

SAFETY DATA SHEET

*Carbon Dioxide, Solid or Dry Ice*Date of issue **11/10/2018**

Date of previous issue 6/26/2018

SECTION 1. IDENTIFICATION

GHS product identifier	Carbon Dioxide, Solid or Dry Ice
Chemical name	Carbon dioxide, solid
Other means of identification	Dry ice; carbonic anhydride
Product type	Solid.
Product use	Synthetic/Analytical chemistry.
Synonym	Dry ice; carbonic anhydride
SDS #	001091

Supplier's details	CMC Industrial Services, LLC 7160 Weddington Road NW, Suite 136 Concord, NC 28027 980-439-5920	24-hour telephone 704-701-1219 Dalton Coleman 980-239-2204 Stephanie Coleman
---------------------------	---	---

SECTION 2. HAZARDS IDENTIFICATION

OSHA/HCS status	Not classified.
Classification of the substance or mixture	Not classified by Globally Harmonized System of Classification and Labeling (GHS).

GHS LABEL ELEMENTS

WARNING SIGNAL WORD

Hazard statements: May displace oxygen and cause rapid suffocation. May increase respiration and heart rate. May cause frostbite.
No GHS pictogram is assigned — this substance is not classified under GHS.

PRECAUTIONARY STATEMENTS

General	Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.
Prevention	Not applicable.
Response	Not applicable.
Storage	Not applicable.
Disposal	Not applicable.
Hazards not otherwise classified	Contact with cryogenic liquid can cause frostbite and cryogenic burns.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/mixture	Substance
Chemical name	Carbon dioxide, solid
Other means of identification	Food Grade Dry ice; carbonic anhydride
Product code	001091
CAS number	124-38-9

INGREDIENT NAME	%	CAS NUMBER
Carbon Dioxide	99.99	124-38-9

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4. FIRST AID MEASURES

DESCRIPTION OF NECESSARY FIRST AID MEASURES

Eye contact	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE AND DELAYED — POTENTIAL ACUTE HEALTH EFFECTS

Eye contact	May cause eye irritation.
Inhalation	May be harmful if inhaled. May cause respiratory irritation.
Skin contact	Harmful if absorbed through the skin. May cause skin irritation.
Frostbite	Try to warm up the frozen tissues and seek medical attention.
Ingestion	May be harmful if swallowed and enters airways.

OVER-EXPOSURE SIGNS/SYMPTOMS

Eye contact	No specific data.
Inhalation	No specific data.
Skin contact	No specific data.
Ingestion	No specific data.

INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED, IF NECESSARY

Notes to physician	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	No specific treatment.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

SECTION 5. FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA

Suitable extinguishing media	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	No specific fire or explosion hazard.
Hazardous thermal decomposition products	Decomposition products may include the following materials: carbon dioxide, carbon monoxide
Special protective actions for fire-fighters	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

For non-emergency personnel	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
For emergency responders	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP

Small spill	Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
Large spill	Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

SECTION 7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING

Protective measures	Put on appropriate personal protective equipment (see Section 8).
Advice on general occupational hygiene	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
Conditions for safe storage, including any incompatibilities	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CONTROL PARAMETERS — OCCUPATIONAL EXPOSURE LIMITS

INGREDIENT NAME	EXPOSURE LIMITS
Carbon Dioxide	ACGIH TLV (United States, 3/2017). STEL: 54000 mg/m³ 15 minutes. STEL: 30000 ppm 15 minutes. TWA: 9000 mg/m³ 8 hours. TWA: 5000 ppm 8 hours. NIOSH REL (United States, 10/2016). STEL: 54000 mg/m³ 15 minutes. STEL: 30000 ppm 15 minutes. TWA: 9000 mg/m³ 10 hours. TWA: 5000 ppm 10 hours. OSHA PEL (United States, 6/2016). TWA: 9000 mg/m³ 8 hours. TWA: 5000 ppm 8 hours. OSHA PEL 1989 (United States, 3/1989). STEL: 54000 mg/m³ 15 minutes. STEL: 30000 ppm 15 minutes. TWA: 18000 mg/m³ 8 hours. TWA: 10000 ppm 8 hours.

Appropriate engineering controls	Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
Environmental exposure controls	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

INDIVIDUAL PROTECTION MEASURES

Hygiene measures	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Eye/face protection	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
Hand protection	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Body protection	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other skin protection	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Physical state	Solid. [WHITE SNOW-LIKE SOLID]
Color	White.
Odor	Not available.
Odor threshold	Not available.
pH	Not available.
Melting point	Sublimation temperature: -78.5°C (-109.3 to °F)
Boiling point	Not available.
Critical temperature	31°C (87.8°F)
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Lower and upper explosive (flammable) limits	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Specific Volume (ft³/lb)	0.6579
Gas Density (lb/ft³)	1.52

Relative density	Density Solid (Dry Ice) 97.5189 lb./ft. ³ at -109.3° F
Solubility	Not available.
Solubility in water	Not available.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Flow time (ISO 2431)	Not available.
Molecular weight	44.01 g/mole

SECTION 10. STABILITY AND REACTIVITY

Reactivity	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	No specific data.
Incompatible materials	No specific data.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	Under normal conditions of storage and use, hazardous polymerization will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Acute toxicity	Not available.
Irritation/Corrosion	Not available.
Sensitization	Not available.
Mutagenicity	Not available.
Carcinogenicity	Not available.
Reproductive toxicity	Not available.
Teratogenicity	Not available.
Specific target organ toxicity (single exposure)	Not available.
Specific target organ toxicity (repeated exposure)	Not available.
Aspiration hazard	Not available.
Information on the likely routes of exposure	Not available.

