MSDS #1001

Safety Data Sheet
Dry Ice

Identity: Carbon Dioxide – Solid (Dry Ice). Dry ice is the solid form of carbon dioxide.

General Information

Date MSDS Prepared: January 1, 2020
Sutton-Garten Co.
901 N. Senate Ave.
Indianapolis IN 46202
317 264 3236 800-686-4674

Emergency Contact (24 hour) PERS 800-633-8253

Product is considered Hazardous by the OSHA Hazardous Communication Standard 29 CFR 1910.100

Proprietary: No
NIOSH (RTECS) Number: FF6400000
Exposure Limits:
Carbon Dioxide:
5000 ppm (9000 mg/m3) OSHA TWA
5000 ppm (9000 mg/m3) ACGIH TWA: 30,000 ppm (54,000 mg/me) ACGIH STREL
5000 ppm (9000 mg/m3) NIOSH recommended 10 hour TWA:
30,000 ppm (54,000 mg/m3) NIOSH recommended STEL
5000 ppm (9000 mg/m3) DFG MAK TWA:
10,000 ppm (18,000 mg/m3) DFG MAK 60 minute peak, momentary value
Measurement method: Gas collection bag: Gas chromatography with thermal conductivity
Detector: (NIOSH III #S2491)

Physical/Chemical Characteristics

Appearance and Odor: Solid pellets or block - white opaque solid**,** odorless to slightly pungent
Boiling Point: -109.4 F
Melting Point: -109.3 F
Vapor Pressure (MM hg/70F): 831 PSIA
Solubility In Water: APPRECIABLE
Composition: Carbon Dioxide > 99% CAS Number 124-38-9

Fire Fighting Measures

FLASH POINT (test method):	Not applicable
AUTOIGNITION TEMPERATURE	Not applicable

FLAMMABLE LIMITS IN AIR, % by volume	**LOWER**: Not applicable	**UPPER:** Not applicable

UNUSUAL FIRE AND EXPLOSION HAZARDS: None Known
HAZARDOUS COMBUSTION PRODUCTS: Not applicable. Thermal decomposition releases carbon monoxide and oxygen.

Reactivity Data

Dry ice sublimes; if confined in a gas tight container, it will build up a pressure of 850 psig at 70º F. Do not put dry ice in an airtight container or confined space
Stability: It is stable
Conditions To Avoid (Stability): Moisture
Materials to Avoid: Carbonic acid/salt/corrosive chemicals
Hazardous Polymerization Occurrence: No

Health Hazard Data

Route of Entry-Inhalation: Yes
Route of Entry-Skin: No
Route of entry-Ingestion: No
Health Hazard Acute and Chronic: Concentration in excess of 1.5% carbon dioxide may cause death. At higher concentrations, displaces oxygen in air below levels necessary to support life.
Carcinogenicity-NTP: No
Carcinogenicity-IARC: No
Carcinogenicity-OSHA: No
Explanation Carcinogenicity: None
Signs/Symptoms of Overexposure: At concentrations >1.5%: Hyperventilation/headaches/ dyspnea/perspiration. At 6-10%: Headaches/dyspnea/perspiration, tremors, visual disturbances. >10%: Unconsciousness without warning. Cryogenic burns.
Emergency/first Aid Procedures: Inhalation: Remove to fresh air. Assisted respirant and supplemental oxygen should be given if not breathing. Frozen tissues should be flooded/soaked with tepid water. Don't use hot water. Obtain medical attention in all cases.

Precautions for Safe Handling and Use

Steps if Material Released/Spill: Ventilate indoor areas well to avoid hazardous CO_2 concentrations. Ventilate area well and avoid contact with cold vapors/dry ice. CO_2 is heavy gas and will remain in low spots without assisted ventilation.
Special Precautions for Handling of Solid Carbon Dioxide: Do not handle solid Carbon Dioxide with bare hands. Use heavy gloves, dry ice tongs or plastic scoop or shovel. Handle blocks of dry ice carefully, as injuries can occur if one is accidentally dropped on the feet. Containers of solid Carbon Dioxide should be stored upright and be firmly secured to prevent falling or being knocked over. Containers should be vented, to prevent the build-up of Carbon Dioxide gas. Carbon Dioxide sublimates at -78.5ºC (-109.3ºF); containers should be thermally insulated and kept at the lowest possible temperature to maintain the solid and avoid generation of Carbon Dioxide gas. Storage containers and equipment used with Carbon Dioxide should not be located in sub-surface or enclosed areas, unless engineered to maintain a concentration of Carbon Dioxide below the TLV (TLV=5000 ppm) in the event of a release. Solid consignment of

dry ice in a gas-tight vessel can lead to catastrophic failure of the vessel by over-pressurization. Storage of dry ice should never occur in a gas-tight container.

Control Measures

Respiratory Protection: SCBA in oxygen deficient atmospheres where CO_2 >1.5%. Do not use air purifying respirators.
Ventilation: Local Exhaust: At point sources of CO_2 vapors. Mechanical (general): Low lying area are not naturally ventilated.
Protective Gloves: Impermeable/loose fitting (leather)
Eye Protection: Safety glasses

Transportation Data

Shipping information: Packages should be transported in a secure position in a well ventilated vehicle. Product transported in an enclosed, non ventilated compartment of a vehicle can present serious safety hazards.
HAZARD CLASS: 9
PACKING GROUP/Zone: III
IDENTIFICATION NUMBER: UN1845
PRODUCT RQ: None
SHIPPING LABEL(s): Class 9 (Miscellaneous Hazardous Materials)
PLACARD (when required): Class 9
SPECIAL SHIPPING INFORMATION:
Dry ice is regulated by the Department of Transportation when transported by aircraft. For shipment by ground transportation, dry ice is not required to be subject to DOT Regulations, but may be placarded as as Class 9 Miscellaneous hazardous material and placarded and labeled accordingly.

Disposal Information

WASTE DISPOSAL METHOD: Place outside in a protected area with good ventilation and allow to sublime. Prevent waste from contaminating the surrounding environment. Keep personnel away. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, state and local regulations. If necessary, call your local supplier for assistance.

Label Information

Label Required: Yes
Technical Review Date: January 1, 2018
Label Date: January 1, 2018
Common Name: Solid Carbon Dioxide/Dry Ice
Chronic Hazard: Yes
Acute Health Hazard-Severe (3)
Contact Hazard-Slight
Fire Hazard- Minimal (0)
Reactivity Hazard-None (0)

Special Hazard Precautions: Concentration in excess of 1.5% carbon dioxide may cause death. At higher concentrations, displaces oxygen in air below levels necessary to support life.
Target organs: Respiratory system, skin
Protect Eye: Y
Protect Skin: Y
Protect Respiratory: Y

Notice:
To the best of our knowledge, the information contained herein is accurate. It has been compiled from available scientific literature.
However, the above named supplier does not assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination or 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