

Safety Data Sheet

SH-3, SH-5

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Issue date: 5/29/2024 Revision date: 5/28/2024 Supersedes version of: 3/5/2021 Version: 2.3

Danger



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

1.1. Product identifier

SDS no : AWO015

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.
Test gas/Calibration gas.
Laboratory use.
Contact supplier for more information on uses.

1.3. Details of the supplier of the safety data sheet

Woiikoski Oy
PL1
52020 Woiikoski, Finland
Finland
T +358 40 166 2023
asiakaspalvelu@woikoski.fi, www.woikoski.fi

1.4. Emergency telephone number

Country/Area	Organisation/Company	Address	Emergency number	Comment
	Myrkytystietokeskus Giftinformationscentralen, Poison Information Centre	P.O.B 790 (Tukholmankatu 17) HUS SF - 00029 Helsinki	+358 9 471 977	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Physical hazards Flammable gases, Category 1B H221
Gases under pressure : Compressed gas H280

2.2. Label elements

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

Hazard pictograms (CLP) :



GHS02

GHS04

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H221 - Flammable gas.
H280 - Contains gas under pressure; may explode if heated.

Precautionary statements (CLP)

- Storage

: P403 - Store in a well-ventilated place.

Safety Data Sheet

SH-3, SH-5

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

2.3. Other hazards

Asphyxiant in high concentrations.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP] ATE, EUH-statements, M-Factors
Argon	CAS-No.: 7440-37-1 EC-No.: 231-147-0 EC Index-No.: --- REACH-no: *1		Press. Gas (Comp.), H280
hydrogen	CAS-No.: 1333-74-0 EC-No.: 215-605-7 EC Index-No.: 001-001-00-9 REACH-no: *1		Flam. Gas 1A, H220 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
 - : Allow affected person to breathe fresh air.
 - Allow the victim to rest.
 - 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
 - : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.
- Eye contact
 - : Rinse immediately with plenty of water.
 - Obtain medical attention if pain, blinking or redness persists.
- Ingestion
 - : Rinse mouth.
 - Do NOT induce vomiting.
 - Obtain emergency medical attention.

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 | : Foam.
Dry powder.
Carbon dioxide.
Water spray.
Sand. |
| - Unsuitable extinguishing media | : Do not use a heavy water stream.
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. |
| 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 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves for firefighters.
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask. |

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- | | |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Try to stop release.
Evacuate area.
Monitor concentration of released product.
Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
Ensure adequate air ventilation. |
| For non-emergency personnel | : Evacuate unnecessary personnel. |
| For emergency responders | : Ventilate area. |

6.2. Environmental precautions

- Prevent entry to sewers and public waters.
Notify authorities if liquid enters sewers or public waters.
Try to stop release.

6.3. Methods and material for containment and cleaning up

- Ventilate area.

6.4. Reference to other sections

- See Section 8.
Exposure controls and personal protection.
See also sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Safe use of the product

- : 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.

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.
Containers should be stored in the vertical position and properly secured to prevent them from falling over.

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.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information 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.
Ensure exposure is below occupational exposure limits (where available).
Oxygen detectors should be used when asphyxiating gases may be released.
Consider the use of a work permit system e.g. for maintenance activities.



Safety Data Sheet

SH-3, SH-5

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

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
 - : Chemical goggles or safety glasses.
 - Wear safety glasses with side shields.
 - Standard EN 166 - Personal eye-protection - specifications.
 - Skin protection
 - Hand protection
 - : Wear working gloves when handling gas containers.
 - Wear protective gloves.
 - Standard EN 388 - Protective gloves against mechanical risk, performance level 1 or higher.
 - Other
 - : Do not eat, drink or smoke during use.
 - Wear safety shoes while handling containers.
 - Standard EN ISO 20345 - Personal protective equipment - Safety footwear.
 - Respiratory protection
 - : Wear appropriate mask.
 - Thermal hazards
 - : None necessary.

8.2.3. Environmental exposure controls

Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

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	: characteristic.
Melting point / Freezing point	: Not applicable for gas mixtures.
Boiling point	: Not applicable for gas mixtures. It is technically not possible to determine the boiling point or range of this mixture. Component with lowest boiling point: : hydrogen -253 °C
Flammability	: Flammability range not available. Non flammable.
Lower explosion limit	: Not available
Upper explosion limit	: Upper explosion limit: No test data or calculation method available.
Flash point	: Not applicable for gas mixtures.
Auto-ignition temperature	: Auto ignition temperature for mixtures is not available Component with lowest auto-ignition temperature :: hydrogen 560 °C
Decomposition temperature	: Not available
pH	: Not applicable for gas mixtures.
Viscosity, kinematic	: Not applicable.
Water solubility [20°C]	: Mixture is partially soluble in water
Partition coefficient n-octanol/water (Log Kow)	: Not applicable for gas mixtures.
Vapour pressure [20°C]	: Not applicable.
Vapour pressure [50°C]	: Not available
Density and/or relative density	: Not applicable.
Relative vapour density (air=1)	: Heavier than air.
Particle characteristics	: Not applicable.

