



SAFETY DATA SHEET

Section 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Carbon Dioxide
 Other Identifiers: CO2
 Product Code(s):
 Manufacturer: SAVA FIRE EQUIPMENT INC.
 Internet Address: www.amerex-fire.com
 Address: 1085 Stacey Court
 Mississauga, ON L4W 2X7
 Company Telephone: (905) 238-6400
 E-mail Address: info@savafire.ca
 Emergency Contacts: Chemtrec 1(800) 424-9300 or
 (703) 527-3887
 Issued: March 20, 2018

Section 2. HAZARDS IDENTIFICATION

GHS – Classification

Health	Environmental	Physical
Acute Toxicity: 4	None	Warning
Skin Corrosion/Irritation: None	None	None
Skin Sensitization: None	None	None
Eye: None	None	None
Carcinogen: None	None	None

GHS – Label Symbol(s): 
If Pressurized: Gas Under Pressure 

GHS – Signal Word(s): **Warning**

Other Hazards Not Resulting in Classification: Carbon dioxide is a simple asphyxiate. May displace oxygen and cause rapid suffocation.
 May cause frostbite in contact with skin or eyes.

GHS – Hazard Phrases

GHS Hazard	GHS Codes(s)	Code Phrase(s)
Physical	H280 281	*- Contains gas under pressure; may explode if heated. Contains refrigerated gas; may cause cryogenic burns or injury.
Health	H313 332	May be harmful in contact with skin. Harmful if inhaled.
Environmental	None	
Precautionary:		
General	P101	If medical advice is needed, have product container or label at hand.
Prevention	P251 261 271 280	Do not pierce or burn, even after use. Avoid breathing gas. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
Response	P312 321 336 304+340 305+310 313+333	Call a POISON CENTER/doctor if you feel unwell. Specific treatment (see Section 4. First Aid Measures) Thaw frosted parts with lukewarm water. Do not rub affected areas. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Immediately call a doctor. May be harmful in contact with skin or if inhaled.
Storage	P405 403+233 410+403	Store locked up. Store in a well ventilated place. Keep container tightly closed. *- Protect from sunlight. Store in well-ventilated place.
Disposal	P501	Dispose of contents through a licensed disposal company. Contaminated container should be disposed of as unused product.

*- If under pressure

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	EC No.	REACH Reg. No.	CAS-No.	Weight %
Carbon Dioxide	204-696-9	NA	124-38-9	100

Adverse health effects and symptoms: None in normal quantities

Section 4. FIRST AID MEASURES

Eye Exposure: Liquid or cold gas can cause freezing injury to eyes. Flush eyes with cool water for 15 minutes. Seek medical attention immediately.

Skin Exposure: May cause cold burns or frostbite. Remove contaminated clothing and flush affected areas with lukewarm (NOT HOT) water. Seek medical attention immediately if blistering of the dermal surface or if deep tissue freezing occurs

Inhalation: Carbon dioxide is a simple asphyxiate. May cause coughing, dizziness, headache, dyspnea, unconsciousness. and death. If symptoms appear or respiratory distress occurs, remove victim to fresh air. Seek medical attention immediately.

Ingestion: None under normal conditions
Medical conditions possibly aggravated by exposure: None

Section 5. FIRE-FIGHTING MEASURES

Flammable Properties: Not flammable
Flash Point: None
Suitable Extinguishing Media: Non-combustible. Use extinguishing media suitable for surrounding conditions. Cool fire-exposed cylinders until flames are extinguished. Damaged cylinders should be handled only by specialists.
Hazardous Combustion Products: None
Explosion Data:
Sensitivity to Mechanical Impact: Not sensitive
Sensitivity to Static Discharge: Not sensitive
Unusual fire/explosion hazards: Cylinders could rupture under heat of fire.
Protective Equipment and Precautions for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

Section 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Evacuate personnel to safe areas. Ensure adequate ventilation, especially in confined areas. Monitor oxygen level.
Personal Protective Equipment: Wear self-contained breathing apparatus when entering area unless atmosphere is proved safe.
Emergency Procedures: Handle in accordance with good health and safety practices.
Methods for Containment: Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. If leak is in container or container valve, contact the appropriate emergency telephone number in Section 1 or call your closest supplier location.
Methods for Clean Up: Return cylinder to authorized distributor.
Environmental Precautions: Prevent spreading of vapors through sewers, ventilation systems and confined areas.
Other: None

Section 7. HANDLING AND STORAGE

Personal Precautions:

Only experienced and properly instructed persons should handle gases under pressure.

Conditions for Safe Storage/Handling:

If pressurized – Protect from sunlight and store in a well-ventilated place. Always store and handle compressed gas cylinders in accordance with Compressed Gas Association, pamphlet CGA-P1, Safe Handling of Compressed Gases in Containers.

