

SAFETY DATA SHEET

A safety data sheet is not required for this product under Article 31 of REACH. This product safety information sheet has been created on a voluntary basis.

Document ID : DIUKY-SDS-001
Revision Date : 4 March 2025
Revision : 10

Solid Carbon Dioxide

DRY ICE PELLETS, BLOCKS AND SLICES

SECTION 1: Identification Of The Substance/Mixture And Of The Company/Undertaking

1.1 Product Identifier

Product name : Dry Ice (Solid carbon dioxide)
REACH Registration number : Exempted from registration. Listed in Annex IV / V REACH
CAS number : 124-38-9
Chemical Description : Solid carbon dioxide
CAS-No : 124-38-9
EC-No : 204-696-9
EC Index-No : --
Chemical formula : CO₂

1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Identified uses : Industrial and professional. Risk assessment required prior to use
Dry ice blast cleaning
As a coolant
Shrink fitting
Special effects
Please contact supplier for more information on applications
Uses advised against : In drinks without ensuring the specific type and grade is used and in conjunction with a product suitable for the application which addresses the risk of ingestion.

1.3 Details of the Supplier of the Safety Data Sheet

Address

Street : Unit 2A Appian Way
Postal code : DN31 2UT
City : Grimsby
Country : United Kingdom
Telephone Number : +44 (0) 1472 345 476
Fax no. : +44 (0) 1472 345 958
:

e-mail address of person responsible for this SDS : enquiries@kitepackaging.co.uk

1.4 Emergency Telephone Number

National advisory body/Poison Centre : Not available.
Supplier
Telephone number : Emergency Contact Centre: Belgium
+32 14 25 06 11 (during working hours)
+32 3 252 02 31 (after working hours)
+32 486 43 04 98 (mobile)
Antifocentrum / Centre Antipoison: +32 70 24 52 45

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SECTION 2: Hazards Identification

2.1 Classification of the Substance or Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Classification : Not regulated

2.2 Label Elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Not applicable

2.3 Other Hazards

Asphyxiant in high concentrations.

Refrigerated, solidified gas. Direct contact with skin may cause cold burns or frostbite.

In high concentrations CO₂ causes rapid circulatory insufficiency even at normal levels of oxygen concentration. Symptoms are headache, nausea and vomiting, this can lead to unconsciousness and death.

SECTION 3: Composition/Information On Ingredients

3.1 Substances

Product / Ingredient Name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]
Carbon Dioxide (solid)	EC: 204-696-9 CAS: 124-38-9 EC Index No --- Registration-No *1	100	Not classified

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

*1 listed in Annex IV / V REACH as exempted from registration

*3 Registration not required as substance is manufactured or imported < 1t/y.

3.2 Mixtures

n/a

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. Perform cardiopulmonary resuscitation if breathing stopped.

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Skin contact : In case of frost bite, spray with water for at least 15 minutes, apply a sterile dressing and get medical attention.

Eye contact : Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

Ingestion : Get immediate medical attention

4.2 Most Important Symptoms and Effects, both Acute and Delayed

: Low concentrations of CO₂ cause increased respiration and headache. Refer to section 11

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

: None

SECTION 5: Firefighting Measures

5.1 Extinguishing Media

Suitable extinguishing media : Not applicable

Unsuitable extinguishing Media : Not applicable

5.2 Special Hazards Arising From the Substance or Mixture

Hazardous combustion products: : None

5.3 Advice for Firefighters

Specific Methods : Use fire control measures appropriate for the surrounding fire.

Special protective equipment for fire-fighters : In confined spaces use self-contained breathing apparatus
 Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.
 Standard EN 469 – Protective clothing for fire fighters. Standard – EN 659: Protective gloves for firefighters.

SECTION 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Specific methods : Ensure adequate air ventilation
 Act in accordance with local emergency plan
 Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
 Stay upwind

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6.2 Environmental Precautions

: None

6.3 Methods and Materials for Containment and Cleaning Up

Spillage : Ventilate area
 Collect spillage using appropriate tools and PPE, place in suitable container.

6.4 Reference to Other Sections

: See sections 8 and 13.

SECTION 7: Handling And Storage

7.1 Precautions for Safe Handling

Protective measures : For guidance on safe usage, please refer to the EIGA Doc. 150 “Code of practise Dry Ice” (www.eiga.eu) and consult your supplier. The product must be handled with good industrial hygiene and safety procedures.
 Consult supplier for container handling instructions.
 Do not smoke, eat or drink whilst handling product.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

Recommendations : Keep in original container
 Observe all regulations and local requirements for storage of containers.
 Store containers securely, in location free from risk of fire, sources of heat and ignition, keep away from combustible materials.

