



**2.1 Classification of the substance or mixture**

■ V4 Classification of the substance or mixture according to Regulation (EC) 1272/2008 and its amendments at the date of the issue of the document ■

Gases under pressure: refrigerated liquefied gas (Press. Gas.), H281 - Contains refrigerated gas; may cause cryogenic burns or injury.

**2.2 Label elements**

■ V4 Labelling in accordance with Regulation 1272/2008 (CLP) and its amendments at the date of the issue of the document ■

Hazard pictogram(s):



Signal word

Warning

Hazard statement(s):

H281

Contains refrigerated gas; may cause cryogenic burns or injury.

Precautionary statement(s):

P282  
P336  
P315  
P403

Wear cold insulating gloves, safety goggles or full-face mask.  
Thaw frosted parts with lukewarm water. Do not rub affected area.  
Get immediate medical advice/attention.  
Store indoor in a well ventilated place at a temperature not exceeding ■ V4 50 °C ■.

**2.3 Other hazards** - Not known

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**
**3.1 Substances**

CAS №	Name	Content, % (w/w)
124-38-9	Carbon dioxide	min. 99.95

**SECTION 4: FIRST- AID MEASURES**
**4.1 Description of first aid measures**

- general notes	In all cases of doubt or if symptoms persist, seek medical attention. Always call for help prior to helping the casualty.
- following inhalation:	Immediately remove casualty to fresh air. Low concentrations of carbon dioxide cause rapid breathing and headache. High concentrations cause suffocation. The casualty may not be aware of suffocation. If breathing has stopped, apply artificial resuscitation. If breathing is difficult, give oxygen. Seek medical advice immediately.
- following skin contact:	Contact with the vapour-liquid can cause frostbite. If clothes are soaked with the liquid and are stuck to the skin, first warm the affected area with lukewarm water and then remove clothing. Seek medical attention immediately.
- following eye contact:	Immediately rinse eyes for at least 15 minutes with plenty of water. Remove contact lenses if safe and easy to do so and continue rinsing. Open eyelids wide to allow for the liquid to evaporate. If the person cannot tolerate light, protect the eyes with a light bandage. Seek medical advice immediately. If medical help is not available immediately continue flushing for 15 minutes.
- following ingestion:	The ingestion is not considered a potential route of exposure.

- self-protection of the first aider	First aider must be adequately protected in order to avoid secondary exposure either by the victim or the environment
<b>4.2 Most important symptoms and effects, both acute and delayed</b>	
Respiratory arrest. Injury / frostbite of the skin due to rapid cooling by evaporation.	
<b>4.3 Indication of any immediate medical attention and special treatment needed</b>	
To implement general supportive measures and treat symptomatically	
<b>SECTION 5: FIRE - FIGHTING MEASURES</b>	
<b>5.1 Extinguishing media</b>	
Suitable:	The product is not flammable and not combustible. Use appropriate extinguishing media for surrounding fire. Cool tanks and bottles with water from a safety distance because exposure to fire tanks may rupture/explode
Not suitable:	Not known
<b>5.2 Special hazards arising from the substance or mixture</b>	
Incombustible. Stop leaking if safety to do. Move away or cool tanks and bottles with water from safety distance.	
<b>5.3 Advice for firefighters</b>	
Heat resistant personal protective equipment, gloves, boots and self-contained breathing apparatus.	
<b>SECTION 6: ACCIDENTAL RELEASE MEASURES</b>	
<b>6.1 Personal precautions, protective equipment and emergency procedures</b>	
Immediately evacuate the personnel, not occupied with the removal of the accident in the area. Eliminate all possible sources of fire and provide adequate ventilation. Stop the flow if possible. Isolate every leaking bottle. Personal protective equipment that should be available and used: gloves, protective goggles and filtering gas mask.	
<b>6.2 Environmental precautions</b>	
Try to stop leaking without risk. Inform local authority if some environmental compartment have been contaminated. ■	
<b>6.3 Methods and material for containment and cleaning up</b>	
Provide adequate ventilation.	
<b>6.4 Reference to other sections</b>	
See section 8 for personal protective equipment and section 13 for waste disposal and section 1 for emergency telephone number.	
<b>SECTION 7: HANDLING AND STORAGE</b>	
<b>7.1 Precautions for safe handling</b>	
Protective measures	Prevent water entering the container. Do not allow back feed in the vessel. Use only properly specified equipment which is suitable for this product, its supply temperature and pressure. Comply with the residual pressure requirement of 0.05 MPa. Protect cylinders from damage. Use a suitable handcart or trucks to move the bottles - no dragging, rolling, skating, and/or knocking the bottles. Never lift cylinders without safety caps. Never put objects inside the cap (eg. wrench, screwdriver, etc.) - this can cause damage to the valve. Open valve slowly to avoid pressure release. As soon as the container is disconnected from equipment place valve outlet caps and container caps. After each use and when container is empty close container valve even it still connected to equipment. Never attempt to transfer gases from one cylinder/container to another. Keep labels. When

