SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended

CO 10 %;N2 90 %

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

1.1 Product identifier

Product name: CO 10 %;N2 90 %

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

Identified uses: Industrial and professional use for chemical analysis, calibration, (routine) quality control, laboratory use. Under controlled conditions.

Uses advised against Contact supplier for more information on uses. Uses other than those listed above are not supported.

1.3 Details of the supplier of the safety data sheet

Supplier

Linde Gas GmbH
Carl-von-Linde-Platz 1
A-4651 Stadl-Paura

Telephone: +43 50 4273

E-mail: office@at.linde-gas.com

1.4 Emergency telephone number: Emergency number UMCO: +49 89 220 61012 (German), +44 1865 407333 (English)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 as amended.

Physical Hazards

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

Health Hazards

Acute toxicity (Inhalation - gas)	Category 4	H332: Harmful if inhaled.
Toxic to reproduction	Category 1A	H360D: May damage the unborn child.
Specific Target Organ Toxicity - Repeated Exposure	Category 1	H372: Causes damage to organs through prolonged or repeated exposure.

2.2 Label Elements

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Signal Word: Danger

Hazard Statement(s):
H280: Contains gas under pressure; may explode if heated.
H332: Harmful if inhaled.
H360D: May damage the unborn child.
H372: Causes damage to organs through prolonged or repeated exposure.

Precautionary Statements

General None.

Prevention:
P202: Do not handle until all safety precautions have been read and understood.
P260: Do not breathe gas/vapors.

Response:
P304+P340+P315: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get immediate medical advice/attention.
P308+P313: IF exposed or concerned: Get medical advice/attention.

Storage: P403: Store in a well-ventilated place.

Disposal None.

Supplemental information
Restricted to professional users.
Restricted to professional users.

2.3 Other hazards

Endocrine disrupting properties-Toxicity
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Endocrine disrupting properties-Ecotoxicity
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical name	Chemical formula	Concentration	CAS-No.	EC No.	REACH Registration No.	M-Factor:	Notes
Carbon monoxide	CO	10%	630-08-0	211-128-3	01-2119480165-39	-	#
Nitrogen	N2	90%	7727-37-9	231-783-9	Listed in Annex IV/V of Regulation (EC) No 1907/2006 (REACH), exempted from registration.	-	

The concentrations of the components in the SDS header, product name on page one and in section 3.2 are in mol due to regulatory requirements.
All concentrations are nominal.
This substance has workplace exposure limit(s).
This substance is listed as SVHC.PBT: persistent, bioaccumulative and toxic substance.
vPvB: very persistent and very bioaccumulative substance.

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Classification

Chemical name	Classification		Notes
Carbon monoxide	CLP:	Classification: Flam. Gas: 1B: H221; Press. Gas: Compr. Gas: H280; Acute Tox.: 3: H331; STOT RE: 1: H372; Repr.: 1A: H360D; Supplemental label information: EIGA0803; Specific concentration limit: Specific target organ toxicity - repeated exposure Category 1, >= 10 %; Toxic to reproduction Category 1A, >= 0,3 %; Specific target organ toxicity - repeated exposure Category 2, >= 1 %; Acute toxicity, oral: None known. Acute toxicity, inhalation: LC 50: 1300 ppm Acute toxicity, dermal: None known.	
Nitrogen	CLP:	Classification: Press. Gas: Compr. Gas: H280; Supplemental label information: EIGA0357; Specific concentration limit: None known. Acute toxicity, oral: None known. Acute toxicity, inhalation: None known. Acute toxicity, dermal: None known.	

CLP: Regulation No. 1272/2008.

The full text for all H-statements is displayed in section 16.

SECTION 4: First aid measures

General: Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

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. Apply artificial respiration if breathing stopped.

Eye contact: Adverse effects not expected from this product.

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Skin Contact: Adverse effects not expected from this product.

Ingestion: Ingestion is not considered a potential route of exposure.

4.2 Most important symptoms and effects, both acute and delayed: May be harmful if inhaled. Danger of serious damage to health by prolonged exposure. Causes damage to organs.