POTENTIAL ACUTE HEALTH EFFECTS

Eye contact	May cause eye irritation.
Inhalation	May be harmful if inhaled. May cause respiratory irritation.
Skin contact	Harmful if absorbed through the skin. May cause skin irritation.
Ingestion	May be harmful if swallowed and enters airways.

SYMPTOMS RELATED TO THE PHYSICAL, CHEMICAL AND TOXICOLOGICAL CHARACTERISTICS

Eye contact	No specific data.
Inhalation	No specific data.
Skin contact	No specific data.
Ingestion	No specific data.

DELAYED AND IMMEDIATE EFFECTS AND ALSO CHRONIC EFFECTS FROM SHORT AND LONG TERM EXPOSURE

Short term exposure — potential immediate effects	Not available.
Short term exposure — potential delayed effects	Not available.
Long term exposure — potential immediate effects	Not available.
Long term exposure — potential delayed effects	Not available.

POTENTIAL CHRONIC HEALTH EFFECTS

General	No known significant effects or critical hazards.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.
Numerical measures of toxicity — acute toxicity estimates	Not available.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity	Not available.
Persistence and degradability	Not available.
Bioaccumulative potential	Not available.
Mobility in soil — soil/water partition coefficient (K_{OC})	Not available.
Other adverse effects	No known significant effects or critical hazards.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods	The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
-------------------------	---

SECTION 14. TRANSPORT INFORMATION

	DOT	TDG	MEXICO	IMDG	IATA
UN number	UN1845	UN1845	UN1845	UN1845	UN1845
UN proper shipping name	CARBON DIOXIDE, SOLID OR DRY ICE	CARBON DIOXIDE, SOLID; OR DRY ICE	CARBON DIOXIDE, SOLID OR DRY ICE	CARBON DIOXIDE, SOLID (DRY ICE)	CARBON DIOXIDE, SOLID
Transport hazard class(es)	9	9	9	9	9
Packing group	–	–	–	–	–
Environmental hazards	No.	No.	No.	No.	No.

“Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product.”

ADDITIONAL INFORMATION

DOT Classification	Limited quantity Yes. Quantity limitation Passenger aircraft/rail: 200 kg. Cargo aircraft: 200 kg.
TDG Classification	Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.43-2.45 (Class 9). Explosive Limit and Limited Quantity Index 5. Passenger Carrying Ship Index 200. Special provisions 18.
IATA	Quantity limitation Passenger and Cargo Aircraft: 200 kg. Cargo Aircraft Only: 200 kg.
Special precautions for user	Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
Transport in bulk according to Annex II of MARPOL and the IBC Code	Not available.

SECTION 15. REGULATORY INFORMATION

U.S. Federal regulations	TSCA 8(a) CDR Exempt/Partial exemption: This material is listed or exempted.
Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)	Not listed
Clean Air Act Section 602 Class I Substances	Not listed
Clean Air Act Section 602 Class II Substances	Not listed
DEA List I Chemicals (Precursor Chemicals)	Not listed
DEA List II Chemicals (Essential Chemicals)	Not listed
SARA 302/304 — composition/information on ingredients	No products were found.
SARA 304 RQ	Not applicable.
SARA 311/312 Classification	Refer to Section 2: Hazards Identification of this SDS for classification of substance.

STATE REGULATIONS

Massachusetts	This material is listed.
New York	This material is not listed.
New Jersey	This material is listed.
Pennsylvania	This material is listed.

INTERNATIONAL REGULATIONS

Chemical Weapon Convention List Schedules I, II & III Chemicals	Not listed.
Montreal Protocol (Annexes A, B, C, E)	Not listed.
Stockholm Convention on Persistent Organic Pollutants	Not listed.
Rotterdam Convention on Prior Informed Consent (PIC)	Not listed.
UNECE Aarhus Protocol on POPs and Heavy Metals	Not listed.

INVENTORY LIST

Australia	This material is listed or exempted.
Canada	This material is listed or exempted.
China	This material is listed or exempted.
Europe	This material is listed or exempted.
Japan	Japan inventory (ENCS): This material is listed or exempted. Japan inventory (ISHL): This material is listed or exempted.
Malaysia	Not determined.
New Zealand	This material is listed or exempted.
Philippines	This material is listed or exempted.
Republic of Korea	This material is listed or exempted.
Taiwan	This material is listed or exempted.
Thailand	Not determined.
Turkey	This material is listed or exempted.
United States	This material is listed or exempted.
Viet Nam	Not determined.

SECTION 16. OTHER INFORMATION

HAZARDOUS MATERIAL INFORMATION SYSTEM (U.S.A.)

Health	3
Flammability	0
Physical hazards	0
Personal protection	Determined by customer

NATIONAL FIRE PROTECTION ASSOCIATION (U.S.A.)



Health 3 · Flammability 0 ·
Instability/Reactivity 0 · Special SA

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

PROCEDURE USED TO DERIVE THE CLASSIFICATION

CLASSIFICATION	JUSTIFICATION
Not classified.	

HISTORY

Date of printing	11/10/2018
Date of issue/Date of revision	11/10/2018
Date of previous issue	6/26/2018
Version	1

KEY TO ABBREVIATIONS

ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor

LogPow = logarithm of the octanol/water partition coefficient
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 UN = United Nations

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

IATA = International Air Transport Association

IBC = Intermediate Bulk Container

IMDG = International Maritime Dangerous Goods

References Not available.

NOTICE TO READER

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

CMC Industrial Services, LLC

7160 Weddington Road NW, Suite 136, Concord, NC 28027

980-439-5920 · cmcdryice.com