	working provide grip the bottle to a stationary object or trolley.
Advice on general occupational hygiene	Work under a high standard of personal hygiene. Do not eat, drink or smoke in work areas. Wash hands after handling with the product. Remove clothing and protective equipment before visiting the catering.
<b>7.2 Conditions for safe storage, including any incompatibilities</b>	
Technical measures and storage conditions:	Keep away from sources of ignition and heat. Heating of bottles increases gas pressure. Store indoor in a well ventilated place at a temperature not exceeding <b>■ V4 50°C ■</b> . Full and empty containers should be stored separately. Protect cylinders from physical damage.
<b>SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION</b>	
<b>8.1 Control parameters</b>	
Regulated occupational exposure limit values:	EU – 9000 mg/m <sup>3</sup> for 8 hours exposure Directive 2006/15/EC
<b>8.2 Exposure controls</b>	
<b>8.2.1</b> Providing an adequate ventilation is a good industrial practice. Systems under pressure should be regularly checked	
<b>8.2.2 Individual protection measures, such as personal protective equipment</b>	
Eye/face protection:	Chemical goggles
Skin and body protection:	Working clothes, boots and cold insulating gloves
Respiratory protection:	Gas filter; self-contained breathing apparatus
<b>8.2.3 Environmental exposure controls</b> Greenhouse gas	
<b>SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES</b>	
<b>9.1 Information on basic physical and chemical properties</b>	
Appearance:	Colourless, clear liquid that evaporates as a colourless gas
Odour:	Odourless
Melting/Freezing temperature:	-56.6 °C
Boiling temperature:	-78.5 °C
Flash-point:	Not applicable
Flammability:	Non flammable
Vapour pressure:	5720 kPa
Relative density, gas (air = 1): Relative density, liquid (water = 1):	1.53 1.03
Solubility in water:	1.45 g/l
Partition coefficient n-octanol/water:	0.83
Auto ignition temperature:	Not applicable
Explosive properties:	Not explosive
Oxidizing properties:	Not oxidising
Viscosity:	Not applicable
Specific conductivity:	Not applicable

Surface tension:	Not applicable
<b>9.2 Other information</b>	
Critical temperature: 31.3 °C Critical pressure: 7.29 MPa	
<b>SECTION 10: STABILITY AND REACTIVITY</b>	
<b>10.1 Reactivity</b>	
Stable under recommended storage and handling conditions (see section 7, handling and storage).	
<b>10.2 Chemical stability</b>	
Stable under recommended storage and handling conditions (see section 7, handling and storage).	
<b>10.3 Possibility of hazardous reactions</b>	
There is no possibility of hazardous reactions to occur	
<b>10.4 Conditions to avoid</b>	
High temperatures and confined spaces.	
<b>10.5 Incompatible materials</b>	
Strong bases and alkaline metals. Different metal powder such as: magnesium, zirconium, titanium, aluminium, chrome and manganese are combustible and explosive when they are suspended and heated in carbon dioxide atmosphere.	
<b>10.6 Hazardous decomposition products</b>	
Carbon dioxide decomposes into carbon monoxide and oxygen at about 1200 °C	
<b>SECTION 11: TOXICOLOGICAL INFORMATION</b>	
<b>11.1 Information on toxicological effects</b>	
Acute Toxicity	May cause nausea, dizziness, headache, decreased mental alertness, elevated blood pressure and shortness of breath at concentrations between 2 and 10 vol. %. More than 8 vol. % cause nausea and vomiting. More than 10 vol. % may cause burns and about 20 vol.% - paralysis of the respiratory center and death.
Skin corrosion/irritation	No data available
Serious eye damage/irritation	No data available
Germ cell mutagenicity	No data available
Carcinogenicity	No data available
Reproductive toxicity	No data available
STOT-single exposure	No data available
STOT-repeated exposure	No data available
<b>SECTION 12: ECOLOGICAL INFORMATION</b>	
<b>12.1 Toxicity</b>	
The product is not toxic	
1. Lower concentrations affect plants in a positive way and higher concentrations during the day have positive influence (assist photosynthesis) but during the night they have negative effect like difficult breathing.	
2. Impact on earth living organisms is the same as on human. Higher content in the air may lead to suffocation and subsequent death of living organisms.	

**12.2 Bioaccumulative potential**

The product does not show any bioaccumulation properties.

**12.3 Results of PBT and vPvB assessment**

Not classified as hazardous

**12.4 Other adverse effects**

Release of large amounts may assist the greenhouse effect

**SECTION 13: DISPOSAL CONSIDERATIONS**

Waste treatment methods:

Do not discharge large amounts into the atmosphere as well as in places where its accumulation could be dangerous.

Package waste disposal:

Return bottles to the supplier, as comply with the residual pressure of 0.05 MPa.

**SECTION 14: TRANSPORT INFORMATION**

■V3 14.1 UN No. **2187**

ADR/RID, IMDG, IATA Labelling



**2.2: Non flammable, non toxic gas**

**14.2 UN proper shipping name**

**ADR/RID, IATA: CARBON DIOXIDE, REFRIGERATED LIQUID  
IMDG: CARBON DIOXIDE**

**14.3 Transport hazard class(es)**

ADR/RID

Class: 2  
Classification code: 3A  
Hazard identification number: 22  
Tunnel Restriction: C/E

IATA

Class: 2  
IMDG  
Class: 2  
EmS: F-C, S-V

**14.4 Packing group**

ADR/RID, IATA, IMDG: not applicable

**14.5 Environmental hazards – none**

**14.6 Special precautions for users**

Packing group: P203

**14.7 Transport in bulk according to Annex II of Marpol and the IBC Code - not applicable**

**SECTION 15: REGULATORY INFORMATION**

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

EU regulations: Regulation EC 1907/2006 (REACH), Regulation EC 1272/2008 (CLP), Directive 98/24 EC, Directive 2006/15/EC

\* Regulations / legislation and amendments to the date of issue of the document are indicated

15.2 Chemical safety assessment:	Does not required for this product
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**SECTION 16. OTHER INFORMATION**

**Indication of changes:** Changes of the last version are highlighted with **■ V4...■**. This version replaces all previous versions.

The information above is on the basis of our knowledge about the product and represents the data currently available to us t the moment of safety data sheet issue. This document is intended as guidance for the appropriate precautionary handling with the product by a properly trained person using this product, and does not legally bind in no way manufacturer with guarantee for specific properties, qualities and applications.

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