

SOLID CARBON DIOXIDE (DRY ICE)

Section 1 Identification of the substance/mixture and of the company/undertaking

1.1 Product identification

Product code : GSG
Product name : Solid Carbon dioxide (dry ice)
Chemical name : Carbon dioxide (solid)
CE Number : 204-696-9
CAS Number : 124-38-9

N. of REACH registration: Listed in Annex IV / V REACH, exempted from registration.

Identificator of the product in compliance with Regulation EC 1272/2008

1.2 Relevant identified uses of the substance or mixture and unintended uses

Description/Use : Solid Carbon dioxide
Dry ice in blocks, dry ice in slices, dry ice in pellet

Identified uses : Industrial and professional.
Perform a risk assessment before use.
Application for cooling and heat transfer.
Cleaning and/or treatment of surfaces (dry ice blasting, cryoblasting or cryogenic sandblasting).
Special effects (for entertainment).

Unintended uses : Not suitable for medical applications or inhalation

1.3 Identification of the company/undertaking

Company : Dryce S.r.l.
Via Aosta, 5 – Cernusco sul Naviglio – 20063 Milano
☎ +39 (0) 2 92147368 📠 +39 02 92141841
Emergency telephone number : +39 335 6931559
E-Mail : 📧 marco_malasomma@dryce.it

Section 2 Hazards Identification

2.1 Classification of substances and mixtures

The product is not classified as dangerous according to the provisions laid down in Regulation (EC) 1272/2008 (CLP) (and subsequent amendments and adjustments).

The product contains hazardous substances in concentration such as they require mention in section 3, therefore it requires a safety data sheet with appropriate information, in compliance with Regulation (EC) 1907/2006 and subsequent amendments and adjustments.
Classification and hazards indication.

2.2 Label elements

Hazard labelling in compliance with Regulation (EC) 1272/2008 (CLP) and subsequent amendments and adjustments.

Pictograms : -
Signal word : -
Hazard statement(s) : EUH210 Safety data sheet available upon request.
Precautionary statement(s) : -
Contains : CARBON DIOXIDE

The product does not require hazard labelling in compliance with Regulation (EC) 1272/2008 (CLP) and subsequent amendments and

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adjustments.

CE Number : 204-696-9

2.3 Additional hazards : Based on available data, the product does not contain PBT and vPvB substances in percentage greater than 0,1%.

Refrigerated solid gas, existing at -78,5°C.

Skin contact can cause burns from cold or freezing.

Section 3 Composition/Information on Ingredients

3.1 Substances.

Contains:

The complete text of hazard statements is in section 16.

Identification.	Conc. %.	Classification 1272/2008 (CLP)
CARBON DIOXIDE		
CAS. 124-38-9	100	Substance with a community limit of exposure on work place
CE. 204-696-9		
INDEX. -		

3.2 Mixtures.

Non-relevant information.

Section 4 First Aid Measures

General : In high concentration can cause asphyxiation. Symptoms may include loss of mobility and/or consciousness.
Victims may not be aware of asphyxiation.
Wearing a respirator, move the victims to fresh air and keep them laying down and warm.
Call a doctor. Perform CPR if breathing ceases.

4.1 Description of first aid measures

Inhalation : Low concentration of CO2 causes an increase in breathing frequency and headache. In high concentration can cause asphyxiation. Symptoms may include loss of mobility and/or consciousness. Victims may not be aware of asphyxiation. Wearing a respirator, move the victim to fresh air and keep them laying down and warm. Call a doctor.
Perform CPR if breathing ceases

Skin contact : In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance

Eye contact : In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance immediately.

Ingestion : Absolutely avoid ingestion, as low temperature and high pressure can cause damage. Consult a doctor and show him this instructions.

4.2 Main symptoms and effects, both acute and delayed

For symptoms caused by contained substances, see sec. 11

4.3 Indication of necessity to consult a doctor immediately or of special treatments

Thaw frozen parts using lukewarm water. Don't scratch the frozen part. Consult a doctor immediately.

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Section 5 Fire-fighting measures

5.1 Extinguishing media

SUITABLE EXTINGUISHING MEDIA : Choose the most appropriate extinguishing media for the specific situation.

NON-SUITABLE EXTINGUISHING MEDIA : None in particular.

