



SAFETY DATA SHEET

This SDS complies with REACH 1907/2006 and 2001/58/EC, GHS, OSHA 29CFR 1910.1200

Section 1: Chemical Product and Company Identification

MANUFACTURER'S NAME

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DATE PREPARED: August 23, 2013

REVISION DATE: February 16, 2015

PRODUCT NAME:

CARBON DIOXIDE, (CO₂), DRY ICE

FORMULA:

Preparation/Mixture

PRODUCT USE:

Keep samples frozen during shipping

Section 2: Hazards Identification

Regulation (EC) No 1272/2008

GHS Hazard Class

Not Applicable. This product does not meet the physical, health, or environmental classification criteria of GHS (Globally Harmonized System).

EIGA (The European Industrial Gases Association)

Hazard Statement:

Asphyxiant in high concentrations.

Precautionary Statements: Storage

Store in a well-ventilated place.

OSHA GHS Hazard Class

Simple Asphyxiant (No pictogram)

Signal word:

Warning

Hazard Statement:

May displace oxygen and cause rapid suffocation.

Hazard(s) Not Otherwise Classified (HNOC):

Refrigerated solidified gas, exists at -78.5 °C. Contact with product may cause severe cold burns or frostbite.

HAZARD CLASSIFICATION:

Classified as hazardous based on IATA, IMO and DOT.

FIRE AND EXPLOSION:

Not considered flammable or combustible.

POTENTIAL HEALTH EFFECTS:

<0 % of mixture consists of ingredients of unknown acute toxicity

CHRONIC EFFECTS OF OVEREXPOSURE:

None

APPEARANCE:

White solid odorless

NFPA Rating:

Component	Health (Blue)	Flammability (Red)	Reactivity (Yellow)	Special (White)
CARBON DIOXIDE, (CO₂), DRY ICE	3	0	0	--

Section 3: Composition, Information on Ingredients

PRODUCT COMPOSITION	APPRX %	CAS NO.	EINECS/ELINCS	DANGER SYMBOL	RISK PHRASE	DSL CANADA
Carbon dioxide	100	124-38-9	204-696-9	-----	-----	Y

Trade Secret (TS) Some items on this SDS may be designated as trade secrets. Bonafide requests for disclosure of trade secret information to medical personnel must be made in accordance with the provisions contained in 29 CFR 1910.1200 I 1-13. The full text for all R-Phrases is shown in Section 16.

Section 4: First Aid Measures

Description of First Aid Measures

INHALATION: Move to fresh air. If breathing stops, provide artificial respiration. For breathing difficulties, oxygen may be necessary. Get medical attention.

SKIN CONTACT: Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

EYE CONTACT: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.

INGESTION: Call a physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

Symptoms/Injuries After Inhalation: Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels. Due to oxygen deficiency inhalation of gas may cause dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness.

Symptoms/Injuries After Skin Contact: Extremely cold material. Can cause burns similar to frostbite or freezing.

Symptoms/Injuries After Eye Contact: Vapour may cause a stinging sensation; liquid may cause frostbite or freezing.

Symptoms/Injuries After Ingestion: No known significant effects or critical hazards.

Indication of any immediate medical attention and special treatment needed

Symptoms may not appear immediately. In case of accident or if you feel unwell, seek medical advice immediately.

Section 5: Fire-fighting Measures

Suitable extinguishing media: Extinguish with foam, carbon dioxide, dry powder or water fog.

Special hazards arising from the substance or mixture: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Protective actions fire-fighters: Wear standard protective equipment and self contained breathing apparatus for firefighting if necessary.

Further information: Material does not burn. Use extinguishing agent suitable for the type of surrounding fire.

Section 6: Accidental Release Measures

Personal precautions, protective equipment, and emergency procedures

Wear proper protective equipment as specified in Section 8: Exposure Controls/Personal Protection
Prevent spills or contaminated rinse water from entering sewers or watercourses.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Prevent spills or contaminated rinse water from entering sewers or watercourses.

Methods and materials for containment and cleaning up



Place material into a chemical waste container.

Small Liquid Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

Large Spillages: Flush area with plenty of water.

Reference to other Sections For personal protection reference section 8. For disposal reference section 13.

Section 7: Handling and Storage

Precautions for safe handling

Avoid contact with skin, eyes or clothing.

Avoid breathing mist or vapor.

See Section 8 of the SDS for Personal Protective Equipment.

Conditions for safe storage, including any incompatibilities

Store upright in a cool, dry place.

