

SAFETY DATA SHEET

Argon (refrigerated liquid)



SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name : Argon (refrigerated liquid)
EC number : 231-147-0
CAS number : 7440-37-1
Product type : Gas.
Chemical formula : Ar

1.2 Relevant identified uses of the substance or mixture and uses advised against

Product use : Welding products, other
Area of application : Industrial applications.

1.3 Details of the supplier of the safety data sheet

OCI Nitrogen BV
Mijnweg 1
P.O. Box 601
6160 AP Geleen, The Netherlands
Tel: +31(0)46 7020111
www.ocinitrogen.com

e-mail address of person responsible for this SDS : info.agro@ocinitrogen.com

1.4 Emergency telephone number

Supplier

Telephone number : (31) 46 4765555 (24/7)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mono-constituent substance

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Press. Gas Refr. Liq. Gas, H281

Classification according to Directive 67/548/EEC [DSD]

Not classified.

See Section 16 for the full text of the R phrases or H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : Contains refrigerated gas; may cause cryogenic burns or injury.

Precautionary statements

Prevention : Wear cold insulating gloves and face shield.

Date of issue/Date of revision : 23 December 2011

Version : 1.1

1/11



SECTION 2: Hazards identification

- Response** : Thaw frosted parts with lukewarm water.
Do not rub affected area.
- Storage** : Store in a well-ventilated place.
- Disposal** : Not applicable.

Supplemental label elements : Not applicable.

2.3 Other hazards

- Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII** : Not applicable.
- Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII** : Not applicable.
- Other hazards which do not result in classification** : Not available.

SECTION 3: Composition/information on ingredients

Substance/mixture : Mono-constituent substance

Product/ingredient name	Identifiers	%	Classification	
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]
argon	EC: 231-147-0 CAS: 7440-37-1	100	Not classified. See section 16 for the full text of the R-phrases declared above	Press. Gas Refr. Liq. Gas, H281 See Section 16 for the full text of the H statements declared above.

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : As this product is a gas, refer to the inhalation section.

Date of issue/Date of revision : 23 December 2011

Version : 1.1

2/11

SECTION 4: First aid measures

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute 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 : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following: frostbite
Inhalation : No specific data.
Skin contact : Adverse symptoms may include the following: frostbite
Ingestion : No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Non-combustible. Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.
Hazardous combustion products : No specific data.

5.3 Advice for firefighters

Special precautions for fire-fighters : No special measures required.
Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
Additional information : References : Section 9. Physical and chemical properties

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

: Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Note: see section 1 for emergency contact information and section 13 for waste disposal.

6.4 Reference to other sections

: See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Contains refrigerated gas. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

: Do not store above the following temperature: 50°C (122°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Keep in a cool place.

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
argon	Oxygen Depletion [Asphyxiant]

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

Derived effect levels

No DELs available.

Predicted effect concentrations

No PECs available.

8.2 Exposure controls

Appropriate engineering controls : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. Recommended: full-face mask

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. If contact with the liquid is possible, insulated gloves suitable for low temperatures should be worn.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: Working clothes.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: self-contained breathing apparatus (SCBA)
Not recommended: In no case use a filter mask.

Date of issue/Date of revision : 23 December 2011

Version : 1.1

5/11

SECTION 8: Exposure controls/personal protection

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	: Gas. [Cooled till liquid.]
Colour	: Colourless.
Odour	: Odourless.
Odour threshold	: Not available.
pH	: Not available.
Melting point/freezing point	: -189°C
Initial boiling point and boiling range	: -186°C
Flash point	: Not applicable.
Evaporation rate	: >1 (butyl acetate = 1)
Flammability (solid, gas)	: Not available.
Burning time	: Not applicable.
Burning rate	: Not applicable.
Upper/lower flammability or explosive limits	: Not available.
Vapour pressure	: Not available.
Vapour density	: 1.38 [Air = 1]
Relative density	: 1.65 [Water = 1]
Density	: 1.65 g/cm ³ [-233°C]
Solubility(ies) (water)	: Insoluble in the following materials: cold water
Partition coefficient: n-octanol/water	: not available
Auto-ignition temperature	: Not applicable.
Decomposition temperature	: Not available.
Viscosity	: Not available.
Explosive properties	: Not available.
Oxidising properties	: Not available.

