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

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

Inhalation 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.

Eye contact 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.

Skin contact 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.

Ingestion Get immediate medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms May cause cryogenic burns. Frostbite. Suffocation.

Effects of Exposure No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically. For inhalation, consider oxygen.

5. Fire-fighting measures

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media None known.

Specific hazards arising from the chemical Negligible fire hazard.

Hazardous combustion products Carbon oxides.

Explosion data
Sensitivity to mechanical impact None.
Sensitivity to static discharge 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^3 (vacated) TWA: 10000 ppm (vacated) TWA: 18000 mg/m^3 (vacated) STEL: 30000 ppm (vacated) STEL: 54000 mg/m^3	IDLH: 40000 ppm TWA: 5000 ppm TWA: 9000 mg/m^3 STEL: 30000 ppm STEL: 54000 mg/m^3

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

Property	Values	Remarks • Method
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_2
VOC content	No information available
Liquid Density	No information available
Bulk density	1.4-1.6 g/cm^3

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.

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

DOT	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

NFPA	**Health hazards** 3	**Flammability** 0	**Instability** 0	**Special hazards** SA
HMIS	**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

Issuing Date 02-Jun-2014

Revision Date 01-Aug-2024

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