



SAFETY DATA SHEET

in accordance with REACH
regulation 1907/2006/EC

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Revised edition no : 0

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Carbon dioxide)solid)**CO2_018C-DK**

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

1.1. Product identifier

Trade name : Carbon dioxide (solid) solid CO₂ , tøris
SDS Nr : CO2_018C-DK replaces TØRIS-DK 2 / 5 / 2014
Chemical description : Carbon dioxide (solid)
CAS No :124-38-9
EC No :204-696-9
Index No :---
Registration-No. : Listed in Annex IV / V REACH, exempted from registration.
Chemical formula : CO₂

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

Relevant identified uses : Industrial and professional. Perform risk assessment prior to use.
Cooling (Food additive E290).
Blast cleaning. Metal cooling. Consumer use.
Contact supplier for more information on uses.

1.3. Details of the supplier of the safety data sheet

Company identification : AIR LIQUIDE Denmark A/S
Høje Taastrupvej 42
DAN-2630 Taastrup DENMARK
Telefon: +45 76 25 25 25
E-Mail address)competent person) : Info.denmark@airliquide.com

1.4. Emergency telephone number

Emergency telephone number : 112

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

Hazard Class and Category Code Regulation EC 1272/2008)CLP)

: Not classified as dangerous substance / mixture.

2.2. Label elements

Labelling Regulation EC 1272/2008)CLP)

: None.
- Storage : P403 - Store in a well-ventilated place.

2.3. Other hazards

: Refrigerated solidified gas. Contact with product may cause cold burns or frostbite.
Asphyxiant in high concentrations.

SECTION 3. Composition/information on ingredients

3.1. Substance / 3.2. Mixture

Substance.

Substance name	Content [Vol-%]	CAS No	EC No	Index No	Registration No.	Classification
Carbon dioxide %solid%	: 100 %	124-38-9	204-696-9	----	* 1	Not classified (GHS)

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

* 1: Listed in Annex IV / V REACH, exempted from registration.

* 2: Registration deadline not expired.

* 3: Registration not required: Substance manufactured or imported < 1t/y.

AIR LIQUIDE Denmark A/S

Høje Taastrupvej 42 DAN-2630 Taastrup DENMARK

Telefon: +45 76 25 25 25

Carbon dioxide)solid)**CO2_018C-DK****SECTION 3. Composition/information on ingredients)continued)****SECTION 4. First aid measures****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.
- Skin contact : In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.
- Eye contact : Adverse effects not expected from this product.
- Ingestion : Get immediate medical attention.

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

- : In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/ consciousness. Victim may not be aware of asphyxiation.
- Low concentrations of CO2 cause increased respiration and headache.

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

- : None.

SECTION 5. Fire-fighting measures**5.1. Extinguishing media**

- Suitable extinguishing media : Water spray or fog.
- Unsuitable extinguishing media : Do not use water jet to extinguish.

5.2. Special hazards arising from the substance or mixture

- Specific hazards : None.
- Hazardous combustion products : None.

5.3. Advice for fire-fighters

- Specific methods : Use water spray or fog to knock down fire fumes if possible.
- Special protective equipment for fire fighters : Use self-contained breathing apparatus. Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters. Standard EN 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves for firefighters. Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.

SECTION 6. Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

- : Use protective clothing.
- Evacuate area.
- Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
- Ensure adequate air ventilation.
- Stay upwind.
- Act in accordance with local emergency plan.

6.2. Environmental precautions

- : Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

Carbon dioxide)solid)**CO2_018C-DK****SECTION 6. Accidental release measures)continued)****6.3. Methods and material for containment and cleaning up**

: Ventilate area.

6.4. Reference to other sections

: See also sections 8 and 13.

SECTION 7. Handling and storage**7.1. Precautions for safe handling****Safe use of the product**

: Refer to supplier's container handling instructions.
The product must be handled in accordance with good industrial hygiene and safety procedures.
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
Do not breathe gas.
Avoid release of product into atmosphere.

7.2. Conditions for safe storage, including any incompatibilities

: Keep container below 50°C in a well ventilated place.
Observe all regulations and local requirements regarding storage of containers.

7.3. Specific end use(s)

: None.

SECTION 8. Exposure controls/personal protection**8.1. Control parameters****Occupational Exposure Limits****Carbon dioxide)solid)**

: ILV (EU) - 8 H - [mg/m³] : 9000
: ILV (EU) - 8 H - [ppm] : 5000
: TWA (DK) OEL 8h [mg/m³] : 9000
: TWA (DK) OEL 8h [ppm] : 5000

DNEL: Derived no effect level)Workers) : No data available.**PNEC: Predicted no effect concentration** : No data available.**8.2. Exposure controls**

8.2.1. Appropriate engineering controls : Oxygen detectors should be used when asphyxiating gases may be released.
Ensure exposure is below occupational exposure limits (where available).
Provide adequate general and local exhaust ventilation.

8.2.2. Individual protection measures, e.g. personal protective equipment : 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:
PPE compliant to the recommended EN/ISO standards should be selected.

• **Eye/face protection** : Wear safety glasses with side shields.
Standard EN 166 - Personal eye-protection.

• **Skin protection**
- **Hand protection** : Standard EN 388 - Protective gloves against mechanical risk.
Wear leather safety gloves.

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

• **Respiratory protection** : Self contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres.
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face

Carbon dioxide)solid)**CO2_018C-DK****SECTION 8. Exposure controls/personal protection)continued)**

- mask.
- Thermal hazards : Wear cold insulating gloves.
Standard EN 511 - Cold insulating gloves.
- 8.2.3. Environmental exposure controls : None necessary.

