

Reference No CO220121025V2

Date 25-10-2012

MATERIAL SAFETY DATA SHEET



1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION & THE COMPANY NAME

Product name: Carbon Dioxide

Product code: 02654, 02658, 04012 and 04015

Use of substance / preparation: Technical gas—industrial use

Company name:

SIP (Industrial Products) Ltd
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2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification under (EC) Regulation no. 1272/2008:
Classification under Directive no. 67/548/CEE:

GAS UNDER PRESSURE – PRESSURIZED GAS – WARNING
Product not classified among the dangerous ones

Free from the recording obligation according to the enclosures IV and V of the (EC) regulation nr. 1907/2006 (REACH)

2.2 Label elements

GHS Danger symbols:



Attention:	Warning	
Danger information	H280:	It contains gas under pressure; may explode if heated
Suggestion—Conservation	P410+P403	Gas based containers cannot be directly exposed to UV rays. Ensure proper ventilation (natural or forced)
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Advice – Reaction	--	--
Advice – Conservation	P410 + P403:	Gas-based containers cannot be directly exposed to sunshine rays. Ensure proper ventilation (natural or forced)

Danger symbols under the Directive no.67/578/CEE

“R” Phrases None
“S” Phrases None

ADR labels for transport



Label No 2.2: Carbon dioxide is non flammable and toxic gas

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substance

IUPAC name	Substance number	CAS number	EINECS number	Concentration
Carbon dioxide	--	124-38-9	204-696-9	99,99%

Contains no other components or impurities which will influence the classification of this product

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4. FIRST AID MEASURES

4.1 Description of first aid measures

Immediately seek medical advice

Wearing breathing apparatus, move the exposed individual from the exposure to fresh air and keep warm expanses.

If unconscious, loose clothes and lay down on one side. If the patient is not breathing, give artificial respiration.

If the patient is breathing difficulties, give oxygen under low pressure. In case of cardiac arrest, carry out a heart massage.

4.2 Most important symptoms and effects, both acute and delayed

SKIN CONTACT: In case of lesions due to low temperature, please refer to the here below instructions: Immediately remove the contaminated clothes. Do not rub the skin burn or break blisters. Put the burned body parts in the lukewarm water (40°C). In case of burn of your fingers and/or hands, if it is possible, separate them with strips of gauze or clean clothes.

EYE CONTACT: Immediately wash down for at least 15 minutes. Immediately seek medical advice.

INHALATION: In case of indisposition or suffocation symptoms, move the injured person away from the accident site to a fresh and ventilated place. Immediately call a doctor. In high concentrations may cause asphyxiation. Symptoms may be loss of mobility and consciousness. Victims may not be aware of. At low concentrations may cause narcotic effects, symptoms may include dizziness, headache, nausea and loss of coordination. The use of masks with filters is ineffective.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

All known fire extinguishers can be used.

5.2 Special hazards arising from the substance or mixture.

Fire exposure can cause containers to rupture/explode

5.3 Special protective equipment for fire fighters

In confined space use self-contained breathing apparatus

5.4 Advice for fire-fighters

Move away from the container and cool with water from a protected position. If possible, stop flow of products.

Equipment: Wear complete equipment with eye shield helmet and neck protection, pressure or demand breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use the breathing apparatus to enter the concerned area. Evacuate the area and ensure proper ventilation.

Wear protective equipment to avoid skin, eyes contact and inhalation and personal clothes.

If the loss is in a little area with poor ventilation, it could be possible the suffocation. Wear breathing apparatus.

6.2 Environmental precautions

Try to stop release. Prevent from entering sewers, basements and work pits, or any place where its accumulation can be dangerous.

6.3 Methods and material for containment and cleaning up

The loss is in confined area with poor ventilation, it could cause the suffocation. No other procedures are necessary.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid direct contact with the product. Do not eat, drink or smoke in the working areas or plants. For container handling, use proper personal protective equipment such as safety shoes and gloves. Carefully handle the containers, thus avoiding violent collisions between them or against other surfaces, as well as falls and other mechanical strains susceptible to damage their integrity / resistance. Do not allow back feed into the cylinder. Do not completely empty the cylinder. Suck back of water into the cylinder must be prevented. For any doubt, please contact your supplier.

7.2 Conditions for safe storage, including any incompatibilities

Gas-based containers cannot be directly exposed to sunshine rays, nor be closed to heat sources or in places where Temperature can reach 50° C or more. Ensure proper ventilation (natural or forced) where carbon dioxide is stored and/or used.