5.2 Special hazards deriving from the substance or from the mixture

HAZARDS CAUSE BY EXPOSURE IN CASE OF FIRE : The product is neither flammable nor combustible

5.3 Recommendations for fire fighters

GEAR : Normal clothing for fire-fighting, such as open-circuit compressed air breathing apparatus (E 137), protective clothing (EN469), protective gloves (EN 659) and boots for fire-fighters (HO A29 or A30).

Section 6 Accidental release measures

6.1 Personal precautions, protective devices and emergency procedures.

Evacuate the area. Ensure adequate ventilation. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

In case of gas or powder in the air, wear a protective respirator. This indication are valid to both workers and emergency handlers.

EN137 Respiratory protective devices. Self-contained open-circuit compressed air breathing apparatus with full face mask. Requirements, testing, marking.

6.2 Environmental precautions

Prevent the product from entering sewers, superficial waters, groundwater.

6.3 Containment and clean-up methods

Ventilate area. Stem with soil or inert material. Collect the majority of the material and remove the rest with water jets. Disposal of contaminated material must be done in compliance with section 13.

6.4 Reference to other sections

Additional information about personal protection and disposal are in section 8 and 13

Section 7 Handling and storage

7.1 Precautions for safe handling

Do not used in confined spaces without adequate ventilation and/or using a respirator.

Use only properly specified equipment which is suitable for this product.

Handle the product only after consulting all the other sections in the safety data sheet. Prevent the product from dispersing in the environment. Do not eat, dring or smoke while using.

7.2 Conditions for safe storage, including possible incompatibilities

Store in well ventilated areas.

Use only containers suitable for the product.

Keep the product in containers clearly labelled. Keep containers away from incompatible materials, checking section 10.

7.3 Specific uses

Information not available.

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Section 8 Exposure control/Personal protection

8.1 Control parameters

Legislation reference:

DEU	Deutschland	MAK-und BAT-Werte-Liste 2012
ESP	España	INSHT - Límites de exposición profesional para agentes químicos en España 2015
GBR	United Kingdom	EH40/2005 Workplace exposure limits
ITA	Italia	Decreto Legislativo 9 Aprile 2008, n.81
EU	OEL EU	Direttiva 2009/161/UE; Direttiva 2006/15/CE; Direttiva 2004/37/CE; Direttiva 2000/39/CE
	TLV-ACGIH	ACGIH 2014

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Threshold value.

Type	Country	TWA/8h		STEL/15min	
		mg/m3	Ppm	mg/m3	ppm
AGW	DEU	9100	5000	18200	10000
MAK	DEU	9100	5000	18200	10000
VLA	ESP	9150	5000		
WEL	GBR	9150	5000	27400	15000
TLV	ITA	9000	5000		
OEL	EU	9000	5000		
TLV-ACGIH		9000	5000	54000	30000

Legend:

(C) = CEILING; INALAB = Inhalable fraction; RESPIR = Respirable fraction; TORAC = Thoracic fraction

8.2 Exposure control

For choosing risk management procedures and operational condition, please refer also to the attached expository scenarios.

Provide for an emergency shower with eyewash station.

The product must be used in closed-circuit, in well-ventilated environment and in presence of localized strong aspirations.

In case the product may or must come in contact or react with water, adopt adequate technical and/or organizational measures, because of risk to develop toxic and/or flammable gases.

In case the product may or must come in contact or react with acids, adopt adequate technical and/or organizational measures, because of risk to develop toxic and/or flammable gases.

Exposure must be kept to a minimum to prevent significant absorption in the body. Manage individual protection devices to ensure maximum protection (i.e. reduction of time of replacement).

HAND PROTECTION

: Protect hands with thermal gloves. (ref. regulation EN 511).

For the definitive choice of the gloves' material, it must be considered: compatibility, deterioration, time of breakage and permeation.

In case of mixtures, resistance of gloves to chemical agents must be verified before use as it's not predictable. Gloves deterioration time depends on duration and way of use.

SKIN PROTECTION

: Wear work clothing with long sleeves and safety shoes for professional uses of category III (ref. Directive 89/686/EEC and regulation EN ISO 20344). Wash with water and soap after taking off protective clothing

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Provide for anti-static workwear in case the work environment is at risk of explosiveness.

EYE PROTECTION : It's advice to wear a hood visor or a protective visor with hermetic glasses (ref. regulation EN 166).

If risk of exposure due to sprays or squirts related to the work is present, provide for adequate protection of the mucous membranes (mouth, nose, eyes) to prevent accidental absorption).

