

# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
US - OSHA Hazard Communication Standard (29 CFR 1910.1200)

Issuing Date 02-Jun-2014

Revision Date 01-Aug-2024

Revision Number 4.1

## 1. Identification

### Product identifier

Product Name Carbon Dioxide, Solid

### Other means of identification

Synonyms DRY ICE; Gas ID 2187

Other information Classification determined in accordance with Compressed Gas Association standards.

### Recommended use of the chemical and restrictions on use

Recommended use Industrial and Specialty Gas Applications

Restrictions on use No information available

### Details of the supplier of the safety data sheet

#### Manufacturer Address

Continental Carbonic Products  
A Division of Matheson Tri-Gas, Inc.  
909 Lake Carolyn Parkway  
Suite 1300  
Irving, TX 75039  
General Information: 1-800-416-2505

#### Emergency telephone number

Emergency telephone CHEMTREC: +1-703-527-3887 (INTERNATIONAL)  
1-800-424-9300 (NORTH AMERICA)

## 2. Hazard(s) identification

### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Simple asphyxiants	Yes
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### Hazards not otherwise classified (HNOC)

Not applicable.

### Label elements

#### Warning

#### Hazard statements

May displace oxygen and cause rapid suffocation.

**Other information**

Contact with product may cause frostbite.

**3. Composition/information on ingredients****Substance**

Chemical name	CAS No.	Weight-%	Trade secret
Carbon dioxide, solid	124-38-9	100	-

**4. First-aid measures****Description of first aid measures**

<b>Inhalation</b>	Remove person to fresh air and keep comfortable for breathing. Artificial respiration and/or oxygen may be necessary. If breathing has stopped, give artificial respiration. Get medical attention immediately.
<b>Eye contact</b>	In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical attention.
<b>Skin contact</b>	Get immediate medical attention. If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115°F; 41-46°C). If warm water is not available, gently wrap affected parts in blankets.
<b>Ingestion</b>	Get immediate medical attention.

**Most important symptoms and effects, both acute and delayed**

<b>Symptoms</b>	May cause cryogenic burns. Frostbite. Suffocation.
<b>Effects of Exposure</b>	No information available.

**Indication of any immediate medical attention and special treatment needed**

<b>Note to physicians</b>	Treat symptomatically. For inhalation, consider oxygen.
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**5. Fire-fighting measures**

<b>Suitable Extinguishing Media</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
<b>Unsuitable extinguishing media</b>	None known.
<b>Specific hazards arising from the chemical</b>	Negligible fire hazard.
<b>Hazardous combustion products</b>	Carbon oxides.
<b>Explosion data</b>	
<b>Sensitivity to mechanical impact</b>	None.
<b>Sensitivity to static discharge</b>	None.

**Special protective equipment and precautions for fire-fighters**

Move containers from fire area if you can do it without risk. Cool containers with flooding quantities of water until well after fire is out. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

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

**Personal precautions** Ensure adequate ventilation. Evacuate personnel to safe areas. Wear personal protective clothing and equipment, see Section 8.

**Methods and material for containment and cleaning up**

**Methods for containment** Stop leak if you can do it without risk. Use water spray to reduce vapors or divert vapor cloud drift. Keep unnecessary and unprotected personnel away from spillage. Ventilate the area. Stay upwind and keep out of low areas.

**Methods for cleaning up** Eliminate all ignition sources if safe to do so. Damaged cylinders should be handled only by specialists.

**Prevention of secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

**7. Handling and storage****Precautions for safe handling**

**Advice on safe handling** Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Avoid breathing dust. Remove contaminated clothing and shoes. Ensure adequate ventilation. Wear personal protective equipment.

**Conditions for safe storage, including any incompatibilities**

**Storage Conditions** Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from sunlight. Store locked up. Store in accordance with local regulations. Subject to storage regulations: Keep away from Incompatible materials.

**8. Exposure controls/personal protection****Control parameters****Exposure Limits**

Chemical name	ACGIH TLV	OSHA PEL	NIOSH
Carbon dioxide, solid 124-38-9	TWA: 5000 ppm STEL: 30000 ppm	TWA: 5000 ppm TWA: 9000 mg/m <sup>3</sup> (vacated) TWA: 10000 ppm (vacated) TWA: 18000 mg/m <sup>3</sup> (vacated) STEL: 30000 ppm (vacated) STEL: 54000 mg/m <sup>3</sup>	IDLH: 40000 ppm TWA: 5000 ppm TWA: 9000 mg/m <sup>3</sup> STEL: 30000 ppm STEL: 54000 mg/m <sup>3</sup>

**Biological occupational exposure limits**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

**Appropriate engineering controls**

**Engineering controls** Provide local exhaust ventilation. Apply technical measures to comply with the occupational exposure limits.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection** Wear chemical splash goggles and face shield when eye and face contact is possible due to splashing or spraying of material. Contact lenses should not be worn when working with chemicals. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**Hand protection** Wear insulated gloves.

**Skin and body protection** Wear appropriate protective, cold insulating clothing.

**Respiratory protection** When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Consider warning properties before use. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode.