4.3 Indication of any immediate medical attention and special treatment needed

Hazards: May be harmful if inhaled. Danger of serious damage to health by prolonged exposure. Causes damage to organs.

Treatment: None.

SECTION 5: Firefighting measures

General Fire Hazards: Heat may cause the containers to explode.

5.1 Extinguishing media

Suitable extinguishing media: Use water spray to reduce vapors or divert vapor cloud drift. Water. Dry powder. Foam. Carbon Dioxide.

Unsuitable extinguishing media: None.

5.2 Special hazards arising from the substance or mixture: Fire or excessive heat may produce hazardous decomposition products.

5.3 Advice for firefighters

Special fire-fighting procedures: In case of fire: Stop leak if safe to do so. Use of water may result in the formation of very toxic aqueous solutions. Keep run-off water out of sewers and water sources. Dike for water control. Continue water spray from protected position until container stays cool. Use extinguishants to contain the fire. Isolate the source of the fire or let it burn out.

Special protective equipment for fire-fighters: Gas tight chemically protective clothing (Type 1) in combination with self contained breathing apparatus.
Guideline: EN 943-2 Protective clothing against liquid and gaseous chemicals, aerosols and solid particles. Performance requirements for gas-tight (Type 1) chemical protective suits for emergency teams (ET)

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

Evacuate area. Provide adequate ventilation. Monitor the concentration of the released product. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. EN 137 Respiratory protective devices - Self-contained open-circuit compressed air breathing apparatus with full face mask - Requirements, testing, marking.

6.2 Environmental Precautions:

Prevent further leakage or spillage if safe to do so. Reduce vapour with fog or fine water spray. Keep run-off water out of sewers and water sources. Dike for water control.

6.3 Methods and material for containment and cleaning up:

Provide adequate ventilation. Wash contaminated equipment or sites of leaks with copious quantities of water.

6.4 Reference to other sections:

Refer to sections 8 and 13.

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SECTION 7: Handling and storage:

7.1 Precautions for safe handling:

Only experienced and properly instructed persons should handle gases under pressure. Avoid exposure - obtain special instructions before use. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Installation of a cross purge assembly between the container and the regulator is recommended. Excess pressure must be vented through an appropriate scrubber system. Refer to supplier's handling instructions. The substance must be handled in accordance with good industrial hygiene and safety procedures. Protect containers from physical damage; do not drag, roll, slide or drop. Do not remove or deface labels provided by the supplier for the identification of the container contents. When moving containers, even for short distances, use appropriate equipment eg. trolley, hand truck, fork truck etc. Secure cylinders in an upright position at all times, close all valves when not in use. Provide adequate ventilation. Suck back of water into the container must be prevented. Do not allow backfeed into the container. Avoid suckback of water, acid and alkalis. Keep container below 50°C in a well ventilated place. Observe all regulations and local requirements regarding storage of containers. When using do not eat, drink or smoke. Store in accordance with local/regional/national/international regulations. Never use direct flame or electrical heating devices to raise the pressure of a container. 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. Damaged valves should be reported immediately to the supplier Close container valve after each use and when empty, even if still connected to equipment. Never attempt to repair or modify container valves or safety relief devices. Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment. Keep container valve outlets clean and free from contaminates particularly oil and water. If user experiences any difficulty operating container valve discontinue use and contact supplier. Never attempt to transfer gases from one container to another. Container valve guards or caps should be in place.

7.2 Conditions for safe storage, including any incompatibilities:

Containers should not be stored in conditions likely to encourage corrosion. Keep away from food, drink and animal feeding stuffs. Stored containers should be periodically checked for general conditions and leakage. Container valve guards or caps should be in place. Store containers in location free from fire risk and away from sources of heat and ignition. Keep away from combustible material.

7.3 Specific end use(s):

None.

