



# SAFETY DATA SHEET

Page : 1/10

Revised edition no : 4.0

Revision date : 2024-02-02

Supersedes version of : 2023-01-23

**Cargal 1, Cargal 4, Arcal 22****NOAL\_1023**

Country : SE / Language : EN

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

### 1.1. Product identifier

Trade name : Cargal 1, Cargal 4, Arcal 22  
SDS no : NOAL\_1023

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

Relevant identified uses : Industrial and professional uses. Perform risk assessment prior to use.  
Industrial and professional use for chemical analysis, calibration, (routine) quality control, laboratory use, under controlled conditions.  
Contact supplier for more information on uses.

Uses advised against : Consumer use.  
Uses other than those listed above are not supported, contact your supplier for more information on other uses.

### 1.3. Details of the supplier of the safety data sheet

#### Company identification

##### Supplier

AIR LIQUIDE GAS AB  
Pulpetgatan 20  
215 37 Malmö - SWEDEN  
T +46 40 38 10 00  
[info.sweden@airliquide.com](mailto:info.sweden@airliquide.com)

E-Mail address (competent person) : eunordic-sds@airliquide.com

### 1.4. Emergency telephone number

Emergency telephone number : 112  
Availability  
(24 / 7)


Country	Organisation/Company	Address	Emergency number	Comment
Germany	Giftnotruf Erfurt Gemeinsames Giftinformationszentrum der Länder Mecklenburg-Vorpommern, Sachsen, Sachsen-Anhalt und Thüringen, c/o HELIOS Klinikum Erfurt	Nordhäuser Straße 74 99089 Erfurt	+49 (0) 361 730 730	

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

Physical hazards      Gases under pressure : Compressed gas      H280

	<b>SAFETY DATA SHEET</b>	Page : 2/10
		Revised edition no : 4.0
		Revision date : 2024-02-02
		Supersedes version of : 2023-01-23
<b>Cargal 1, Cargal 4, Arcal 22</b>		<b>NOAL_1023</b>
		Country : SE / Language : EN

2.2. Label elements

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

Hazard pictograms (CLP)



Signal word (CLP)

: Warning

Hazard statements (CLP)

: H280 - Contains gas under pressure; may explode if heated.

Precautionary statements (CLP)

- Storage

: P403 - Store in a well-ventilated place.

2.3. Other hazards

Asphyxiant in high concentrations.  
 Not classified as PBT or vPvB.  
 The substance/mixture has no endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

3.1. Substances
 Not established.

3.2. Mixtures


Name	Product identifier	Composition [V-%]:	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Argon	CAS-No.: 7440-37-1 EC-No.: 231-147-0 EC Index-No.: --- REACH-no: *1	92	Press. Gas (Comp.), H280
Oxygen	CAS-No.: 7782-44-7 EC-No.: 231-956-9 EC Index-No.: 008-001-00-8 REACH-no: *1	8	Ox. Gas 1, H270 Press. Gas (Comp.), H280

Full text of H- and EUH-statements: see section 16  
*Contains no other components or impurities which will influence the classification of the product.*  
 \*1: Listed in Annex IV / V REACH, exempted from registration.  
 \*3: Registration not required: Substance manufactured or imported < 1t/y.

SECTION 4: First aid measures

4.1. Description of first aid measures

- |                |  |
|----------------|--|
| - Inhalation   | : Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Perform cardiopulmonary resuscitation if breathing stopped. |
| - Skin contact | : Adverse effects not expected from this product.  |
| - Eye contact  | : Adverse effects not expected from this product.  |
| - Ingestion    | : Ingestion is not considered a potential route of exposure.   |

	<b>SAFETY DATA SHEET</b>	Page : 3/10
		Revised edition no : 4.0
		Revision date : 2024-02-02
		Supersedes version of : 2023-01-23
<b>Cargal 1, Cargal 4, Arcal 22</b>		<b>NOAL_1023</b>
		Country : SE / Language : EN

#### **4.2. Most important symptoms and effects, both acute and delayed**

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation.  
See section 11.

#### **4.3. Indication of any immediate medical attention and special treatment needed**

None.

### **SECTION 5: Firefighting measures**

#### **5.1. Extinguishing media**

- Suitable extinguishing media : Water spray or fog.  
Product does not burn, use fire control measures appropriate for the surrounding fire.
- Unsuitable extinguishing media : Do not use water jet to extinguish.

