



SAFETY DATA SHEET

Based upon Regulation (EC) No 1907/2006, as amended by Regulation (EU) No 2015/830

carbon dioxide, solid

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

1.1. Product identifier

Product name : carbon dioxide, solid
Synonyms : carbon dioxide
Registration number REACH : Exempted from registration under REACH in Annex IV (Regulation (EC) No 1907/2006)
Product type REACH : Substance/mono-constituent
CAS number : 124-38-9
EC number : 204-696-9
Molecular mass : 44.01 g/mol
Formula : CO₂

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

1.2.1 Relevant identified uses

Coolant
Industrial use
Cryogenic cleaning
Contact the supplier for special uses

1.2.2 Uses advised against

No uses advised against known

1.3. Details of the supplier of the safety data sheet

Supplier of the safety data sheet

ACP Belgium N.V./S.A.
Dellestraat 5
B-3550 Zolder
☎ +32 13 53 03 03
SHEQ@acpco2.com
<http://www.acpco2.com>
ACP Polska
Toruńska 234
PI-87-805 Włocławek
+48 79 51 15 949

1.4. Emergency telephone number

24h/24h:
+32 13 53 03 03 (ACP Belgium)
24h/24h:
+48 79 51 15 949 (ACP Polska)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Not classified as dangerous according to the criteria of Regulation (EC) No 1272/2008

2.2. Label elements

Not classified as dangerous according to the criteria of Regulation (EC) No 1272/2008

2.3. Other hazards

May cause frostbites
Large spills/in enclosed spaces: risk of oxygen deficiency

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	CAS No	Conc. (C)	Classification according to CLP	Note	Remark
REACH Registration No	EC No				

carbon dioxide, solid

carbon dioxide	124-38-9 204-696-9	C>99 %	(2)	Mono-constituent
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(2) Substance with a Community workplace exposure limit

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

General:

Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

After inhalation:

Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

After skin contact:

Rinse with water. Take victim to a doctor if irritation persists. In case of frostbites: Wash immediately with lots of water (15 minutes)/shower. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.

After eye contact:

Rinse immediately with plenty of water for 15 minutes. Do not apply neutralizing agents. Remove contact lenses, if present and easy to do. Continue rinsing. Take victim to an ophthalmologist.

After ingestion:

Rinse mouth with water. Consult a doctor/medical service if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

4.2.1 Acute symptoms

After inhalation:

EXPOSURE TO HIGH CONCENTRATIONS: Rapid respiration. Accelerated heart action. Headache. Nausea. Dizziness. Damp/clammy skin. Excited/restless. Visual disturbances. Ringing in the ears. Respiratory difficulties. Disturbances of consciousness. Cramps/uncontrolled muscular contractions.

After skin contact:

Frostbites.

After eye contact:

Frostbites.

After ingestion:

Not applicable.

4.2.2 Delayed symptoms

No effects known.

4.3. Indication of any immediate medical attention and special treatment needed

If applicable and available it will be listed below.

SECTION 5: Firefighting measures

5.1. Extinguishing media

5.1.1 Suitable extinguishing media:

Adapt extinguishing media to the environment for surrounding fires.

5.1.2 Unsuitable extinguishing media:

Not applicable.

5.2. Special hazards arising from the substance or mixture

5.3. Advice for firefighters

5.3.1 Instructions:

No specific fire-fighting instructions required.

5.3.2 Special protective equipment for fire-fighters:

Insulating gloves. Protective clothing. Large spills/in enclosed spaces: compressed air apparatus. Heat/fire exposure: compressed air/oxygen apparatus.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Keep upwind. Seal off low-lying areas. Close doors and windows of adjacent premises. No naked flames. Large spills/in confined spaces: consider evacuation.

6.1.1 Protective equipment for non-emergency personnel

See heading 8.2

6.1.2 Protective equipment for emergency responders

Insulating gloves. Protective clothing. Large spills/in enclosed spaces: compressed air apparatus.