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Explosive properties	: Not applicable.
Explosion limits	: Not applicable for gas mixtures.
Oxidising properties	: None.

9.2.2. Other safety characteristics

Molar mass	: Not applicable for gas mixtures.
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Safety Data Sheet

SH-3, SH-5

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Evaporation rate : Not applicable for gas mixtures.
Other data : None.

SECTION 10: Stability and reactivity

10.1. Reactivity

No reactivity hazard other than the effects described in sub-sections below.
This mixture contains components with the following reactivity : Can form explosive mixture with air. May react violently with oxidants.

10.2. Chemical stability

Not established.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).
Direct sunlight.
Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids.
Strong bases.
For additional information on compatibility refer to ISO 11114.

10.6. Hazardous decomposition products

fume.
Carbon monoxide.
Carbon dioxide.

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.
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

Potential adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity

Assessment : Classification criteria are not met.
EC50 48h - Daphnia magna : No data available.
EC50 72h Algae : No data available.
LC50-96 h - fish : No data available.

Argon (7440-37-1)	
EC50 48h - Daphnia magna	No data available.
EC50 72h Algae	No data available.
LC50-96 h - fish	No data available.

hydrogen (1333-74-0)	
EC50 48h - Daphnia magna	No data available.
EC50 72h Algae	No data available.
LC50-96 h - fish	No data available.

12.2. Persistence and degradability

Assessment : Not established. No data available.

12.3. Bioaccumulative potential

Assessment : Not established.

12.4. Mobility in soil

Assessment : No data available.

12.5. Results of PBT and vPvB assessment

Assessment : No data available.

12.6. Endocrine disrupting properties

Assessment :

12.7. Other adverse effects

Effect on the ozone layer : None.

Effect on global warming : Contains greenhouse gas(es).

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Contact supplier if guidance is required.

Do not discharge into any place where its accumulation could be dangerous.

Ensure that the emission levels from local regulations or operating permits are not exceeded.

Refer to the EIGA code of practice Doc.30 "Disposal of Gases", downloadable at <http://www.eiga.eu> for more guidance on suitable disposal methods.

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

None.

SECTION 14: Transport information

14.1. UN number or ID number

In accordance with ADR / RID / IMDG / IATA / ADN

UN-No. : 1954

Safety Data Sheet

SH-3, SH-5

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

14.2. UN proper shipping name

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

14.3. Transport hazard class(es)

Labelling



2.1 : Flammable gases.

Transport by road/rail (ADR/RID)

Class	: 2
Classification code	: 1F
Hazard identification number	: 23
Tunnel Restriction	: B/D - Tank carriage: Passage forbidden through tunnels of category B, C, D and E. Other carriage: Passage forbidden through tunnels of category D and E

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

Class / Div. (Sub. risk(s))	: 2.1
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Transport by sea (IMDG)

Class / Div. (Sub. risk(s))	: 2.1
Emergency Schedule (EmS) - Fire	: F-D
Emergency Schedule (EmS) - Spillage	: S-U

14.4. Packing group

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

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	: Forbidden.
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.

14.7. Maritime transport in bulk according to IMO instruments

Not applicable.

Safety Data Sheet

SH-3, SH-5

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

SECTION 15: Regulatory information

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

EU-Regulations

- Restrictions on use : Contains no substance on the REACH candidate list.
- Other information, restriction and prohibition regulations : Ensure all national/local regulations are observed.
Contains no substance subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.
- Seveso Directive : 2012/18/EU (Seveso III) : Not covered.

National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

- Indication of changes : Safety data sheet in accordance with commission regulation (EU) No 2020/878.
- Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.
- Training advice : Receptacle under pressure.
- Further information : This Safety Data Sheet has been established in accordance with the applicable European Union legislation.
Classification in accordance with the procedures and calculation methods of Regulation (EC) 1272/2008 (CLP).

Full text of H- and EUH-statements

Flam. Gas 1A	Flammable gases, Category 1A
Flam. Gas 1B	Flammable gases, Category 1B
H220	Extremely flammable gas.
H221	Flammable gas.
H280	Contains gas under pressure; may explode if heated.
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.

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