#### **5.2. Special hazards arising from the substance or mixture**

- Specific hazards : Exposure to fire may cause containers to rupture/explode.
- Hazardous combustion products : None.

#### **5.3. Advice for firefighters**

- Specific methods : Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems.  
If possible, stop flow of product.  
Use water spray or fog to knock down fire fumes if possible.  
Move containers away from the fire area if this can be done without risk.
- Special protective equipment for fire fighters : In confined space use self-contained breathing apparatus.  
Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.  
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.  
Standard EN 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves for firefighters.

### **SECTION 6: Accidental release measures**

#### **6.1. Personal precautions, protective equipment and emergency procedures**


- For non-emergency personnel : Act in accordance with local emergency plan.  
Try to stop release.  
Evacuate area.  
Ensure adequate air ventilation.  
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.  
Stay upwind.  
See section 8 of the SDS for more information on personal protective equipment
- For emergency responders : Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.  
Oxygen detectors should be used when asphyxiating gases may be released.  
See section 5.3 of the SDS for more information.

#### **6.2. Environmental precautions**

Try to stop release.

#### **6.3. Methods and material for containment and cleaning up**

Ventilate area.

	SAFETY DATA SHEET	Page : 4/10
		Revised edition no : 4.0
		Revision date : 2024-02-02
		Supersedes version of : 2023-01-23
Cargal 1, Cargal 4, Arcal 22		NOAL_1023
		Country : SE / Language : EN

6.4. Reference to other sections

See also sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling


Safe use of the product	: Do not breathe gas. Avoid release of product into atmosphere. The product must be handled in accordance with good industrial hygiene and safety procedures. Only experienced and properly instructed persons should handle gases under pressure. Consider pressure relief device(s) in gas installations. Ensure the complete gas system was (or is regularly) checked for leaks before use. Do not smoke while handling product. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Use only oxygen approved lubricants and oxygen approved sealings. Avoid suck back of water, acid and alkalis.
Safe handling of the gas receptacle	: Refer to supplier's container handling instructions. Do not allow backfeed into the container. Protect containers from physical damage; do not drag, roll, slide or drop. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use. If user experiences any difficulty operating valve discontinue use and contact supplier. Never attempt to repair or modify container valves or safety relief devices. Damaged valves should be reported immediately to the supplier. Keep container valve outlets clean and free from contaminants particularly oil and water. Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment. Close container valve after each use and when empty, even if still connected to equipment. Never attempt to transfer gases from one cylinder/container to another. Never use direct flame or electrical heating devices to raise the pressure of a container. Do not remove or deface labels provided by the supplier for the identification of the content of the container. Suck back of water into the container must be prevented. Open valve slowly to avoid pressure shock.

7.2. Conditions for safe storage, including any incompatibilities

Observe all regulations and local requirements regarding storage of containers.  
Containers should not be stored in conditions likely to encourage corrosion.  
Container valve guards or caps should be in place.  
Containers should be stored in the vertical position and properly secured to prevent them from falling over.  
Stored containers should be periodically checked for general condition and leakage.  
Keep container below 50°C in a well ventilated place.  
Store containers in location free from fire risk and away from sources of heat and ignition.  
Keep away from combustible materials.

7.3. Specific end use(s)

None.

	<b>SAFETY DATA SHEET</b>	Page : 5/10
		Revised edition no : 4.0
		Revision date : 2024-02-02
		Supersedes version of : 2023-01-23
<b>Cargal 1, Cargal 4, Arcal 22</b>		<b>NOAL_1023</b>
		Country : SE / Language : EN

**SECTION 8: Exposure controls/personal protection**

**8.1. Control parameters**

OEL (Occupational Exposure Limits)

: None available.

DNEL (Derived-No Effect Level)

: None available.

PNEC (Predicted No-Effect Concentration)

: None available.

**8.2. Exposure controls**

**8.2.1. Appropriate engineering controls**

Provide adequate general and local exhaust ventilation.

Systems under pressure should be regularly checked for leakages.

Oxygen detectors should be used when asphyxiating gases may be released.

Consider the use of a work permit system e.g. for maintenance activities.