Incompatible Products:

Certain reactive metals, hydrides, moist cesium monoxide, or lithium acetylene carbide diammino may ignite. Passing carbon dioxide over a mixture of sodium peroxide and aluminum or magnesium may explode.

Section 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name	OSHA PEL	ACGIH TLV	NIOSH IDLH	EU BLV
Carbon dioxide	TWA: 5000 ppm TWA: 9000 mg/m3	TWA: 5000 ppm STEL: 30000 ppm	40000 PPM	NA

NR = Not Regulated.

Engineering Controls:

Local exhaust ventilation to prevent accumulation of high concentrations and maintain air-oxygen levels at or above 19.5%. Oxygen detectors should be used when asphyxiating gases may be released. Systems under pressure should be regularly checked for leakages.

Personal Protective Equipment

Safety glasses



Eye/Face Protection:

Skin and Body Protection:

Respiratory Protection:

Tightly fitting safety goggles or face shield

Wear protective gloves, safety shoes.

If exposure limits are exceeded, use positive pressure respirator with escape cylinder or self-contained breathing apparatus for oxygen-deficient atmospheres

(<19.5%). If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures:

Good personal hygiene practice is essential, such as avoiding food, tobacco products, or other hand-to-mouth contact when handling. Do not get in eyes, on skin, or on clothing.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Colorless liquid
Molecular Weight:	44 g/mole
Odor:	None
Odor Threshold:	No information available
Decomposition Temperature °C:	2000
Freezing Point °C:	-56.6
Initial Boiling Point °C:	-78.5
Physical State:	Compressed liquefied gas
pH:	Approximately 3.7 at 1 atm
Flash Point °C:	None
Auto-ignition Temperature °C:	No information available
Boiling Point/Range °C:	-78.5
Melting Point/Range °C:	-56.6
Flammability:	Not Flammable
Flammability Limits in Air °C:	Upper – Not Flammable; Lower-Not Flammable
Explosive Properties:	None
Oxidizing Properties:	Not Applicable
Volatile Component (%vol)	Not Applicable
Evaporation Rate:	Not Applicable
Vapor Density:	1.53 (at 78.2 °C)
Vapor Pressure:	4.83x10 ⁴ Hg (at 25°C)
Specific gravity at 25 C:	1.52
Solubility:	0.145 g/ml (at 25°C)
Partition Coefficient Octanol/Water as log Pow:	0.83

Section 10. STABILITY AND REACTIVITY

Reactivity:	Not Applicable
Chemical Stability:	Stable under recommended storage and handling conditions.
Incompatibles:	Certain reactive metals, hydrides, moist cesium monoxide, or lithium acetylene carbide diammino may ignite. Passing carbon dioxide over a mixture of sodium peroxide and aluminum or magnesium may explode.
Conditions to Avoid:	Due to the presence of carbon dioxide, carbonic acid is formed in the presence of moisture.
Hazardous Decomposition Products:	Oxygen, carbon monoxide
Possibility of Hazardous Reactions:	None
Hazardous Polymerization	Does not occur

Section 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure:	Inhalation, skin, and eye contact.
Symptoms:	
Immediate:	
Inhalation:	Increased respiration, headache, mild narcotic effects, increased blood pressure and pulse rate, unconsciousness, death.
Eyes:	Contact with liquid/gas may cause burns/frostbite.
Skin:	Contact with liquid/gas may cause burns/frostbite.
Delayed:	Acidosis, adrenal cortical exhaustion, and other metabolic stresses may result from prolonged exposure to 1-2% carbon dioxide (10,000 – 20,000 ppm).
Acute Toxicity:	Asphyxiate.
Chronic Toxicity:	
Short-term Exposure:	May displace oxygen and cause rapid suffocation.
Long-term Exposure:	None known.

Acute Toxicity Values - Health

Chemical Name	LD50		LC50 (Inhalation)
	Oral	Dermal	
Carbon dioxide	No information available	No information available	470,000 ppm (rat)

Reproductive Toxicity:	This product's ingredients are not known to have reproductive or teratogenic effects.
Target Organs and Effects (TOST):	None

Other Toxicity Categories

Chemical Name	Germ Cell Mutagenicity	Carcinogenicity	Reproductive	TOST Single Exp	TOST Repeated Exp	Aspiration
Carbon dioxide	None	None	None	Central Nervous System, Respiratory System	None	None

Section 12. ECOLOGICAL INFORMATION

Ecotoxicity:	Not Applicable
Persistence/Degradability:	Possible hazardous degradation products not expected. Long-term degradation products not expected.
Bioaccumulation:	Not Applicable
Mobility in soil:	Mobile
<u>Other Adverse Ecological Effects:</u>	No other known effects at this time

Aquatic Toxicity Values – Environment – Research

Chemical Name	Acute (LC50)	Chronic (EC50)
Water	N/A	N/A

Aquatic Toxicity Values – Environment – Estimates

Chemical Name	Acute (LC50)	EC50
Water	N/A	N/A

Section 13. DISPOSAL CONSIDERATIONS

Safe Handling	None.
Waste Disposal Considerations	Dispose in accordance with federal, state, and local regulations.
Contaminated Packaging	Dispose in accordance with federal, state, and local regulations.