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SECTION 8: Exposure controls/personal protection

8.1 Control Parameters

Occupational Exposure Limits

Chemical name	Type	Form of exposure	Exposure Limit Values		Source
carbon monoxide	MAK		20 ppm	23 mg/m3	Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001, as amended (04 2021)
	MAK STEL 4x15 minutes/shift		60 ppm	66 mg/m3	Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001, as amended (04 2021)
	STEL		100 ppm	117 mg/m3	EU. Indicative Occupational Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, as amended (02 2017)
	TWA		20 ppm	23 mg/m3	EU. Indicative Occupational Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, as amended (02 2017)

Please refer to the latest edition of the appropriate source text and consult an industrial hygienist or similar professional, or local agencies, for further information.

Biological Limit Values

No biological exposure limits noted for the ingredient(s).

DNEL-Values

Critical component	Type	Value	Remarks
Carbon monoxide	Workers - Inhalation, Local, long-term	23 mg/m3	-
	Workers - Inhalation, Systemic, long-term	23 mg/m3	-
	Workers - Inhalation, Systemic, short-term	117 mg/m3	-
	Workers - Inhalation, Local, short-term	117 mg/m3	-

8.2 Exposure controls

Appropriate engineering controls:

Consider a work permit system e.g. for maintenance activities. Ensure adequate air ventilation. Provide adequate general and local exhaust ventilation. Keep concentrations well below occupational exposure limits. Gas detectors should be used when toxic quantities may be released. Systems under pressure should be regularly checked for leakages. Product to be handled in a closed system and under strictly controlled conditions. Only use permanent leak tight installations (e.g. welded pipes). Do not eat, drink or smoke when using the product.

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Individual protection measures, such as personal protective equipment

General information:
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. Keep self contained breathing apparatus readily available for emergency use. Keep suitable chemically resistant protective clothing readily available for emergency use. Personal protective equipment for the body should be selected based on the task being performed and the risks involved. Protect eyes, face and skin from contact with product. Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

Eye/face protection:
Wear eye protection to EN 166 when using gases.
Guideline: EN 166 Personal Eye Protection.

Skin protection

Hand Protection:
Guideline: EN 388 Protective gloves against mechanical risks.
Additional Information: Wear working gloves while handling containers
Guideline: EN 374-1/2/3 Protective gloves against chemicals and micro-organisms.
Additional Information: Chemically resistant gloves complying with EN 374 should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Body protection:
No special precautions.

Other:
Wear safety shoes while handling containers
Guideline: ISO 20345 Personal protective equipment - Safety footwear.

Respiratory Protection:
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. When allowed by a risk assessment Respiratory Protective Equipment (RPE) may 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
Guideline: EN 137 Respiratory protective devices - Self-contained open-circuit compressed air breathing apparatus with full face mask - Requirements, testing, marking.

Thermal hazards:
No precautionary measures are necessary.

Hygiene measures:
Obtain special instructions before use. Specific risk management measures are not required beyond good industrial hygiene and safety procedures. Do not eat, drink or smoke when using the product.

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Environmental exposure controls: For waste disposal, see section 13 of the SDS.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state:	Gas
Form:	Compressed gas
Color:	CO: Colorless N2: Colorless
Odor:	CO: Odorless N2: Odorless gas
Odor Threshold:	Odor threshold is subjective and is inadequate to warn of over exposure.
Melting Point:	No data available.
Boiling Point:	No data available.
Flammability:	This product is not flammable.

Upper/lower limit on flammability or explosive limits

Explosive limit - upper:	Not applicable
Explosive limit - lower:	Not applicable
Flash Point:	Not applicable to gases and gas mixtures.
Autoignition Temperature:	Not applicable.
Decomposition Temperature:	Not known.
pH:	Not applicable

Viscosity

Dynamic viscosity:	No data available.
Kinematic viscosity:	No data available.

Solubility(ies)

Solubility in Water:	No data available.
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	Not known.
Dispersion Stability:	No data available.
Vapor pressure:	No reliable data available.
Relative density:	No data available.
Density:	No data available.
Relative vapor density:	0,99 (calculated) 59 °F/15 °C
Particle characteristics:	Not applicable

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SECTION 10: Stability and reactivity

10.1 Reactivity: No reactivity hazard other than the effects described in sub-section below.

10.2 Chemical Stability: Stable under normal conditions.

10.3 Possibility of hazardous reactions: No data available.

10.4 Conditions to avoid: Avoid moisture in the installation.

10.5 Incompatible Materials: Moisture. For material compatibility see latest version of 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

General information: Carbon monoxide: Has been shown to produce adverse effects to the cardiovascular, central nervous, and reproductive systems in laboratory animals and chronically exposed humans.

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity - Oral
Product Based on available data, the classification criteria are not met.

Acute toxicity - Dermal
Product Based on available data, the classification criteria are not met.

Acute toxicity - Inhalation
Product
Gas: ATEmix (4 h): 13000 ppm Harmful if inhaled.

Component Information
Carbon monoxide
LC 50 (Rat, 4 h): 1300 ppm
LC 50 (Rat, 1 h): 3760 ppm

Repeated dose toxicity
Component Information
Carbon monoxide
LOAEL (Rat(Female), Inhalation, 72 Weeks): 200 ppm(m) Inhalation Experimental result, Key study
LOAEC (Rat, Inhalation): 200 ppm (Target Organ(s): Respiratory system)

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Skin Corrosion/Irritation

Product Based on available data, the classification criteria are not met.

Component Information

Carbon monoxide Not classified as an irritant.

Serious Eye Damage/Eye Irritation

Product Based on available data, the classification criteria are not met.

Component Information

Carbon monoxide Not classified as an irritant.

Respiratory or Skin Sensitization

Product Based on available data, the classification criteria are not met.

Component Information

Carbon monoxide No known effects from this product.

Germ Cell Mutagenicity

Product Based on available data, the classification criteria are not met.

Component Information

Carbon monoxide There is no evidence of mutagenic potential.

Carcinogenicity

Product Based on available data, the classification criteria are not met.

Component Information

Carbon monoxide No evidence of carcinogenic effects.

Reproductive toxicity

Product May damage fertility or the unborn child.

Component Information

Carbon monoxide May damage fertility or the unborn child.

Reproductive toxicity (Fertility)

Component Information

Carbon monoxide	NOAEC (embryotoxicity): 65 ppm

Developmental toxicity (Teratogenicity)

Component Information

Carbon monoxide	LOAEC: 125 ppm

Specific Target Organ Toxicity - Single Exposure

Product	Based on available data, the classification criteria are not met.

Component Information

Carbon monoxide	Route of Exposure: Inhalation Target Organ(s): Blood Causes damage to red blood cells (haemolytic poison). Carbon monoxide binds reversibly to haemoglobin (Hb) to form carboxyhaemoglobin (CoHb), reducing the capacity of the blood to transport oxygen.

Specific Target Organ Toxicity - Repeated Exposure

Product	Causes damage to organs through prolonged or repeated exposure.

Component Information

Carbon monoxide	Route of Exposure: Inhalation Target Organ(s): Heart Risk of serious health injuries in case of long term exposure.

Aspiration Hazard

Product	Not applicable to gases and gas mixtures..

11.2 Information on other hazards

Endocrine disrupting properties

Product:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.;
Components:	
Carbon monoxide	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.;

Nitrogen	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.;

Other information

Product: No data available.

SECTION 12: Ecological information

General information: Not applicable Not applicable

12.1 Toxicity

Acute toxicity

Product No ecological damage caused by this product.

Acute toxicity - Fish

Component Information

Carbon monoxide: LC 50 (Fish (no species mentioned)): 672,6 mg/l Remarks: QSAR QSAR, Supporting study

Acute toxicity - Aquatic Invertebrates

Component Information

Carbon monoxide: LC 50 (48 h): 307,5 mg/l Remarks: QSAR QSAR, Supporting study

12.2 Persistence and Degradability

Product Not applicable to gases and gas mixtures..

Component Information

Carbon monoxide: Will not undergo hydrolysis.