**General hygiene considerations** Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product.

## 9. Physical and chemical properties

**Information on basic physical and chemical properties**

Appearance	White flakes
Physical state	Solid
Color	White
Odor	No information available
Odor threshold	0.14 ppm, Arsine

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH		No data available
pH (as aqueous solution)		No data available
Melting point / freezing point	-70 °C / -94 °F	
Initial boiling point and boiling range	-79 °C / -110 °F	Sublimation point: @ -78.5 °C / -105°F, Atmospheric pressure
Flash point		No data available
Evaporation rate		No data available
Flammability	Not flammable	No data available
Flammability Limit in Air		
Upper flammability or explosive limits		No data available
Lower flammability or explosive limits		No data available
Vapor pressure	569 mmHg	@ -82 °C
Relative vapor density	1.5	(air = 1)
Relative density	1.56	@-79°C
Water solubility	1.6%	

Solubility(ies)	Hydrocarbons, Organic solvents	No data available
Partition coefficient		No data available
Autoignition temperature		No data available
Decomposition temperature		No data available
Kinematic viscosity		No data available
Dynamic viscosity		No data available

**Other information**

Explosive properties	No information available
Oxidizing properties	No information available
Softening point	No information available
Molecular weight	44.01
Molecular formula	CO <sub>2</sub>
VOC content	No information available
Liquid Density	No information available
Bulk density	1.4-1.6 g/cm <sup>3</sup>

**10. Stability and reactivity**

Reactivity	None under normal use conditions.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	None under normal processing.
Conditions to avoid	Excessive heat. Protect from physical damage. Containers may rupture or explode if exposed to heat. Exposure to water. Protect from moisture.
Incompatible materials	Combustible material, Oxidizing materials, Metal salts, Reducing agent, Metal carbide, Metals, Bases.
Hazardous decomposition products	Carbon oxides.

**11. Toxicological information****Information on likely routes of exposure****Product Information**

Inhalation	Suffocation. Ringing in ears. Nausea. Irregular heartbeat. Headache. Drowsiness. Dizziness. Incoordination. Tingling sensation. Visual disturbances. Convulsions. Coma.
Eye contact	Contact with product may cause frostbite. Blurred vision.
Skin contact	Blisters. Contact with product may cause frostbite.
Ingestion	Specific test data for the substance or mixture is not available.

**Symptoms related to the physical, chemical and toxicological characteristics**

Symptoms	May cause cryogenic burns. Frostbite. Suffocation.
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**Acute toxicity****Numerical measures of toxicity**

Based on available data, the classification criteria are not met.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	No information available.
Serious eye damage/eye irritation	No information available.
Respiratory or skin sensitization	No information available.
Germ cell mutagenicity	No information available.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Aspiration hazard	Not applicable.
Other adverse effects	No information available.
Interactive effects	No information available.

**12. Ecological information**

Ecotoxicity	Avoid release to the environment.
Persistence and degradability	No information available.
Bioaccumulation	No information available.
Mobility	No information available.
Other adverse effects	No information available.

**13. Disposal considerations**Disposal methods

Waste from residues/unused products	Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable.
Contaminated packaging	Do not reuse empty containers.

**14. Transport information**

<b>DOT</b>	Not regulated for Domestic Surface Transportation
Proper shipping name	CARBON DIOXIDE, SOLID
UN proper shipping name	Carbon dioxide, solid

**IMDG**

UN number or ID number	UN1845
UN proper shipping name	CARBON DIOXIDE, SOLID
Transport hazard class(es)	9
Marine pollutant	NP
Description	UN1845, CARBON DIOXIDE, SOLID, 9 F-C S-V

**15. Regulatory information****International Inventories**

Contact supplier for inventory compliance status

**US Federal Regulations****SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

**SARA 311/312 Hazard Categories**

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

**CWA (Clean Water Act)**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

**CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

**US State Regulations****California Proposition 65**

This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

Chemical name	New Jersey	Massachusetts	Pennsylvania
Carbon dioxide, solid 124-38-9	X	X	X

**U.S. EPA Label Information**

EPA Pesticide Registration Number Not applicable

**16. Other information**

<b>NFPA</b>	Health hazards 3	Flammability 0	Instability 0	Special hazards SA
<b>HMIS</b>	Health hazards 3	Flammability 0	Physical hazards 0	Personal protection X

**Key or legend to abbreviations and acronyms used in the safety data sheet****Legend**

SVHC: Substances of Very High Concern for Authorization:  
 PBT: Persistent, Bioaccumulative, and Toxic (PBT) Substances  
 vPvB: Very Persistent and very Bioaccumulative (vPvB) Substances  
 STOT: Specific Target Organ Toxicity  
 ATE: Acute Toxicity Estimate  
 LC50: 50% Lethal Concentration  
 LD50: 50% Lethal Dose

**Legend Section 8: Exposure controls/personal protection**

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation
+	Sensitizers		

**Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
 U.S. Environmental Protection Agency ChemView Database  
 European Food Safety Authority (EFSA)  
 Environmental Protection Agency  
 Acute Exposure Guideline Level(s) (AEGL(s))  
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
 U.S. Environmental Protection Agency High Production Volume Chemicals  
 Food Research Journal  
 Hazardous Substance Database  
 International Uniform Chemical Information Database (IUCLID)  
 Japan GHS Classification  
 Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
 NIOSH (National Institute for Occupational Safety and Health)  
 National Library of Medicine's ChemID Plus (NLM CIP)  
 National Library of Medicine's PubMed database (NLM PUBMED)  
 U.S. National Toxicology Program (NTP)  
 New Zealand's Chemical Classification and Information Database (CCID)  
 Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
 Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
 Organization for Economic Co-operation and Development Screening Information Data Set  
 World Health Organization

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**Revision Note** SDS sections updated: 16. NFPA, HMIS.

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet