

SAFETY DATA SHEET



Carbon Dioxide, Solid – Dry Ice

SEC. 1 Product and Company Identification

Product Identifier	Carbon Dioxide, Solid - Dry Ice
CAS Number	124-38-9
Supplier Details	CryoCarb™ Division of Welders Supply Company 704 Fourth St. Beloit, WI 53511 Tel: 1-800-236-8825 Emergency Number: 1-800-424-9300 (CHEMTREC)
Recommended Use	Industrial Applications

SEC. 2 Hazards Identification

Classification	OSHA/HCS - Not classified GHS - Not classified
D.O.T. Hazard Class	Class 9 - Miscellaneous
Signal Word	Warning
Hazard Statements	Vapor may displace oxygen and cause rapid suffocation. Inhalation may increase respiration and heart rate. Contact with product may cause cold burns or severe frostbite. Harmful if eaten or swallowed.
Precautions	Read label before use. Use outdoors or in well-ventilated areas. Keep out of reach of children. Do not place in air-tight containers as they may explode. Dispose dry ice in accordance with all regulations.

SEC. 3 Composition - Information on Ingredients

Chemical Name	Carbon Dioxide, Solid - Dry Ice
CAS Number	124-38-9 (100%)

SEC. 4 First Aid Measures

Skin Contact	Immediately flush skin with water and remove affected clothing. Get medical attention for assessment and treatment. Frostbite is an acute symptom of skin contact.
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Eye Contact	Immediately flush eyes with water holding eye lids open and away from eyeball to ensure all affected areas are flushed. Get medical attention for assessment and treatment. Frostbite is an acute symptom of skin contact.
Ingestion	Immediately seek medical attention. Frostbite and suffocation are acute effects of ingestion.
Inhalation	Remove victim to fresh air and keep them in a comfortable position for breathing. Apply artificial respiration if victim is not breathing. Get medical attention for assessment and treatment. Acute symptoms of inhalation are suffocation and central nervous depression.

Warning for First Aid Providers: Victim(s) may be located in an oxygen deprived area. First aid measures may involve personal risk. Contact first responders that have self contained breathing apparatus.

SEC. 5 Fire Fighting Measures

Recommendations	Use extinguishing agents appropriate for the surrounding fire. Wear full protective gear including self-contained breathing apparatus. Stay upwind and keep out of low areas. Never handle solid carbon dioxide (dry ice) with your bare hands. Move packages of dry ice away from fire when safe to do so.
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SEC. 6 Accidental Release Measures

Personal Precautions	Make sure area is well ventilated. Wear protective clothing including insulated gloves and face and eye protection. Never handle dry ice with your bare hands. If at any time you feel dizziness or shortness of breath, leave area immediately and seek fresh air.
Emergencies	Make sure the area is well ventilated. Keep unnecessary people away from the spill area. Wear protective clothing including insulated gloves and face and eye protection. If at any time you feel dizziness or shortness of breath, leave area immediately and seek fresh air.
Cleanup/Containment	Collect the spilled material using shovels and deposit the material in an appropriate container for proper disposal. Do not dispose material in soil, waterways, drains and sewers.



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SEC. 7 Handling and Storage

Safe Handling Wear protective clothing including insulated gloves and face and eye protection. Use scoops and tongs to handle product. Product should be handled outside or in well ventilated areas. Eating, drinking or smoking should be prohibited in areas where this product is handled, stored or processed.

Safe Storage Always store in accordance with local regulations. Area must be well ventilated. Store product in properly designed containers. Do not store in tightly closed containers. Dry ice sublimates into carbon dioxide gas that must be allowed to vent. Carbon Dioxide is heavier than air and will accumulate in lower levels. Carbon Dioxide monitors are recommended and may be required in your jurisdiction.

SEC. 8 Exposure Controls - Personal Protection

Exposure Limits

Carbon Dioxide, Solid or Dry Ice (124-38-9)		
ACGIH	ACGIH TLV-TWA (ppm)	5000 ppm
ACGIH	ACGIH TLV-STEL (ppm)	30000 ppm
USA OSHA	OSHA PEL (TWA) (mg/m ³)	9000 mg/m ³
USA OSHA	OSHA PEL (TWA) (ppm)	5000 ppm
USA IDLH	US IDLH (ppm)	40000 ppm

Engineering Controls Use local exhaust ventilation to keep the concentration of carbon dioxide below all applicable exposure limits. Carbon Dioxide detectors are recommended and may be required by your local jurisdiction. Carbon Dioxide is heavier than air and will accumulate in low areas. Placement of ventilation and detection of equipment must take these factors into account.

Personal Protection Use insulated gloves for Hand Protection. Cover skin with insulated protective clothing and face shield. Use approved safety glasses with side shields for eye protection. Wear safety shoes for foot protection. When workplace conditions warrant respirator use, follow a respiratory protection program that meets OSHA 29 CFR 1910.134, ANSI Z88.2, or MSHA 30 CFR 72.710 (where applicable). Use an air-supplied or air-purifying cartridge if the action level is exceeded. Ensure that the respirator has the appropriate protection factor for the exposure level. If cartridge type respirators are used, the cartridge must be appropriate for the chemical exposure. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).

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Physical and Chemical Properties

Appearance	White opaque crystalline
U/L flammability and explosive limits	Not available
Odor	Odorless
Vapor pressure	5720 kPa at 20°C
Odor threshold	Not available
Vapor density	1.5 times heavier than air
pH	3.7 (carbonic acid)
Relative density	.14-1.8 g/cm ³
Melting point/freezing point	-70°C
Solubility in Water (ml/100ml at 20 C)	88°C
Initial boiling point	-79°C
Flash point	Not available
Evaporation rate	Not available
Flammability (solid, gas)	Not available
Partition coefficient (n-octanol/water as log pow)	.83
Auto-ignition temperature	Not available
Decomposition temperature	Decomposes above 2000°C This produces toxic carbon monoxide.

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Stability and Reactivity

Reactivity	No reactivity hazard is expected.
Chemical Stability	Stable at normal temperatures and pressure.
Possibility of Hazardous Reactions	None if stored, used and disposed of properly.
Conditions to Avoid	Not following all storage and handling procedures could result in serious damage, injury or death. Protect from physical damage and heat. Containers may rupture or explode if exposed to heat. Avoid contact with water or moisture. Product improperly stored in a sealed container may explode. Carbon dioxide is heavier than air and can accumulate in low areas. Avoid using and storing in low areas and poor ventilation.
Incompatible Materials	Combustible materials, oxidizing materials, metal salts, reducing agents, alkali metals, alkaline earth metals, acetyl ide forming metals, chromium, titanium > 1022°F, metal carbide, bases, (550°C), uranium (U) > 1382°F (750°C), magnesium > 1427°F (775°C).
Hazardous Decomposition	Produces poisonous carbon monoxide over 2000°C, oxides of carbon.

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SEC. 11 Toxicological Information

Likely Routes of exposure	Inhalation, skin
Delayed effects	Not available
Immediate effects	Suffocation, frostbite, central nervous system depression.
Chronic effects	Not available
Numerical toxicity measure	Not available
Possible Symptoms	Ringling in the ears, nausea, irregular heartbeat, headache, drowsiness, dizziness, loss of coordination, tingling sensation, visual disturbances, suffocation, convulsions, coma.
Carcinogens	Not listed or has not been found to be a potential carcinogen by NTP, the International Agency for Research on Cancer (IARC) Monographs (latest editions) or OSHA.

SEC. 12 Ecological Information

No known ecological toxicity.

SEC. 13 Disposal Considerations

Dispose in accordance with applicable regulations.
EPA waste number: Not available
Refer to section 8 of this SDS to minimize exposure during disposal.
Sewage disposal and incineration are highly discouraged and may be dangerous and unlawful.

SEC. 14 Transport Information

UN number	UN1845
UN proper shipping name	Carbon Dioxide, solid
Transport Hazard Class	9
Packing group number	Not available
Environmental hazards	Not available
Guidance on transport in bulk	Not available
Special precautions	Material is considered hazardous when transported by air or water. Do not transport the product in the driver's compartment. Ensure the containers are closed and secure. Make sure there is adequate ventilation.

SEC. 15 Regulatory Information

This product may be listed on several national, international, state and local regulations and "right to know" list. It is your responsibility to comply with all of the applicable laws and regulations in your jurisdiction.

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Other Information

Employer Responsibilities:

Employers must ensure that the SDSs are readily accessible to employees for all hazardous chemicals in their workplace. This may be done in many ways. For example, employers may keep the SDSs in a binder or on computers as long as the employees have immediate access to the information without leaving their work area when needed and a back-up is available for rapid access to the SDS in the case of a power outage or other emergency. Furthermore, employers may designate a person(s) responsible for obtaining and maintaining the SDSs. If the employer does not have an SDS, the employer or designated person(s) should contact the manufacturer to obtain one.

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This SDS was prepared on 6/25/2018 and is the SECOND Version.