



# SAFETY DATA SHEET

**Victory Fire & Gas Inc.**

1713 Lewis Street, Bay City, MI. 48706. Office - +1 (989).322.0856.

E-Mail: [info@victoryfiregas.com](mailto:info@victoryfiregas.com), Website <http://www.victoryfiregas.com>

## SECTION 1 : IDENTIFICATION: PRODUCT IDENTIFIER AND CHEMICAL

### PRODUCT NAME

## CARBON DIOXIDE EXTINGUISHANT AND EXPELLANT

(Victory Carbon Dioxide Extinguisher Agent)

### OTHER MEANS OF IDENTIFICATION:

CO<sub>2</sub>

### MODEL CODE OF EXTINGUISHER TYPES:

CO5LB, CO10LB, CO15LB, CO20LB FIRE EXTINGUISHERS.

### RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES AS ADVISED AGAINST

Firefighting agent, not for human or animal ingestion or drug use

### DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET:

Supplier	VICTORY FIRE & GAS INC
Street	1713 Lewis Street
Postal City/Postal Code/Country	Bay City, MI 48706, USA
Company telephone	+1 (989) 322 0856 – 9am- 5pm AET Mon- Friday
Website / Email	<a href="http://www.victoryfiregas.com">http://www.victoryfiregas.com</a> <a href="mailto:info@victoryfiregas.com">info@victoryfiregas.com</a>
Dept Responsible for information	Compliance
Emergency telephone number	CHEMTREC No.(800) 424 9300 /+1(703) 527 3887 (International)

*Note: Safety data sheet in accordance with OSHA Hazard Communication Standards (19 CFR 1910,.1200, the Canadian Hazardous Products Regulations (HPR) and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)*


## SECTION 2 : HAZARDS IDENTIFICATION:

### DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET:

This SDS covers the product listed as above. Classification according to the global harmonized system of classification and labelling of chemicals (GHS) including work, health, and safety regulations.

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

## LABEL ELEMENTS

Hazard Pictograms	
Pictogram Code	GHS07 Exclamation Mark / GHS04 Gases Under Pressure
Signal Word	WARNING
<b>Hazard Statements</b>	
Physical Hazards	H280 Contains gas under pressure; may explode if heated (*) H281 Contents refrigerated gas; may cause cryogenic burns or injury
Health Hazards	H313 Maybe harmful if in contact with skin H332 Harmful if inhaled H336 May cause dizziness and drowsiness
Environmental Hazards	None
Combinations	
<b>Precautionary Statements</b>	
General	P101 If medical advice is needed, have product container or label at hand
Prevention	P251 Pressurized container; do not pierce or burn, even after use P261 Avoid breathing gas. P271 Use only outdoors or in well ventilated area P280 Wear protective gloves/protective clothing/eye protection/face protection
Response	P312 Call poison center / doctor if you feel unwell P321 Specific treatment (see section 4. First aid measures). P336 Thaw frosted parts with lukewarm water. Do not rub affected areas P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305 + P310 IF IN EYES: Immediately call a doctor P313 + P333 Maybe harmful in contact with skin or if inhaled
Storage	P405 Store locked up P403 + 233 Store in a well ventilated place. Keep container tightly closed. P410 + P403 Protect from sunlight. Store in well ventilated place
Disposal	P501 dispose of contents/container in accordance with local/regional/national/international regulations

## SECTION 3 : COMPOSITION / INFORMATION ON INGREDIENTS

### INGREDIENTS

This product is a substance

Chemical Name	CAS No.	Concentration (Weight %) (*)
Carbon dioxide (CO <sub>2</sub> )	124-38-9	>99.90%

\*% rounded to nearest appropriate number. Values are not to be considered a product specification

## SECTION 4 : FIRST AID MEASURES

### DESCRIPTION OF FIRST AID MEASURES:

**Note:** Rescuer should not attempt to retrieve victim of exposure without adequate personal protection equipment. As a minimum self-contained breathing apparatus should be worn.

**Inhalation**

Carbon dioxide is a simple asphyxiate. May cause coughing, dizziness, headache, dyspnea, unconsciousness, and death. Remove from exposure to fresh air. If there is difficulty breathing, give oxygen. Obtain medical attention immediately.

**Skin Exposure**

May cause cold burns or frostbite. Remove contaminated clothing and gently warm affected areas. Do not use hot water. Obtain medical attention if frostbite or blistering occurs or redness persists.