Suitable protective clothing

See heading 8.2

6.2. Environmental precautions

No data available

6.3. Methods and material for containment and cleaning up

Provide for ventilation.

6.4. Reference to other sections

See heading 13.

SECTION 7: Handling and storage

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

7.1. Precautions for safe handling

Keep away from naked flames/heat. Gas/vapour heavier than air at 20°C. Observe normal hygiene standards.

7.2. Conditions for safe storage, including any incompatibilities

7.2.1 Safe storage requirements:

Store in a cool area. Ventilation at floor level. Provide for a cooling system. Keep only in the original container. Meet the legal requirements.

7.2.2 Keep away from:

Heat sources, (strong) bases.

7.2.3 Suitable packaging material:

Steel, stainless steel, synthetic material.

7.2.4 Non suitable packaging material:

No data available

7.3. Specific end use(s)

If applicable and available, exposure scenarios are attached in annex. See information supplied by the manufacturer.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 Occupational exposure

a) Occupational exposure limit values

If limit values are applicable and available these will be listed below.

EU

Carbon dioxide	Time-weighted average exposure limit 8 h (Indicative occupational exposure limit value)	5000 ppm
	Time-weighted average exposure limit 8 h (Indicative occupational exposure limit value)	9000 mg/m ³

b) National biological limit values

If limit values are applicable and available these will be listed below.

8.1.2 Sampling methods

Product name	Test	Number
Carbon Dioxide	NIOSH	6603
Carbon Dioxide	OSHA	ID 172

8.1.3 Applicable limit values when using the substance or mixture as intended

If limit values are applicable and available these will be listed below.

8.1.4 DNEL/PNEC values

If applicable and available it will be listed below.

8.1.5 Control banding

If applicable and available it will be listed below.

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8.2. Exposure controls

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

8.2.1 Appropriate engineering controls

Keep away from naked flames/heat. Measure the oxygen concentration in the air. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

8.2.2 Individual protection measures, such as personal protective equipment

Observe normal hygiene standards. Do not eat, drink or smoke during work.

a) Respiratory protection:

High vapour/gas concentration: self-contained respirator.

b) Hand protection:

Protective gloves against cold (EN 511).

c) Eye protection:

Personal eye-protection (EN 166).

d) Skin protection:

Protective clothing. Safety footwear (EN ISO 20345).

8.2.3 Environmental exposure controls:

See headings 6.2, 6.3 and 13

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical form	Solid gas Solid in various shapes
Odour	Odourless
Odour threshold	Not applicable
Colour	White
Particle size	Not applicable (gas)
Explosion limits	No data available
Flammability	Non combustible
Log Kow	0.83 ; Experimental value
Dynamic viscosity	No data available
Kinematic viscosity	No data available
Melting point	-57 °C ; 5000 hPa
Boiling point	Not applicable
Evaporation rate	No data available
Relative vapour density	1.5
Vapour pressure	57300 hPa ; 20 °C
Solubility	Water ; 0.29 g/100 ml
Relative density	1.5 ; -65 °C
Decomposition temperature	No data available
Auto-ignition temperature	No data available
Flash point	Not applicable
Explosive properties	No chemical group associated with explosive properties
Oxidising properties	No chemical group associated with oxidising properties
pH	Not applicable

9.2. Other information

Critical temperature	31 °C
Critical pressure	73830 hPa
Sublimation temperature	-78.5 °C

SECTION 10: Stability and reactivity

10.1. Reactivity

Substance has acid reaction.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Reacts with (some) bases: release of heat. Reacts violently with (some) metal powders.

10.4. Conditions to avoid

Reason for revision: 2;3;15

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Date of revision: 2017-11-24

Revision number: 0300

Product number: 10155

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Precautionary measures

Keep away from naked flames/heat.

10.5. Incompatible materials

(strong) bases.