RESPIRATORY PROTECTION : In case of threshold exceeded (es. TLV-TWA) of the substance or of one or more substances present in the product, it's advised to wear a mask with K filter combined with a P filter (ref. regulation EN 14387).

Use of protection gear for the respiratory system is necessary in case the technical measures employed be not sufficient to limit exposure of workers to threshold values. Mask protection is nonetheless limited.

INDIVIDUAL EXPOSURE CONTROL : Emission of production processes, including those from ventilation machinery should be checked to comply environment protection legislation.

Section 9 Physical and chemical properties

9.1 Information on fundamental physical and chemical properties

Physical state : solid
 Colour : white
 Odour : odourless
 Olfactory threshold : Not applicable.
 Ph : Not applicable.
 Melting point : -78,5°C
 Boiling point : Not applicable.
 Boiling interval : Not applicable.
 Flammability point : Not applicable.
 Evaporation velocity : Not applicable.
 Flammability of solid and gas : Non-flammable.
 Lower bound of flammability : Not applicable.
 Upper bound of flammability : Not applicable.
 Lower bound of explosiveness : Not applicable.
 Upper bound of explosiveness : Not applicable.
 Vapor pressure : 45,1 bars
 vapor density : 1,522
 Relative density : 1,512 kg/l
 Solubility : Solubility in water
 Partition coefficient:
 n- octanol/water : Not applicable.
 Self-ignition temperature : Not applicable.
 Decomposition temperature : Not applicable.
 Viscosity : Not applicable.
 Explosive properties : Not applicable.
 Oxidiser properties : Not applicable.

9.2 Additional information

Information not available

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Section 10 Stability and reactivity

- 10.1 Reactivity** : There is no particular hazard of reaction with other substances in normal operational condition.
- 10.2 Chemical stability** : The product is Stable under normal conditions of use and storage
- 10.3 Possibility of dangerous reactions** : Under normal conditions of use and storage no hazardous reactions are predictable
- 10.4 Conditions to avoid** : None in particular. Use usual precautions when handling chemical products.
- 10.5 Incompatible materials** : Information not available
- 10.6 Hazardous decomposition products** : Information not available

Section 11 Toxicological information

11.1 Information on toxicological effects

Information not available

- Acute toxicity : In high concentration, it causes rapidly respiratory failure. Symptoms include headache, nausea and vomit that can lead to loss of consciousness. Differently from simple asphyxiant, carbon dioxide can cause death even when a normal level of oxygen is kept (20- 21%). It's been experienced that 5% of CO₂ act in a synergistic way to increase toxicity of other gases (CO, NO₂). It has been proved that CO₂ increases production of carboxy or meta haemoglobin probably due to stimulatory effects of carbon dioxide to the respiratory and circulatory system.
- Skin corrosion/irritation : No known effect from this product.
- Eye injury/irritation : No known effect from this product.
- Respiratory sensitization : No known effect from this product.
- Skin sensitization : No known effect from this product.
- Carcinogenicity : No known effect from this product.
- Mutagenicity : No known effect from this product.
- Reproductive toxicity : No known effect from this product.
- Specific Target Organ Toxicity (STOT) – single exposition : No known effect from this product.
- Specific Target Organ Toxicity (STOT) – extended exposition : No known effect from this product.
- Aspiration hazards : Not applicable to gases or gaseous mixtures.

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Section 12 Ecological information

Use according to best work practices, avoiding dispersion of the product in the environment. Call competent authorities if the product reaches water or contaminates soil or vegetation.

12.1 Toxicity

Information not available

12.2 Persistence and Degradation

Information not available

12.3 Bioaccumulation potential

Information not available

12.4 Mobility in soil

Information not available.

12.5 Results of PBT and vPvB assessment

Based on available data, the product does not contain PBT or vPvB substances in percentages greater than 0,1%.

12.6 Other adverse effect

Information not available.

Section 13 Disposal considerations

13.1 Waste treatment methods

Reuse, if possible. Remains of the products are to be considered non-hazardous special waste.

Waste disposal must be entrusted to a company authorized to waste management, in compliance with the national and local legislation.

Waste transport may be subject to ADR

CONTAMINATED PACKAGES

Contaminated packages must be sent for recovery or disposal in compliance with national regulation on waste management.