Wear proper protective equipment when handling this material.

Avoid contact with skin, eyes or clothing.

Specific uses Keep samples frozen during shipping

Section 8: Exposure Controls/Personal Protection

Control Parameters

Chemical Name	Source	Type	Exposure Limits
Carbon dioxide	CA. Alberta OELs	STEL	54000 mg/m ³ 30000 ppm
Carbon dioxide	CA. Alberta OELs	TWA	9000 mg/m ³ 5000 ppm
Carbon dioxide	CA. British Columbia OELs	STEL	15000 ppm
Carbon dioxide	CA. British Columbia OELs	TWA	5000 ppm
Carbon dioxide	CA. Ontario OELs	TWA	9000 mg/m ³ 5000 ppm
Carbon dioxide	CA. Ontario OELs	STEL	54000 mg/m ³ 30000 ppm
Carbon dioxide	MEX. OELs	STEL	27000 mg/m ³ 15000 ppm
Carbon dioxide	MEX. OELs	TWA	9000 mg/m ³ 5000 ppm
Carbon dioxide	US. ACGIH TLV	TWA	5000 ppm
Carbon dioxide	US. ACGIH TLV	STEL	30000 ppm
Carbon dioxide	US. NIOSH Guide	IDLH	40000 ppm
Carbon dioxide	US. OSHA Z-1 PEL	TWA	9000 mg/m ³ 5000 ppm
Carbon dioxide	ILV (EU)	8H	9000 mg/m ³ 5000 ppm
Carbon dioxide	United Kingdom	STEL	15000 ppm
Carbon dioxide	United Kingdom	LTEL	5000 ppm

Exposure controls

EXPOSURE LIMITS

VENTILATION:

Reference Section 2

In confined spaces, make sure the area is well ventilated and sufficient oxygen (19.5%) exists before entry. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

SPECIAL VENTILATION CONTROLS:

Special ventilation precautions not required.

RESPIRATORY PROTECTION:

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or the CEN European Standards (EU). Use a NIOSH/MSHA or European Standard (EN) approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

PROTECTIVE GLOVES:

Thermally protective gloves are recommended. If contact with forearms is likely, wear gauntlet style gloves.

EYE PROTECTION:

Wear safety glasses, goggles or face shield.



SKIN PROTECTION:
OTHER EQUIPMENT:

Suitable protective clothing to prevent skin contact
Make safety shower, eyewash stations, and hand washing equipment available in the work area.

WORK/HYGIENE PRACTICES:

Provide good personal hygiene after handling. Avoid contact with eyes. Wash hands after handling.

Section 9: Physical and Chemical Properties

	PRODUCT CRITERIA
APPEARANCE - COLOR:	White
PHYSICAL STATE:	Solid
ODOR:	Odorless
ODOR THRESHOLD	Not Available for product
PH	Not Available for product
MELTING POINT/FREEZING POINT:	Not Available for product
INITIAL BOILING POINT AND BOILING RANGE:	Not Available for product
FLASH POINT:	Not Available for product
EVAPORATION RATE:	Not Available for product
FLAMMABILITY (Solid, gas)	Not Available for product
UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS	Not Measured
VAPOR PRESSURE	Not Available for product
VAPOR DENSITY (AIR = 1)	Not Available for product
RELATIVE DENSITY (@25 °C):	1.56
SOLUBILITY(IES)	Not Available for product
OXIDIZING PROPERTIES	Not Available for product
PARTITION COEFFICIENT: n-octanol/water	Not Available for product
AUTO IGNITION TEMPERATURE	Not Available for product
DECOMPOSITION TEMPERATURE	Not Available for product
VISCOSITY	Not Available for product

Section 10: Stability and Reactivity

Reactivity:

Not reactive.

Chemical Stability:

Stable under normal conditions.

Possibility of Hazardous Reactions:

Will not occur

Conditions to Avoid:

None

Incompatibility (Materials to Avoid):

Water on solid carbon dioxide increases sublimation and increases the risk of asphyxiation.

Hazardous Decomposition Products:

Will not occur

Section 11: Toxicological Information

There is no toxicological information available for the product mixture.