Biodegradation

Component Information

Carbon monoxide: Not readily biodegradable. Inorganic compound.

12.3 Bioaccumulative potential

Product The subject product is expected to biodegrade and is not expected to persist for long periods in an aquatic environment.

Component Information

Carbon monoxide: Because of the low log Kow, accumulation in organisms is not expected.

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12.4 Mobility in soil

Product: Because of its high volatility, the product is unlikely to cause ground or water pollution.

Component Information

Carbon monoxide: Because of its high volatility, the product is unlikely to cause ground or water pollution.

12.5 Results of PBT and vPvB assessment

Product: Not classified as PBT or vPvB.

12.6 Endocrine disrupting properties:

Product: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Components:

Carbon monoxide: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Nitrogen: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects:

Other hazards

Product: No data available.

Other effects: No ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

General information: Avoid discharges to atmosphere. Consult supplier for specific recommendations.

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Disposal methods: Refer to the EIGA code of practice (Doc.30 "Disposal of Gases", downloadable at http://www.eiga.org) for more guidance on suitable disposal methods. Dispose of container via supplier only. Discharge, treatment, or disposal may be subject to national, state, or local laws.

European Waste Codes
Container: 16 05 04*: Gases in pressure containers (including halons) containing hazardous substances.

SECTION 14: Transport information

ADR

14.1 UN number or ID number:	UN 1956
14.2 UN Proper Shipping Name:	COMPRESSED GAS, N.O.S.(Nitrogen, Carbon Monoxide)
14.3 Transport Hazard Class(es)	
Class:	2
Label(s):	2.2
Hazard No. (ADR):	20
Tunnel restriction code:	(E)
14.4 Packing Group:	–
Limited quantity	120,00ML
Excepted quantity	E1
14.5 Environmental hazards:	Not applicable
14.6 Special precautions for user:	–

RID

14.1 UN number or ID number:	UN 1956
14.2 UN Proper Shipping Name	COMPRESSED GAS, N.O.S.(Nitrogen, Carbon Monoxide)
14.3 Transport Hazard Class(es)	
Class:	2
Label(s):	2.2
14.4 Packing Group:	–
Limited quantity	120,00ML
Excepted quantity	E1
14.5 Environmental hazards:	Not applicable
14.6 Special precautions for user:	–

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IMDG

14.1 UN number or ID number:	UN 1956
14.2 UN Proper Shipping Name:	COMPRESSED GAS, N.O.S.(Nitrogen, Carbon Monoxide)
14.3 Transport Hazard Class(es)	
Class:	2.2
Label(s):	2.2
EmS No.:	F-C, S-V
14.4 Packing Group:	–
Limited quantity	120,00ML
Excepted quantity	E1
14.5 Environmental hazards:	Not applicable
14.6 Special precautions for user:	–

IATA

14.1 UN number or ID number:	UN 1956
14.2 Proper Shipping Name:	Compressed gas, n.o.s.(Nitrogen, Carbon Monoxide)
14.3 Transport Hazard Class(es):	
Class:	2.2
Label(s):	2.2
14.4 Packing Group:	–
Limited quantity	None.
Excepted quantity	E1
14.5 Environmental hazards:	Not applicable
14.6 Special precautions for user:	–
Other information	
Passenger and cargo aircraft:	Allowed.
Cargo aircraft only:	Allowed.

14.7 Maritime transport in bulk according to IMO instruments
Not applicable for product as supplied.

Additional identification: 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 that they are firmly secured. Ensure that the container valve is closed and not leaking. Container valve guards or caps should be in place. Ensure adequate air ventilation.

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SECTION 15: Regulatory information

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

EU Regulations

EU. REACH Annex XIV, Substances Subject to Authorization as amended: None present or none present in regulated quantities.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended: None present or none present in regulated quantities.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended: None present or none present in regulated quantities.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended: None present or none present in regulated quantities.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended: None present or none present in regulated quantities.

Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use:

The packaging shall be visibly, legibly and indelibly marked as follows:
Restricted to professional users.