9.2 Other information

Physical/chemical properties comments : Molecular weight:39.95 g/mole
Critical temperature: -122 °C
Critical Press. (mm Hg):36500

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : The product is stable.

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

Date of issue/Date of revision : 23 December 2011

Version : 1.1

6/11

SECTION 10: Stability and reactivity

10.4 Conditions to avoid : Exposure to heat

10.5 Incompatible materials : No specific data.

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

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitiser

Conclusion/Summary : Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Inhalation.

Potential acute health effects

Inhalation : No known significant effects or critical hazards.

Ingestion : As this product is a gas, refer to the inhalation section.

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

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

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation : No specific data.

Ingestion : No specific data.

Skin contact : Adverse symptoms may include the following: frostbite

Eye contact : Adverse symptoms may include the following: frostbite

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Date of issue/Date of revision : 23 December 2011

Version : 1.1

7/11

SECTION 11: Toxicological information

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

Conclusion/Summary : Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Other information : Not available.

SECTION 12: Ecological information

12.1 Toxicity

Conclusion/Summary : Not available.

12.2 Persistence and degradability

Conclusion/Summary : Not available.

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
argon	0.94	-	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.
P: Not available. B: Not available. T: Not available.

vPvB : Not applicable.
vP: Not available. vB: Not available.

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Date of issue/Date of revision : 23 December 2011

Version : 1.1

8/11

SECTION 13: Disposal considerations

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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.





Hazardous waste : The classification of the product may meet the criteria for a hazardous waste.

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Empty pressure vessels should be returned to the supplier. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : 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

	ADR/RID	ADN/ADNR	IMDG	IATA
14.1 UN number	UN1951	UN1951	UN1951	UN1951
14.2 UN proper shipping name	ARGON, REFRIGERATED LIQUID	ARGON, REFRIGERATED LIQUID	ARGON, REFRIGERATED LIQUID	Argon, refrigerated liquid
14.3 Transport hazard class(es)	2 	2 	2.2 	2.2 
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.
14.6 Special precautions for user	Not available.	Not available.	Not available.	Not available.
Additional information	<p>Hazard identification number 22</p> <p>Limited quantity 120 ml</p> <p>Special provisions 593</p> <p>Tunnel code (C/E)</p>	-	<p>Emergency schedules (EmS) F-C, S-V</p>	<p>Passenger and Cargo AircraftQuantity limitation: 50 kg Packaging instructions: 202 Cargo Aircraft OnlyQuantity limitation: 500 kg Packaging instructions: 202 Limited Quantities - Passenger AircraftQuantity limitation: Forbidden Packaging instructions: Forbidden</p>

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

Other EU regulations

Europe inventory : This material is listed or exempted.

International regulations

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

15.2 Chemical Safety Assessment : Not applicable.

15.3 Registration status : Exempt

SECTION 16: Other information

✔ Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 DNEL = Derived No Effect Level
 EUH statement = CLP-specific Hazard statement
 PNEC = Predicted No Effect Concentration
 RRN = REACH Registration Number

Key literature references and sources for data : Literature data and/or investigation reports are available through the manufacturer.

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Press. Gas Refr. Liq. Gas, H281	Expert judgment

Full text of abbreviated H statements : H281 Contains refrigerated gas; may cause cryogenic burns or injury.

Full text of classifications [CLP/GHS] : Press. Gas Refr. Liq. Gas, H281 GASES UNDER PRESSURE - Refrigerated liquefied gas

Full text of abbreviated R phrases : Not applicable.

Date of issue/Date of revision : 23 December 2011

Version : 1.1

10/11

SECTION 16: Other information

Full text of classifications [DSD/DPD] : Not applicable.

Training advice : Before handling this substance/preparation, the personnel involved should be instructed by means of this safety data sheet.

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Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.