10.6. Hazardous decomposition products

No data available.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

11.1.1 Test results

Acute toxicity

carbon dioxide, solid

No (test)data available

Conclusion

Not classified for acute toxicity

Corrosion/irritation

carbon dioxide, solid

No (test)data available

Conclusion

Not classified as irritating to the skin

Not classified as irritating to the eyes

Not classified as irritating to the respiratory system

Respiratory or skin sensitisation

carbon dioxide, solid

No (test)data available

Conclusion

Not classified as sensitizing for skin

Not classified as sensitizing for inhalation

Specific target organ toxicity

carbon dioxide, solid

No (test)data available

Conclusion

Not classified for subchronic toxicity

Mutagenicity (in vitro)

carbon dioxide, solid

No (test)data available

Mutagenicity (in vivo)

carbon dioxide, solid

No (test)data available

Conclusion

Not classified for mutagenic or genotoxic toxicity

Carcinogenicity

carbon dioxide, solid

No (test)data available

Conclusion

Not classified for carcinogenicity

Reproductive toxicity

carbon dioxide, solid

No (test)data available

Conclusion

Not classified for reprotoxic or developmental toxicity

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Toxicity other effects

carbon dioxide, solid

No (test)data available

Chronic effects from short and long-term exposure

carbon dioxide, solid

ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Change in the haemogramme/blood composition. Low arterial pressure.

SECTION 12: Ecological information

12.1. Toxicity

carbon dioxide, solid

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50		35 mg/l	96 h	Salmo gairdneri			Literature study; Lethal

Conclusion

Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008

12.2. Persistence and degradability

Biodegradability: not applicable

12.3. Bioaccumulative potential

carbon dioxide, solid

Log Kow

Method	Remark	Value	Temperature	Value determination
		0.83		Experimental value

Conclusion

Low potential for bioaccumulation (Log Kow < 4)

12.4. Mobility in soil

No (test)data on mobility of the substance available

12.5. Results of PBT and vPvB assessment

The criteria of PBT and vPvB as listed in Annex XIII of Regulation (EC) No 1907/2006 do not apply to inorganic substances.

12.6. Other adverse effects

carbon dioxide, solid

Fluorinated greenhouse gases (Regulation (EU) No 517/2014)

Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014)

Included in the list of substances which may contribute to the greenhouse effect (IPCC)

Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009)

SECTION 13: Disposal considerations

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

13.1. Waste treatment methods

13.1.1 Provisions relating to waste

European Union

Can be considered as non hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997. The waste code must be assigned by the user, preferably in consultation with the (environmental) authorities concerned.

13.1.2 Disposal methods

Allow waste to evaporate. Remove waste in accordance with local and/or national regulations. Use appropriate containment to avoid environmental contamination.

13.1.3 Packaging/Container

European Union

Waste material code packaging (Directive 2008/98/EC).

15 01 02 (plastic packaging).

15 01 04 (metallic packaging).

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SECTION 14: Transport information

Road (ADR)

14.1. UN number

Transport	Not subject
UN number	1845

14.2. UN proper shipping name

Proper shipping name	Carbon dioxide, solid (dry ice)
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14.3. Transport hazard class(es)

Hazard identification number	
Class	9
Classification code	M11

14.4. Packing group

Packing group	
Labels	

14.5. Environmental hazards

Environmentally hazardous substance mark	no
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14.6. Special precautions for user

Special provisions	
Limited quantities	

Rail (RID)

14.1. UN number

Transport	Not subject
UN number	1845

14.2. UN proper shipping name

Proper shipping name	Carbon dioxide, solid (dry ice)
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14.3. Transport hazard class(es)

Hazard identification number	
Class	9
Classification code	M11

14.4. Packing group

Packing group	
Labels	

14.5. Environmental hazards

Environmentally hazardous substance mark	no
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14.6. Special precautions for user

Special provisions	
Limited quantities	

Inland waterways (ADN)