SECTION 9. Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Appearance	
Physical state at 20°C / 101.3kPa	: Solid.
Physical state	: Refrigerated solidified gas.
Colour	: White.
Odour	: No odour warning properties.
Odour threshold	: Odour threshold is subjective and inadequate to warn for overexposure.
pH value	: Not applicable for gases and gas-mixtures.
Molar mass [g/mol]	: 44
Melting point [°C]	: -78.5 (s) (-57@5,2 bar) At atmospheric pressure dry ice sublimates into gaseous carbon dioxide.
Boiling point [°C]	: -56.6
Critical temperature [°C]	: 30
Flash point [°C]	: Not applicable for gases and gas-mixtures.
Evaporation rate)ether=1)	: Not applicable for gases and gas-mixtures.
Flammability range [vol% in air]	: Non flammable.
Vapour pressure [20°C]	: 57.3 bar
Relative density, gas %air=1%	: 1.52
Relative density, liquid %water=1%	: 1.03
Solubility in water [mg/l]	: 2000
Partition coefficient n-octanol/water [log Kow]	: 0.83
Auto-ignition temperature [°C]	: Not applicable.
Viscosity at 20°C [mPa.s]	: Not applicable.
Explosive Properties	: Not applicable.
Oxidising Properties	: None.

9.2. Other information

Other data	: Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.
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SECTION 10. Stability and reactivity**10.1. Reactivity**

: None.

10.2. Chemical stability

: Stable under normal conditions.

10.3. Possibility of hazardous reactions

: None.

Carbon dioxide)solid)**CO2_018C-DK****SECTION 10. Stability and reactivity)continued)****10.4. Conditions to avoid**

: None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

: For additional information on compatibility refer to 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**11.1. Information on toxicological effects**

Acute toxicity	: In high concentrations cause rapid circulatory insufficiency. Symptoms are headache, nausea and vomiting, which may lead to unconsciousness. Unlike simple asphyxiants, carbon dioxide has the ability to cause death even when normal oxygen levels (20-21%) are maintained. 5% CO ₂ has been found to act synergistically to increase the toxicity of certain other gases (CO, NO ₂). CO ₂ has been shown to enhance the production of carboxy- or met-hemoglobin by these gases possibly due to carbon dioxide's stimulatory effects on the respiratory and circulatory systems.
Skin corrosion/irritation	: No effects from this product.
Serious eye damage/irritation	: No effects from this product.
Respiratory or skin sensitisation	: No effects from this product.
Carcinogenicity	: No effects from this product.
Germ cell mutagenicity	: No effects from this product.
Reproductive toxicity	: No effects from this product.
STOT-single exposure	: No effects from this product.
STOT-repeated exposure	: No effects from this product.
Aspiration hazard	: Not applicable for gases and gas-mixtures.

SECTION 12. Ecological information**12.1. Toxicity**

: No ecological damage caused by this product.

12.2. Persistence and degradability

: No ecological damage caused by this product.

12.3. Bioaccumulative potential

: No ecological damage caused by this product.

12.4. Mobility in soil

: No ecological damage caused by this product.

12.5. Results of PBT and vPvB assessment

: Not classified as PBT or vPvB.

12.6. Other adverse effects

: Can cause frost damage to vegetation.

Effect on the ozone layer : None.**Global warming potential [CO₂=1]** : 1

Carbon dioxide)solid)**CO2_018C-DK****SECTION 12. Ecological information)continued)**

Effect on global warming : When discharged in large quantities may contribute to the greenhouse effect.

SECTION 13. Disposal considerations**13.1. Waste treatment methods**

: Do not discharge into any place where its accumulation could be dangerous.
Discharge to atmosphere in large quantities should be avoided.
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.
Consult supplier for specific recommendations.

13.2. Additional information

: None.

SECTION 14. Transport information

UN number : 1845
Transport by road/rail)ADR/RID)
Transport by air)ICAO-TI / IATA-DGR)
Transport by sea)IMDG)
Classification code : M11
H.J. nr : --
Emergency Schedule)EmS) - Fire : F-C S-V
Emergency Schedule)EmS) - Spillage : S-V

14.6 Special precautions for user

Passenger and Cargo Aircraft : Allowed.
Packing instruction - Passenger and Cargo Aircraft : 954
Packing instruction - Cargo Aircraft only : 954
Special precautions for user : 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 containers are firmly secured.
- Ensure there is adequate ventilation.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not applicable.

UN proper shipping name : Carbon dioxide, solid, not subject to ADR
Transport hazard class(es) : 9
Environmental hazards : None.
Proper shipping name : CARBON DIOXIDE, SOLID
Packing instruction : P003
IMDG-Marine pollutant : -
Proper shipping name)IATA) : CARBON DIOXIDE, SOLID
Class : 9

Carbon dioxide)solid)**CO2_018C-DK****SECTION 15. Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**EU legislation

Restrictions on use : None.
Seveso directive 2012/18/EC : Not covered.

National legislation

National legislation : Ensure all national/local regulations are observed.

15.2. Chemical safety assessment

: A CSA does not need to be carried out for this product.

SECTION 16. Other information

Indication of changes : Revised safety data sheet in accordance with commission regulation (EU) No 2015/830.
Training advice : The hazard of asphyxiation is often overlooked and must be stressed during operator training.
Further information : This Safety Data Sheet has been established in accordance with the applicable European Union legislation.
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Details given in this document are believed to be correct at the time of going to press. Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

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