Chemical name	CAS-No.
Carbon monoxide	630-08-0

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breast feeding.:

Chemical name	CAS-No.	Concentration
Carbon monoxide	630-08-0	10 - 20%

EU. Directive 2012/18/EU (SEVESO III) on major accident hazards involving dangerous substances, Annex I: Not applicable

Directive 98/24/EC on the protection of workers from the risks related to chemical agents at work:

Chemical name	CAS-No.	Concentration
Carbon monoxide	630-08-0	10 - 20%

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CO 10 %;N2 90 %

National Regulations

Council Directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work Directive 2016/425/EEC on personal protective equipment Only products that comply with the food regulations (EC) No. 1333/2008 and (EU) No. 231/2012 and are labelled as such may be used as food additives.
This Safety Data Sheet has been produced to comply with Regulation (EU) 2020/878.

15.2 Chemical safety assessment: No Chemical Safety Assessment has been carried out.

International regulations

Montreal protocol
Not applicable

Stockholm convention
Not applicable

Rotterdam convention
Not applicable

Kyoto protocol
Not applicable

SECTION 16: Other information

Revision Information: Not relevant.

Abbreviations and acronyms:

AT/MAK:	Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001, as amended
ECTLV:	EU. Indicative Occupational Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, as amended
AT/MAK / MAK:	Maximum allowable concentration:
AT/MAK / MAK STEL:	MAK Short Term Exposure Limit (STEL):
ECTLV / STEL:	Short Term Exposure Limit (STEL):
ECTLV / TWA:	Time Weighted Average (TWA):

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; EIGA - European Industrial Gases Association; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk;

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CO 10 %;N2 90 %

IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Key literature references and sources for data:

Various sources of data have been used in the compilation of this SDS, they include but are not exclusive to:
Agency for Toxic Substances and Diseases Registry (ATSDR) (http://www.atsdr.cdc.gov/).
European Chemical Agency: Guidance on the Compilation of Safety Data Sheets.
European Chemical Agency: Information on Registered Substances http://apps.echa.europa.eu/registered/registered-sub.aspx#search
European Industrial Gases Association (EIGA) Doc. 169 "Classification and Labelling guide", as amended.
International Programme on Chemical Safety (http://www.inchem.org/)
ISO 10156:2010 Gases and gas mixtures - Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets.
Matheson Gas Data Book, 7th Edition.
National Institute for Standards and Technology (NIST) Standard Reference Database Number 69.
The ESIS (European chemical Substances 5 Information System) platform of the former European Chemicals Bureau (ECB) ESIS (http://ecb.jrc.ec.europa.eu/esis/).
The European Chemical Industry Council (CEFIC) ERICards.
United States of America's National Library of Medicine's toxicology data network TOXNET (http://toxnet.nlm.nih.gov/index.html)
Threshold Limit Values (TLV) from the American Conference of Governmental Industrial Hygienists (ACGIH).
Substance specific information from suppliers.
Details given in this document are believed to be correct at the time of publication.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]

Classification according to Regulation (EC) No 1272/2008 as amended.	Classification procedure
Gases under pressure, Compressed gas	On basis of test data
Acute toxicity, Category 4	Calculation method

SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended

CO 10 %;N2 90 %

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Toxic to reproduction, Category 1A	On basis of test data
Specific Target Organ Toxicity - Repeated Exposure, Category 1	On basis of test data

Wording of the H-statements in section 2 and 3

H221	Flammable gas.
H280	Contains gas under pressure; may explode if heated.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H360D	May damage the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.

Training information: Users of breathing apparatus must be trained. Ensure operators understand the toxicity hazard.

Classification according to Regulation (EC) No 1272/2008 as amended.

Acute Tox. 4, H332

Repr. 1A, H360D

STOT RE 1, H372

Press. Gas Compr. Gas, H280

Other information: Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out. Ensure adequate air ventilation. Ensure all national/local regulations are observed. 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.

Last revised date: 08.01.2024

Disclaimer: This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.