




Gases under pressure: refrigerated liquefied gas (Press. Gas.), H281 - Contains refrigerated gas; may cause cryogenic burns or injury.		
<b>2.2 Label elements</b>		
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 50 °C.
<b>2.3 Other hazards</b> - Not known		
<b>SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS</b>		
<b>3.1 Substances</b>		
<b>CAS №</b>	<b>Name</b>	<b>Content, % (v/v)</b>
124-38-9	Carbon dioxide	min. 99.95
<b>SECTION 4: FIRST- AID MEASURES</b>		
<b>4.1 Description of first aid measures</b>		
- general notes	<p>■ <b>V5</b> Speed is essential. If unconscious, place casualty in a recovery position with head sideways to avoid choking. ■ In all cases of doubt or if symptoms persist, seek medical attention. Always call for help prior to helping the casualty.</p>	
- following inhalation:	<p>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.</p>	
- following skin contact:	<p>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. ■ <b>V5 DO NOT USE HOT WATER</b>. ■ Seek medical attention immediately.</p>	
- following eye contact:	<p>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.</p>	
- following ingestion:	<p>The ingestion is not considered a potential route of exposure.</p>	

- 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:	unknown
<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>	
<p>■ <b>V5 6.1.1 For non-emergency personal</b></p> <p>Protective equipment: Wear suitable personal protective equipment (listed in Section 8 on the safety data sheet)</p> <p>Emergency procedures: All activities should be carried out by well-trained staff. Do not allow untrained and unprotected personnel in the area or personnel not involved in the elimination of an incident and its consequences. Eliminate all possible sources of fire and provide adequate ventilation. Stop the leakage if possible. Isolate every leaking bottle. Prevent entry into sewers, basements, and other areas where accumulation may be hazardous. Stay upwind. Act in accordance with emergency plan</p> <p><b>6.1.2 For emergency responders</b> Specially resistant to high temperature clothing, gloves, boots, self-contained breathing apparatus■.</p>	
<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	<p>■ <b>V5</b> Only experienced and properly instructed persons should handle gases under pressure. 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.</p>
Advice on general occupational hygiene	<p>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.</p>

## 7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions:	<p>Store 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 50°C. Protect cylinders from physical damage. Keep away from direct sunlight. Full and empty containers should be stored separately and ■ <b>V5</b> should be well secured. Full bottles with supports should be kept upright, securing against falling through suitable devices.</p> <p>In the areas of storage and use, signs should be affixed: "No smoking and no light the fire".</p> <p>Do not transport bottles indoors (eg car trunk) ■.</p>
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## SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1 Control parameters

Regulated occupational exposure limit values:	<p>EU – 9000 mg/m<sup>3</sup> for 8 hours exposure Directive 2006/15/EC</p>
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### 8.2 Exposure controls

#### 8.2.1 Appropriate engineering controls:

Providing an adequate ventilation is a good industrial practice. Pressure systems should be periodically inspected for leaks.

#### 8.2.2 Individual protection measures, such as personal protective equipment

■ **V5** Depending on the risk and on the work performed, adequate protective equipment should be selected and approved by a specialist Please follow the supplier's instructions about conditions of use and expiration date.

Eye/face protection:	Chemical goggles
Skin and body protection:	Working clothes, boots and cold insulating gloves
Respiratory protection:	Gas filter; self-contained breathing apparatus

#### 8.2.3 Environmental exposure controls

Greenhouse gas

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**
**9.1 Information on basic physical and chemical properties**

Appearance:	Colourless, clear liquid that evaporates as a colourless gas
Odour:	Odourless
Melting/Freezing temperature:	-56.6 °C (5 at.)
Boiling temperature:	-78.5 °C (sublimates at atmospheric pressure)
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 at 20°C
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

**9.2 Other information**

Critical temperature: 31.3 °C; Critical pressure: 7.29 MPa

**SECTION 10: STABILITY AND REACTIVITY**
**10.1 Reactivity**

Stable under recommended storage and handling conditions (see section 7, handling and storage).

**10.2 Chemical stability**

Stable under recommended storage and handling conditions (see section 7, handling and storage).

**10.3 Possibility of hazardous reactions**

There is no possibility of hazardous reactions to occur

**10.4 Conditions to avoid**

High temperatures and confined spaces.

**10.5 Incompatible materials**

Strong bases and alkaline metals. Different metal powder such as: magnesium, zirconium, titanium, aluminium, chrome and manganese are combustible and explosive when they are dispersed and heated in carbon dioxide atmosphere.

**10.6 Hazardous decomposition products**

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>	
<p>The product is not toxic</p> <p>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.</p> <p>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.</p>	
<b>12.2 Bioaccumulative potential</b>	
The product does not show any bioaccumulation properties.	
<b>12.3 Results of PBT and vPvB assessment</b>	
Not classified as hazardous	
<b>12.4 Other adverse effects</b>	
Release of large amounts may assist the greenhouse effect	
<b>SECTION 13: DISPOSAL CONSIDERATIONS</b>	
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

### 14.1 UN No. 2187

ADR/RID

Labelling



2.2: Non flammable, non toxic gas (+13 RID)

### 14.2 UN proper shipping name

ADR/RID: CARBON DIOXIDE, REFRIGERATED LIQUID

### 14.3 Transport hazard class(es)

ADR/RID

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

### 14.4 Packing group

ADR/RID - not applicable

### 14.5 Environmental hazards - none

### 14.6 Special precautions for users

The person transporting the product must be trained and know how to respond to an accident or spillage

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 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

## SECTION 16. OTHER INFORMATION

**Indication of changes:** Changes of the last version are highlighted with **■ V5...■**. 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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