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Carbon dioxide: threshold values: TLV-TWA: 5000 ppm - [ACGIH 2003]
ILV (EU) 8h: 5000 ppm

8.2 Exposure controls

8.2.1 Ensure proper ventilation.

Can form sub-oxygen atmospheres (O₂ less than 18%). In closed spaces, please check the percentage of oxygen in the air. Under oxygenated areas, use a breathing apparatus. Assess the opportunity to check the concentration in air

8.2.2 Eyes and face protection: Use safety glasses and face shield in accordance with EN 166

Skin protection: Use gauntlet according to EN 388

Respiratory protection: No other protection devices are necessary in normal use condition or well ventilated working areas. In case of release, please refer to the point 6.1

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Molecular weight	44 g/mole
Melting point	-78.5°C (1,013 bar)
Boiling point	-56.6°C (1,013 bar)
Critical temperature	31°C
Relative density, gas (air=1)	1,52
Relative density, liquid (water =1)	1.03
Solubility in water (mg/l)	2000 (15 °C; 1,013 bar)
Colour	Colourless
Odour	No odour warning properties
Auto-ignition temperature	Not applicable

9.2 Other information

Carbon dioxide (CO₂) in gas is about 1,5 times heavier than the air and it tends to stratify down with the possibility to Accumulate itself in pits, cellars and holes in the ground. In slackness conditions or CO₂ similar accumulations can persists for many hours.

10. STABILITY AND REACTIVITY

10.1 Reactivity :	The product is reactive with some substances, for example: ammonia
10.2 Chemical stability :	Stable under normal conditions
10.3 Possibility of hazardous reactions :	CO ₂ dissolved in water forms carbonic acid (H ₂ CO ₃).
10.4 Conditions to avoid :	Avoid storage in confined areas
10.5 Incompatible materials :	None
10.6 Hazardous decomposition products	None

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

No known toxicological effects from this product. The substance forms under-oxygenated atmospheres. You can have health problems for more than 8 hours breathing air containing more than 5000 ppm (0.5%) of CO₂. If the concentration increases up to 15000 ppm (1.5%) have problems after just 10 minutes. At 2% of concentration, it is already experiencing a headache and loss of concentration. At higher levels, around 10%, the CO₂ can cause asphyxiation and paralysis of the respiratory centres, although the amount of oxygen in the air is still above 19% and then just for breathing. Breathe an even richer in carbon dioxide can cause immediate loss of consciousness and death. Some symptoms of asphyxiation may include: rapid breathing, fatigue, nausea, vomiting and cyanosis.

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12. ECOLOGICAL INFORMATION

12.1 Toxicity

Test	Area	Organism test	Taxonomic group	Toxicological Endpoint	Vale	Test time	Method	GLP	Year	Substance test
Acute/ Protract	Water	Trout	Fish	LC0	240mg/l	1 h	-	No	1984	Substance according to par. 1.1-1.4 of IUCLID dossier
Acute/ Protract	Water	Trout	Fish	LC0	60-240mg/l	12 h	-	No	1984	Substance according to par. 1.1-1.4 of IUCLID dossier
Acute/ Protract	Water	Trout	Fish	LC0	35 mg/l	96 h	-	No	1984	Substance according to par. 1.1-1.4 of IUCLID dossier

12.2 Persistence and degradability

No data available

12.3 Bi-accumulative potential

Low

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

It is not requested a chemical safety report

12.6 Other adverse effects

Large quantities of Carbon Dioxide (CO₂) is the main cause of the accelerated green house effect

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

The waste treatment methods have to be verified every time with reference to the waste composition, National and EC standards in force. The handling and precautions in case of accidental waste, please refer to the a/m points 6 and 7. Actions or precautions must be verified accordingly to the waste composition.

14. TRANSPORT INFORMATION

14.1 UN Number :	UN 1013
14.2 UN proper shipping name :	CARBON DIOXIDE
14.3 Transport hazard class :	2
14.3 Label:	2.2
14.4 Packing group :	Not applicable
14.5 Sea transport :	
EMS:	F-C, S-V
Proper Shipping name:	Carbon dioxide
14.6 Air transport:	
Cargo :	Packing instruction: 200 Max. quantity: 150kg
Passengers :	Packing instruction: 200 Max. quantity: 15kg
ERG Code:	2L
14.7 Environmental hazards :	No available data
14.8 Special precautions for users :	Avoid transports on vehicle where the loading area is not separated from the cabin. Assure that the drivers knows the potential dangers of the loading and he is able to operate in case of emergency.
14.9 Transport in bulk according to Annex II of MARPOL 73/78 and IBC code	
Not applicable	

15. CLP REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Ensure all National/local regulations are observed. Seveso regulation 96/82/EC: not covered.

15.2 Chemical safety assessment

It is not requested for a chemical safety report.

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16. OTHER INFORMATION

GENERAL BIBLIOGRAPHY:

1. (EC) Regulation no. 1907/2006 of the European Parliament (REACH)
2. (EC) Regulation no. 1272/2008 of the European Parliament (CLP)
3. The Merck Index. Ed. 10
4. Handling Chemical Safety
5. Niosh - Registry of Toxic Effects of Chemical Substances
6. INRS - Fiche Toxicologique
7. Patty - Industrial Hygiene and Toxicology
8. N.I. Sax - Dangerous properties of Industrial Materials-7 Ed., 1989

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