7.3 Specific End Use(s)

Recommendations : None

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters

Occupational exposure limits

Carbon dioxide (solid) (124-38-9)
 OEL: Occupational Exposure Limits

EU	TWA IOELV (EU) 8 h [mg/m ³]	9000 mg/m ³
	TWA IOELV (EU) 8 h [ppm]	5000 ppm

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United Kingdom	WEL - LTEL - UK [mg/m ³]	9150 mg/m ³
	WEL - LTEL - UK [ppm]	5000 ppm
	WEL - STEL - UK [mg/m ³]	27400 mg/m ³
	WEL - STEL - UK [ppm]	15000 ppm
	Regulatory reference	EH40/2005 (Third edition, 2018). HSE

Ireland	OEL (IE)-(8-hour reference period) [mg/m ³]	9000 mg/m ³
	OEL (IE)-(8-hour reference period) [ppm]	5000 ppm
	OEL (IE)-(15min reference period) [mg/m ³]	27000 mg/m ³
	OEL (IE)-(15min reference period) [ppm]	15000 ppm
	Notes (IE)	IOELV (Indicative Occupational Exposure Limit Values)
	Regulatory reference	Code of Practice for the Chemical Agents Regulations 2018

DNEL (Derived-No Effect Level): None available.
 PNEC (Predicted No-Effect Concentration): None available.

8.2 Exposure Controls

8.2.1 Appropriate engineering Controls

Provide adequate general and local exhaust ventilation.
 Ensure exposure is below occupational exposure limits (where available)
 Consider the use of a work permit system e.g. for maintenance activities.
 CO2 detectors should be used where CO2 may be released.

8.2.2 Individual protection measures e.g. PPE

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. PPE compliant to the following recommendations should be considered:

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

Skin protection

Hand protection : Wear safety gloves
 Standard EN 388 – Protective gloves against mechanical risk
 Standard EN 511 – Cold insulating gloves

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

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Respiratory protection : None necessary
 Thermal hazards : None in addition to the above sections.

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 : Refrigerated, solidified gas
 Physical State at 20° C / 101.3kPa : Gas
 Colour : White
 Odour : Odourless.
 Odour threshold : Odour threshold is subjective and not adequate to warn of overexposure
 pH : n/a
 Melting point/freezing point : -78,5°C At atmospheric pressure dry ice sublimates into gaseous carbon dioxide
 Boiling Point : -56,6°C
 Flash point : n/a
 Evaporation rate : n/a
 Flammability (solid, gas) : Non-flammable.
 Explosive Limits : Non-flammable
 Vapour pressure (20° C) : 57,3 bar(a)
 Vapour pressure (50° C) : n/a
 Vapour density : n/a
 Relative density, liquid (water=1): 1,03
 Relative density, gas (air=1): 1,52
 Water solubility : 2000 mg/l
 Partition coefficient:
 noctanol/water (log kow) : 0,83
 Auto-ignition temperature : Non flammable
 Decomposition temperature : n/a
 Viscosity : No reliable data available
 Explosive properties : n/a
 Oxidizing properties : n/a

9.2 Other Information

Molar mass : 44g/mol
 Critical temperature : 30 °C
 Other data : CO₂ gas / vapour is heavier than air and may accumulate in confined spaces, particularly at or below ground level.

SECTION 10: Stability and Reactivity

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10.1 Reactivity

: No reactivity hazard other than the effects described in sub sections below.

10.2 Chemical Stability

: Stable under normal conditions.

10.3 Possibility of Hazardous Reactions

: Under normal conditions of storage and use, none

10.4 Conditions to Avoid

: None

10.5 Incompatible Materials

: None

10.6 Hazardous Decomposition Products

: None

SECTION 11: Toxicological Information

11.1 Information on toxicological effects

Acute toxicity : Unlike simple asphyxiants, carbon dioxide can cause death even whilst normal oxygen levels (20-21%) are maintained. 5% CO₂ has been found to act synergistically to increase the toxicity of other gases (CO, NO₂). CO₂ 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. See EIGA Safety Info 24: Carbon Dioxide, Physiological Hazards' at www.eiga.eu for further information.