**8.2.2. Individual protection measures, e.g. personal protective equipment**

A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk.

The following recommendations should be considered:

PPE compliant to the recommended EN/ISO standards should be selected.

• Eye/face protection

: Wear safety glasses with side shields.

Standard EN 166 - Personal eye-protection - specifications.

• Skin protection

- Hand protection

: Wear working gloves when handling gas containers.

Standard EN 388 - Protective gloves against mechanical risk, performance level 1 or higher.

- Other

: Wear safety shoes while handling containers.

Standard EN ISO 20345 - Personal protective equipment - Safety footwear.

• Respiratory protection

: Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.

When indicated by a risk assessment, Respiratory Protective Equipment must be used. The selection of the Respiratory Protective Device (RPD) must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected RPD.

Self contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres.

Self contained breathing apparatus is recommended, where unknown exposure may be expected, e.g. during maintenance activities on installation systems.

• Thermal hazards

: None in addition to the above sections.

**8.2.3. Environmental exposure controls**

None necessary.

**SECTION 9: Physical and chemical properties**

**9.1. Information on basic physical and chemical properties**

Appearance

- Physical state at 20°C / 101.3kPa

: Gas

- Colour

: Colourless

Odour

: Odourless.

Odour threshold is subjective and inadequate to warn of overexposure.

pH

: Not applicable for gases and gas mixtures.

Melting point / Freezing point

: Not applicable for gas mixtures.

Boiling point

: Not applicable for gas mixtures.

Flash point

: Not applicable for gases and gas mixtures.

Flammability

: Non flammable.

Explosive limits


: Non flammable.

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SE - en

5/10

	<b>SAFETY DATA SHEET</b>	Page : 6/10
		Revised edition no : 4.0
		Revision date : 2024-02-02
		Supersedes version of : 2023-01-23
<b>Cargal 1, Cargal 4, Arcal 22</b>		<b>NOAL_1023</b>
		Country : SE / Language : EN

Lower explosion limit	: Not available
Upper explosion limit	: Not available
Vapour pressure [20°C]	: Not applicable.
Vapour pressure [50°C]	: Not applicable.
Density	: Not applicable
Vapour density	: Not applicable for gases and gas mixtures.
Relative density, liquid (water=1)	: Not applicable
Relative density, gas (air=1)	: Heavier than air.
Water solubility	: Solubility in water of component(s) of the mixture : • Oxygen: 39 mg/l • Argon: 67.3 mg/l
Partition coefficient n-octanol/water (Log Kow)	: Not applicable for gas mixtures.
Auto-ignition temperature	: Non flammable.
Decomposition temperature	: Not applicable.
Viscosity, kinematic	: No reliable data available.
Particle characteristics	: Not applicable for gases and gas mixtures.

## 9.2. Other information

### 9.2.1. Information with regard to physical hazard classes

Explosive properties	: Not applicable.
Oxidising properties	: Not applicable.

### 9.2.2. Other safety characteristics

Molar mass	: Not applicable for gas mixtures.
Evaporation rate	: Not applicable for gases and gas mixtures.
Other data	: Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No reactivity hazard other than the effects described in sub-sections below.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

Reactivity	: None under normal use. : This mixture contains components with the following reactivity : Violently oxidises organic material.
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### 10.4. Conditions to avoid

Avoid moisture in installation systems.

### 10.5. Incompatible materials

For additional information on compatibility refer to ISO 11114.


### 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 hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity	: No toxicological effects from this product.
Skin corrosion/irritation	: No known effects from this product.

	<b>SAFETY DATA SHEET</b>	Page : 7/10
		Revised edition no : 4.0
		Revision date : 2024-02-02
		Supersedes version of : 2023-01-23
<b>Cargal 1, Cargal 4, Arcal 22</b>		<b>NOAL_1023</b>
		Country : SE / Language : EN

Serious eye damage/irritation	: No known effects from this product.
Respiratory or skin sensitisation	: No known effects from this product.
Germ cell mutagenicity	: No known effects from this product.
Carcinogenicity	: No known effects from this product.
Toxic for reproduction : Fertility	: No known effects from this product.
Toxic for reproduction : unborn child	: No known effects from this product.
STOT-single exposure	: No known effects from this product.
STOT-repeated exposure	: No known effects from this product.
Aspiration hazard	: Not applicable for gases and gas mixtures.

