Substances List)

Argon (7440-37-1)

Listed on the Canadian DSL (Domestic Substances List)

15.2. International regulations

Oxygen (7782-44-7)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on INSQ (Mexican National Inventory of Chemical Substances)

Argon (7440-37-1)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on INSQ (Mexican National Inventory of Chemical Substances)

SECTION 16: Other information

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Indication of changes:



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Other information

: When you mix two or more chemicals, you can 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 evaluate the end product. Before using any plastics, confirm their compatibility with this product.

Linde Canada asks users of this product to study this SDS and become aware of the 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 SDS 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.

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