Skin corrosion / irritation : No known effects from this product

Serious eye damage / irritation : No known effects from this product

Respiratory or skin sensitisation : No known effects from this product

Germ Cell Mutagenicity : No known effects from this product

Carcinogenicity : No known effects from this product

Toxic for reproduction, fertility : No additional information available

Toxic for reproduction, unborn child : No additional information available

STOT, single exposure : No known effects from this product

STOT, repeated exposure : No known effects from this product

Aspiration hazard : Not applicable

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SECTION 12: Ecological Information

12.1 Toxicity

Assessment : No ecological damage caused by this product

EC50 48h – Daphnia magna : No data available
 (mg/l)

EC50 72h – Algae (mg/l) : No data available

LC50 96h – Fish (mg/l) : No data available

12.2 Persistence and Degradability

Assessment : No ecological damage caused by this product.

12.3 Bio accumulative Potential

Assessment : No ecological damage caused by this product.

12.4 Mobility in Soil

Assessment : No ecological damage caused by this product.

12.5 Results Of PBT and vPvB Assessment

Assessment : Not classified as PBT or vPvB

12.6 Other adverse effects

Other adverse effects : No known significant effects or critical hazards.

Global warming potential :
 (CO₂ = 1) : 1

Effect on the ozone layer : None

Effect on global warming : contains greenhouse gas(es)
 When discharged in large quantities the product may contribute to the greenhouse effect.

SECTION 13: Disposal Considerations

13.1 Waste Treatment Methods

Product

Waste Treatment Methods : Avoid discharging to atmosphere in large quantities, do not discharge into any area where accumulation could be dangerous.

List of hazardous waste codes : None
 (from commission decision 2000/532/EC as amended)

13.2 Additional Information : None

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SECTION 14: Transport information

14.1 UN number : 1845

14.2 UN proper shipping name

Transport by road / rail (ADR/RID) : Not subject to ADR, expect for section 5.5.3
 Transport by air (ICAO-TI / IATA-DGR) : Carbon dioxide, solid
 Transport by sea (IMDG) : CARBON DIOXIDE, SOLID (dry ice)

14.3 Transport hazard classes(es)

Transport by air (ICAO-TI / IATA-DGR)

Class / Div. (Sub. Risk(s)) : 9

Transport by sea (IMDG)

Class / Div. (Sub. Risk(s)) : 9

Emergency Schedule

(EmS) Fire : F-C

Emergency Schedule

(EmS) Spillage : S-V

14.4 Packing Group

Transport by road / rail (ADR/RID) : n/a

Transport by air (ICAO-TI / IATA-DGR) : n/a

Transport by sea (IMDG) : n/a

14.5 Environmental Hazards

Transport by road / rail (ADR/RID) : None

Transport by air (ICAO-TI / IATA-DGR) : None

Transport by sea (IMDG) : None

14.6 Special precautions for user

Packing Instructions (s)

Transport by air (ICAO-TI / IATA-DGR)
 Passenger and Cargo : 954
 Cargo Only : 954
 Transport by sea (IMDG) : P003

Special transport precautions : Avoid transport in vehicles that do not have the drivers cab separated from the load space.
 Ensure vehicle driver is aware of the potential hazards of the load and understands what to do in the event of an accident or emergency.

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14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

: n/a

SECTION 15: Regulatory Information

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

EU Regulations

Restrictions on use : None
 Seveso Directive: 2012/18/EU (Seveso III) : Not covered

National regulations

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

Abbreviations and acronyms:

ATE	Acute Toxicity Estimate
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
EINECS	European Inventory of Existing Commercial Chemical Substances
CAS#	Chemical Abstract Service number
PPE	Personal Protection Equipment
LC50	Lethal Concentration to 50 % of a test population
RMM	Risk Management Measures
PBT	Persistent, Bio accumulative and Toxic
vPvB	Very Persistent and Very Bio accumulative
STOT- SE	Specific Target Organ Toxicity - Single Exposure
CSA	Chemical Safety Assessment
EN	European Standard
UN	United Nations
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
IATA	International Air Transport Association
IMDG code	International Maritime Dangerous Goods
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
WGK	Water Hazard Class

Training advice:

The risk of asphyxiation is often overlooked and must be stressed during operator training. For more guidance, refer to EIGA SL 01 "Dangers of Asphyxiation", downloadable at <http://www.eiga.eu>

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Disclaimer of liability:

Prior to use of this product in any process or experiment, a thorough compatibility and risk assessment should be carried out. Details given in this document are believed to be correct at time of going to press. Whilst a great level of care has been taken in the preparation of this document, no liability for injury or damage from its use can be accepted.