14.1. UN number

Transport	Not subject
UN number	1845

14.2. UN proper shipping name

Proper shipping name	Carbon dioxide, solid (dry ice)
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14.3. Transport hazard class(es)

Class	9
Classification code	M11

14.4. Packing group

Packing group	
Labels	

14.5. Environmental hazards

Environmentally hazardous substance mark	no
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14.6. Special precautions for user

Special provisions	
Limited quantities	

Sea (IMDG/IMSBC)

14.1. UN number

UN number	1845
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14.2. UN proper shipping name

carbon dioxide, solid

Proper shipping name	Carbon dioxide, solid (dry ice)
14.3. Transport hazard class(es)	
Class	9
14.4. Packing group	
Packing group	
Labels	9
14.5. Environmental hazards	
Marine pollutant	-
Environmentally hazardous substance mark	no
14.6. Special precautions for user	
Special provisions	
Limited quantities	none.
14.7. Transport in bulk according to Annex II of Marpol and the IBC Code	
Annex II of MARPOL 73/78	Not applicable

Air (ICAO-TI/IATA-DGR)

14.1. UN number	
UN number	1845
14.2. UN proper shipping name	
Proper shipping name	Dry ice
14.3. Transport hazard class(es)	
Class	9
14.4. Packing group	
Packing group	
Labels	9
14.5. Environmental hazards	
Environmentally hazardous substance mark	no
14.6. Special precautions for user	
Special provisions	A48
Special provisions	A151
Special provisions	A805
Limited quantities: maximum net quantity per packaging	Forbidden

SECTION 15: Regulatory information

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

European legislation:

VOC content Directive 2010/75/EU

VOC content	Remark
	Not applicable (inorganic)

Plant protection products

Included in implementing Regulation (EU) No 540/2011, annex part A

15.2. Chemical safety assessment

No chemical safety assessment has been conducted.

SECTION 16: Other information

(*)	INTERNAL CLASSIFICATION BY BIG
CLP (EU-GHS)	Classification, labelling and packaging (Globally Harmonised System in Europe)
DMEL	Derived Minimal Effect Level
DNEL	Derived No Effect Level
EC50	Effect Concentration 50 %
ErC50	EC50 in terms of reduction of growth rate
LC50	Lethal Concentration 50 %
LD50	Lethal Dose 50 %
NOAEL	No Observed Adverse Effect Level
NOEC	No Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
PBT	Persistent, Bioaccumulative & Toxic
PNEC	Predicted No Effect Concentration

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Revision number: 0300

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carbon dioxide, solid

STP Sludge Treatment Process
vPvB very Persistent & very Bioaccumulative

The information in this safety data sheet is based on data and samples provided to BIG. The sheet was written to the best of our ability and according to the state of knowledge at that time. The safety data sheet only constitutes a guideline for the safe handling, use, consumption, storage, transport and disposal of the substances/preparations/mixtures mentioned under point 1. New safety data sheets are written from time to time. Only the most recent versions may be used. Old versions must be destroyed. Unless indicated otherwise word for word on the safety data sheet, the information does not apply to substances/preparations/mixtures in purer form, mixed with other substances or in processes. The safety data sheet offers no quality specification for the substances/preparations/mixtures in question. Compliance with the instructions in this safety data sheet does not release the user from the obligation to take all measures dictated by common sense, regulations and recommendations or which are necessary and/or useful based on the real applicable circumstances. BIG does not guarantee the accuracy or exhaustiveness of the information provided and cannot be held liable for any changes by third parties. This safety data sheet is only to be used within the European Union, Switzerland, Iceland, Norway and Liechtenstein. Any use outside of this area is at your own risk. Use of this safety data sheet is subject to the licence and liability limiting conditions as stated in your BIG licence agreement or when this is failing the general conditions of BIG. All intellectual property rights to this sheet are the property of BIG and its distribution and reproduction are limited. Consult the mentioned agreement/conditions for details.

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