NOTES:

This product is not a RCRA characteristically hazardous or listed hazardous waste. Dispose of according to state or local laws, which may be more restrictive than federal laws or regulations. Used product may be altered or contaminated, creating different disposal considerations.

Section 14. TRANSPORT INFORMATION

UN Number:	NA
UN Proper Shipping Name:	NA
Transport Hazard Class:	NA
Packing Group:	NA
Marine Pollutant?:	NO
IATA	Not regulated
DOT	Not regulated

NOTES:

This product is not defined as a hazardous material under U.S. Department of Transportation (DOT) 49 CFR 172, or by Transport Canada "Transportation of Dangerous Goods" regulations.

Special Precautions for Shipping:

If shipped in a stored pressure-type fire extinguisher, carbon dioxide in a pressurized container is considered a hazardous material by the US Department of Transportation and Transport Canada. The proper shipping name shall be CARBON DIOXIDE and the UN designation is UN 1013. The DOT hazard class/division is LIMITED QUANTITY when pressurized to less than 241 psig and when shipped via highway or rail. UN Class 2.2. Non-Flammable Gas, when shipping via air. Packing Group – N/A

Section 15. REGULATORY INFORMATION

International Inventory Status: All ingredients are on the following inventories

Country(ies)	Agency	Status
United States of America	TSCA	Yes
Canada	WHMIS	Not Controlled
Australia	AICS	Listed or Exempt
Europe	EINECS/ELINCS	Not Classified

REACH Title VII Restrictions: No information available

Chemical Name	Dangerous Substances	Organic Solvents	Harmful Substances Whose Names Are to be Indicated on Label	Pollution Release and Transfer Registry (Class II)	Pollution Release and Transfer Registry (Class I)	Poison and Deleterious Substances Control Law
Water	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Component	ISHA – Harmful Substances Prohibited for Manufacturing, Importing, Transferring, or Supplying	ISHA – Harmful Substances Requiring Permission	Toxic Chemical Classification Listing (TCCL) – Toxic Chemicals	Toxic Release Inventory (TRI) – Group I	Toxic Release Inventory (TRI) – Group II
Water	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

European Risk and Safety phrases:

EU Classification:

R Phrases: None

S Phrases: None

U.S. Federal Regulatory Information:

SARA 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) - This product does not contain and chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372. None of the chemicals in this product are under SARA reporting requirements or have SARA threshold planning quantities (TPQs) or CERCLA reportable quantities (RQs), or are regulated under TSCA 8(d).

SARA 311/312 Hazard Categories:

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard-*	Yes
Reactive Hazard	No

* - Only applicable if material is in a pressurized extinguisher.

Clean Water/Clean Air Acts:

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) or Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61) and Section 112 of the Clean Air Act Amendments of 1990.

U.S. State Regulatory Information:

Chemicals in this product are covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: None

California – Permissible Exposure Limits for Chemical Contaminants: None

Florida – Substance List: None

Illinois – Toxic Substance List: None

Kansas – Section 302/303 List: None

Massachusetts – Substance List: None
Minnesota – List of Hazardous Substances: None
Missouri – Employer Information/Toxic Substance List: None
New Jersey – Right to Know Hazardous Substance List: None
North Dakota – List of Hazardous Chemicals, Reportable Quantities: None
Pennsylvania – Hazardous Substance List: None
Rhode Island – Hazardous Substance List: None
Texas – Hazardous Substance List: None
West Virginia – Hazardous Substance List: None
Wisconsin – Toxic and Hazardous Substances: None

California Proposition 65: No component is listed on the California Proposition 65 list.

Section 16. OTHER INFORMATION

This SDS conforms to requirements under U.S., U.K., Canadian, Australian, and EU regulations or standards, and conforms to the proposed 2003 ANSI Z400.1 format.

Issuing Date	March 20, 2018
Revision Date	20-March-2018
Revision Notes	None

The information herein is given in good faith but no warranty, expressed or implied, is made.
Updated by William F. Garvin, CIH.