GHS Required Criteria	Toxicity Criteria	Toxicity Information	Comments	Chemical Constituent
Acute Toxicity		No information is available.		
Skin Corrosion/Irritation		No information is available.		
Serious Eye Damage / Eye Irritation		No information is available.		
Respiratory or Skin Sensitization		No information is available.		
Germ Cell Mutagenicity		No information is available.		
Carcinogenicity		Not listed	NTP	
		Not listed	IARC	
		Not listed	OSHA	
Reproductive Toxicity		No information is available.		
STOST -- Single Exposure		No information is available.		
STOST -- Repeated Exposure		No information is available.		
Aspiration Hazard		No information is available.		

STOST = Specific Target Organ Systemic Toxicity

Only selected Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information.



Section 12: Ecological Information

Toxicity:	No information is available.	
Persistence and degradability:	No information is available.	
Bioaccumulative potential	No information is available.	
Mobility in soil:	No information is available.	
PBT and vPvB assessment:	No information is available.	
Other adverse effects:	No information is available.	

Note: Not all of the ingredients have been tested for Ecotoxicity.

Section 13: Disposal Considerations

Waste from residues/unused products: Follow the waste disposal requirements of your country, state, or local authorities.

Contaminated packaging: Contaminated packaging material should be disposed of as stated above for residues and unused product.

Rinsate: Do not dispose of rinse water containing product in a storm water drainage system.

Section 14: Transport Information

ROAD TRANSPORT:

ADR = International Carriage of Dangerous Goods by Road

UN NUMBER:	UN 1845
DOT PROPER SHIPPING NAME	Carbon Dioxide, solid, Dry Ice
DOT / ADR HAZARD CLASS:	Miscellaneous Hazardous Material
DOT / ADR LABELS:	None
PLACARD:	Miscellaneous Hazardous Material , Class 9
DOT / ADR PACKAGING GROUP:	None

SEA TRANSPORT: IMDG

PROPER SHIPPING NAME	Carbon Dioxide, solid, Dry Ice
UN NUMBER SEA	UN 1845
CLASS:	9
PACKING GROUP:	None
EmS No.:	F-c, S-V
MARINE POLLUTANT:	No
SEA TRANSPORT NOTES:	Category C. Clear of living quarters

AIR TRANSPORT: IATA/ICAO

UN NUMBER:	UN 1845
PROPER SHIPPING NAME	Carbon Dioxide, solid, Dry Ice
HAZARD CLASS:	9
PACKAGING GROUP:	None

Section 15: Regulatory Information

TOXIC SUBSTANCES CONTROL ACT (TSCA) STATUS:

This product is in compliance with rules, regulations, and orders of TSCA.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA) TITLE III SECTION 313 SUPPLIER NOTIFICATION:

This regulation requires submission of annual reports of toxic chemical(s) that appear in section 313 of the Emergency Planning and Community Right To Know Act of 1986 and 40 CFR 372. This information must be included in all MSDS's that are copied and distributed for the material.

The Section 313 toxic chemicals contained in this product are: None

CALIFORNIA PROPOSITION 65:

This regulation requires a warning for California Proposition 65 chemical(s) under the statute.

The California proposition 65 chemical(s) contained in this product are: None



STATE RIGHT-TO-KNOW TOXIC SUBSTANCE OR HAZARDOUS SUBSTANCE LIST:

Florida Toxic Substance(s):	Not listed
Massachusetts's hazardous substance(s):	Carbon Dioxide
Pennsylvania hazardous substance code(s):	Carbon Dioxide
New Jersey	Carbon Dioxide
Illinois	Not listed
Michigan	Not listed

CANADA:

This MSDS/SDS will be non-compliant 3 years after the issue date. This MSDS contains all of the information required by the Controlled Products Regulations (CPR).

WHMIS-INFORMATION:

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR), SOR/88-66, Current to February 20, 2012. The classes of controlled products listed in the CPR, Section 32, Part IV, have been reviewed and based on Professional Judgment this product has been determined to not be WHMIS controlled.

EUROPEAN UNION:

This product has been reviewed for compliance with the following European Community Directives: REACH 1907/2006; Directive 1999/45/EC, Regulation (EC) No 1272/2008 on classification, labeling and packaging (CLP) of substances and mixtures.

WGK: 0 (German Federal Water Management Act) (Water Hazard Class)

MEXICAN DANGEROUS STATEMENT: This product is dangerous according to Mexican regulations.

Section 16: Other Information

European Community Hazards Identification:

R:	None
S:	None
Danger Symbol(s):	None

Initial issue date:	August 23, 2013
Final revision date:	February 16, 2015
Revision Number:	4
Revision explanation:	Updated to current GHS requirements
Information Sources:	RTECS, ECHA, REACH, OSHA 29CFR 1910.1200

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