11.2. Information on other hazards

Other information	: The substance/mixture has no endocrine disrupting properties.
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SECTION 12: Ecological information

12.1. Toxicity

Assessment	: No ecological damage caused by this product.
EC50 48h - Daphnia magna [mg/l]	: No data available.
EC50 72h - Algae [mg/l]	: No data available.
LC50 96 h - Fish [mg/l]	: No data available.

12.2. Persistence and degradability

Assessment	: No ecological damage caused by this product.
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12.3. Bioaccumulative potential

Assessment	: No data available.
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12.4. Mobility in soil

Assessment	: Because of its high volatility, the product is unlikely to cause ground or water pollution. Partition into soil is unlikely.
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12.5. Results of PBT and vPvB assessment

Assessment	: Not classified as PBT or vPvB.
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12.6. Endocrine disrupting properties

The substance/mixture has no endocrine disrupting properties.

12.7. Other adverse effects

Other adverse effects	: No known effects from this product.
Effect on the ozone layer	: None.
Effect on global warming	: No known effects from this product.


SECTION 13: Disposal considerations

13.1. Waste treatment methods

	May be vented to atmosphere in a well ventilated place. Do not discharge into any place where its accumulation could be dangerous. Return unused product in original container to supplier.
List of hazardous waste codes (from Commission Decision 2000/532/EC as amended)	: 16 05 05 : Gases in pressure containers other than those mentioned in 16 05 04.

13.2. Additional information

External treatment and disposal of waste should comply with applicable local and/or national regulations.

	<b>SAFETY DATA SHEET</b>	Page : 8/10
		Revised edition no : 4.0
		Revision date : 2024-02-02
		Supersedes version of : 2023-01-23
<b>Cargal 1, Cargal 4, Arcal 22</b>		<b>NOAL_1023</b>
		Country : SE / Language : EN

**SECTION 14: Transport information**

**14.1. UN number or ID number**

In accordance with ADR / RID / IMDG / IATA / ADN  
UN-No. : 1956

**14.2. UN proper shipping name**

Transport by road/rail (ADR/RID) : COMPRESSED GAS, N.O.S. (Argon, Oxygen)  
Transport by air (ICAO-TI / IATA-DGR) : Compressed gas, n.o.s. (Argon, Oxygen)  
Transport by sea (IMDG) : COMPRESSED GAS, N.O.S. (Argon, Oxygen)

**14.3. Transport hazard class(es)**

**Labelling**



2.2 : Non-flammable, non-toxic gases.

**Transport by road/rail (ADR/RID)**

Class : 2  
Classification code : 1A  
Hazard identification number : 20  
Tunnel Restriction : E - Passage forbidden through tunnels of category E

**Transport by air (ICAO-TI / IATA-DGR)**

Class / Div. (Sub. risk(s)) : 2.2

**Transport by sea (IMDG)**

Class / Div. (Sub. risk(s)) : 2.2  
Emergency Schedule (EmS) - Fire : F-C  
Emergency Schedule (EmS) - Spillage : S-V

**14.4. Packing group**

Transport by road/rail (ADR/RID) : Not established.  
Transport by air (ICAO-TI / IATA-DGR) : Not established.  
Transport by sea (IMDG) : Not established.

**14.5. Environmental hazards**

Transport by road/rail (ADR/RID) : None.  
Transport by air (ICAO-TI / IATA-DGR) : None.  
Transport by sea (IMDG) : None.

**14.6. Special precautions for user**


**Packing Instruction(s)**

Transport by road/rail (ADR/RID) : P200  
Transport by air (ICAO-TI / IATA-DGR)  
    Passenger and Cargo Aircraft : 200.  
    Cargo Aircraft only : 200.  
Transport by sea (IMDG) : P200

**Special transport precautions**

: Avoid transport on vehicles where the load space is not separated from the driver's compartment.  
Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.  
Before transporting product containers:  
- Ensure there is adequate ventilation.  
- Ensure that containers are firmly secured.  
- Ensure valve is closed and not leaking.  
- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.  
- Ensure valve protection device (where provided) is correctly fitted.