Section 14 Information on transport

14.1 ONU Number.

ADR / RID:	-
IMDG:	UN 1845
IATA:	UN 1845

14.2 Appropriate ONU shipping name.

ADR / RID : EXEMPT FROM ADR


IMDG : CARBON DIOXIDE, SOLID (DRY ICE)

IATA : CARBON DIOXIDE, SOLID (DRY ICE)

14.3 Hazard classes for transportation

ADR / RID	EXEMPT FROM ADR		
IMDG	Class: 9	Label: 9	

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IATA	Class: 9	Label: 9	
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14.4 Packaging group

ADR / RID : -
IMDG : -
IATA : -

14.5 Environmental hazards.

ADR / RID : EXEMPT FROM ADR
IMDG : NO
IATA : NO

14.6 Special precautions for users

ADR / RID:	HIN - Kemler: -	Limited quantity: -	Tunnel restriction code: -
	Special disposition: -		
IMDG:	EMS: F-C, S-V	Limited quantity: -	
IATA:	Cargo:	Maximum quantity: 200 Kg	Packaging instruction: 954
	Pass.:	Maximum quantity: 200 Kg	Packaging instruction: 954
	Special instruction:	A48, A151, A805	

14.7 Carry bulk according to ANNEX II of MARPOL 73/78 and IBC code.

Non-relevant information.

Section 15 Regulatory information

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

Seveso category. None.

Restrictions related to the product or the substances contained according to ANNEX XVII Regulation (EC) 1907/2006.

None.

Substances in Candidate List (Art. 59 REACH).

None.

Substances subject to authorization (ANNEX XIV REACH).

None.

Substances subject to export notification obligation Reg. (EC) 649/2012:

None.

Substances subject to Rotterdam convention:

None.

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Substances subject to Stockholm convention:

None.

Health assessment.

Information not available.

15.2 Chemical safety assessment

It hasn't been performed a chemical safety assessment for the mixture and substances contained.

Section 16 Other information

Hazard phrases (H) mentioned in sections 2-3 of the sheet

EUH210 : Data sheet available on request.

Legend:

- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Concentration of a compound where 50% of its maximal effects is observed
- EC NUMBER: identifier number in ESIS (European Chemical Substances Information System)
- CLP: Regulation (EC) n° 1272/2008
- DNEL: Derived no-effect level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System for the Classification and Labeling of Chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulations
- IC50: Inhibitory Concentration
- IMDG: International Maritime Dangerous Goods Code
- IMO: International Maritime Organization
- INDEX NUMBER: Index number in Annex VI to CLP
- LC50: Lethal Concentration (50%)
- LD50: Lethal Dose 50% - OEL: Occupational exposure limit
- OEL: Occupational exposure limit
- PBT: Persistent Bioaccumulative and Toxic according to REACH
- PEC: Predicted Environmental Concentration
- PEL: Permissible Exposure Limits
- PNEC: Predicted no-effect concentration
- REACH: EC Regulation 1907/2006
- RID: Regulation concerning the International Carriage of Dangerous Goods by Road
- TLV: Threshold Limit Value
- TLV CEILING: absolute exposure limit that should not be exceeded at any time
- TLV STEL: - TLV Short-Term Exposure Limit
- TLV TWA: TLV Time-Weighted Average
- VOC: Volatile Organic Compound
- vPvB: very Persistent and very Bioaccumulative
- WGK: German water hazard

General Biography:

1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EC) 790/2009 (I Apt. CLP) of the European Parliament
4. Regulation (EC) 2015/830 of the European Parliament

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5. Regulation (EC) 286/2011 (II Apt. CLP) of the European Parliament
 6. Regulation (EC) 618/2012 (III Apt. CLP) of the European Parliament
 7. Regulation (EC) 487/2013 (IV Apt. CLP) of the European Parliament
 8. Regulation (EC) 944/2013 (V Apt. CLP) of the European Parliament
 9. Regulation (EC) 605/2014 (VI Apt. CLP) of the European Parliament
 10. Regulation (EC) 2015/830 of the European Commission
- The Merck Index 10th edition
 - Handling Chemical Safety
 - INRS – Fiche Toxicologique (toxicological sheet)
 - Patty – Industrial Hygiene Toxicology
 - N.I. Sax – Dangerous properties of Industrial Materials – 7, 1989 Edition
 - ECHA Website

Indication of Changes: Revised safety data sheet for the updating of the Logo.

This safety data sheet has been compiled in compliance with European Directives in force and is applicable to all the countries which have included those Directives into their national legislation. The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify

the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee of any specific product property.

The use of this product is not subject to our direct control; therefore users must under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

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