	<b>SAFETY DATA SHEET</b>	Page : 9/10
		Revised edition no : 4.0
		Revision date : 2024-02-02
		Supersedes version of : 2023-01-23
<b>Cargal 1, Cargal 4, Arcal 22</b>		<b>NOAL_1023</b>
		Country : SE / Language : EN

**14.7. Maritime transport in bulk according to IMO instruments**

Not applicable.

**SECTION 15: Regulatory information**

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

**EU-Regulations**

Restrictions on use : None.  
Contains no substance(s) listed on the REACH Candidate List

National legislation : Ensure all national/local regulations are observed.

Seveso Directive : 2012/18/EU (Seveso III) : Not covered.

**National regulations**

Ensure all national/local regulations are observed.

**Germany**

Water hazard class (WGK) : WGK nwg, Non-hazardous to water (Classification according to AwSV, Annex 1)

National Rules and Recommendations : [German regulations] BetriebssicherheitsV mit TRBSen insbesondere TRBS 3145 / TRGS 725 Ortsbewegliche Druckgasbehälter", TRBS 2141, BGR Regel 500 Teil 2.33: "Umgang mit Gasen", GefahrstoffV mit Technischen Regeln Gefährliche Stoffe TRGS insbesondere TRGS 407 "Tätigkeiten mit Gasen - Gefährdungsbeurteilung", TRGS 400, 500, 510, 900."

**Netherlands**

SZW-lijst van kankerverwekkende stoffen : None of the components are listed

SZW-lijst van mutagene stoffen : None of the components are listed

SZW-lijst van reprotoxische stoffen – Borstvoeding : None of the components are listed

SZW-lijst van reprotoxische stoffen – : None of the components are listed

Vruchtbaarheid

SZW-lijst van reprotoxische stoffen – Ontwikkeling : None of the components are listed


**15.2. Chemical safety assessment**

A CSA does not need to be carried out for this product.

**SECTION 16: Other information**

Indication of changes : Safety data sheet in accordance with commission regulation (EU) No 2020/878.

Section	Changed item	Change	Comments
1.3	Company	Modified	Version 4.0. New address in Sweden. (This change only applies to the Swedish (SE) version of this SDS)

	SAFETY DATA SHEET	Page : 10/10
		Revised edition no : 4.0
		Revision date : 2024-02-02
		Supersedes version of : 2023-01-23
Cargal 1, Cargal 4, Arcal 22		NOAL_1023
		Country : SE / Language : EN

Abbreviations and acronyms	: ATE - Acute Toxicity Estimate CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008 REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006 EINECS - European Inventory of Existing Commercial Chemical Substances CAS# - Chemical Abstract Service number PPE - Personal Protection Equipment LC50 - Lethal Concentration to 50 % of a test population RMM - Risk Management Measures PBT - Persistent, Bioaccumulative and Toxic vPvB - Very Persistent and Very Bioaccumulative STOT- SE : Specific Target Organ Toxicity - Single Exposure CSA - Chemical Safety Assessment EN - European Standard UN - United Nations ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road IATA - International Air Transport Association IMDG code - International Maritime Dangerous Goods RID - Regulations concerning the International Carriage of Dangerous Goods by Rail WGK - Water Hazard Class STOT - RE : Specific Target Organ Toxicity - Repeated Exposure UFI : Unique Formula Identifier
Training advice	: The hazard of asphyxiation is often overlooked and must be stressed during operator training. For more guidance, refer to EIGA SL 01 "Dangers of Asphyxiation", downloadable at <a href="http://www.eiga.eu">http://www.eiga.eu</a> .
Further information	: Classification using data from databases maintained by the European Industrial Gases Association (EIGA). Data is maintained in EIGA doc 169 : 'Classification and Labelling Guide', downloadable at : <a href="http://www.eiga.eu">http://www.eiga.eu</a> . Classification in accordance with the procedures and calculation methods of Regulation (EC) 1272/2008 (CLP).

Full text of H- and EUH-statements	
H270	May cause or intensify fire; oxidiser.
H280	Contains gas under pressure; may explode if heated.
Ox. Gas 1	Oxidising Gases, Category 1
Press. Gas (Comp.)	Gases under pressure : Compressed gas

DISCLAIMER OF LIABILITY	: Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out. Details given in this document are believed to be correct at the time of going to press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.
<b>End of document</b>	