**Eye Exposure**

Liquid or cold gas can cause freezing injuries to eyes. Immediately flood the eye with plenty of cool water for at least 15 minutes, holding the eye open. Seek medical attention immediately.

**Ingestion**

Ingestion is not considered a potential route of exposure

**Medical Conditions possible aggravated by exposure**

None.

---

**INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED**

Note to Physicians. In case of frostbite, place frost bitten part in warm water. If warm water is not available or impractical to use, wrap the affected parts in blankets or have victim place frost bitten hands or fingers in the armpit. Have victim gently exercise affected parts until warmed sufficiently. DO NOT USE HOT WATER. Ensure physician or health professional has a copy of this SDS

## SECTION 5 : FIRE FIGHTING MEASURES

**EXTINGUISHING MEDIA**

Product is an extinguishing media and therefore non-flammable / non-combustible. Use extinguishing media appropriate for the materials involved. Keep pressurized containers and surroundings cool with water spray as they may rupture or burst when exposed to heat of a fire. The extinguishing agent is not sensitive to static discharge or mechanical impact.

**SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE**

Pressurized containers may rupture or burst when exposed to heat of a fire.

**ADVICE FOR FIRE FIGHTERS**

Appropriate personal protective equipment for fire fighters: Fire fighters should wear protective clothing as appropriate for specific fire conditions.

## SECTION 6 : ACCIDENTAL RELEASE MEASURES

**PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:**

Avoid eye and skin contact. Wear appropriate personal protective equipment and clothing to minimize exposure.

Remove any leaking cylinders to a safe place. Ventilate area. Leaks within confined spaces may cause suffocation as oxygen is displaced and should not be entered without self-contained breathing apparatus.

**ENVIRONMENTAL PRECAUTIONS**

No environmental risks. Material is a normal atmospheric gas

**METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP**

None – material evaporates/sublimes to gaseous state. Return cylinder to authorized distributor for inspection.



## SECTION 7 : HANDLING AND STORAGE

### PRECAUTIONS FOR SAFE HANDLING

#### Advice on Safe Use of Product:

The substance must be handled in accordance with good industrial hygiene and safety procedures. Only experienced and properly instructed persons should handle gases under pressure. Avoid eye, respiratory and skin exposure. Avoid breathing gas. Use the appropriate personal protective clothing when handling (see section 8). See Compressed Gas Association pamphlet CGA-P1, Safe handling of Compressed Gases in Containers.

#### Advice on safe handling of gas receptacle:

Refer to supplier's container handling instructions. Protect cylinders from physical damage; do not drag, roll, slide or drop. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. Never attempt to repair or modify container valves or safety relief devices. Damaged valves should be reported immediately to the supplier. Keep container valve outlets clean and free from contaminants particularly oil and water. Never attempt to transfer gases from one cylinder/container to another. Never use direct flame or electrical heating devices to raise the pressure of a container. Do not remove or deface labels provided by the supplier for the identification of the cylinder contents.

### CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

#### Technical measures and storage conditions:

Observe all regulations and local requirements regarding storage of containers. Containers should not be stored in conditions likely to encourage corrosion. Containers should be stored in the vertical position and properly secured to prevent them from falling over. Stored containers should be periodically checked for general condition and leakage.

#### Requirements For Storage Rooms And Containers:

Store in cool, dry place out of direct sunlight and keep container below 60°C (140°F) in a well ventilated place. Store containers in location free from fire risk and away from sources of heat and ignition. Keep away from combustible materials. Full cylinders stored separately from empties.

#### Suitable Container/Equipment Material:

No information available.

## SECTION 8 : EXPOSURE CONTROLS AND PERSONAL PROTECTION

### CONTROL PARAMETERS/OCCUPATIONAL EXPOSURE LIMIT VALUES EXPOSURE GUIDELINES

Available exposure limits for ingredients are listed below where available: See Notes (\*)

Substance	OSHA PEL	ACGIH TLV
Carbon Dioxide	TWA: 5,000ppm (9,000 mg/m <sup>3</sup> )	TWA: 5,000 ppm (9,000 mg/m <sup>3</sup> ) STEL: 30,000 ppm (54,000 mg/m <sup>3</sup> )

(\*)(PEL) - Permissible exposure limit. The permissible exposure limit (PEL or OSHA PEL) is a legal limit in the United States for exposure of an employee to a chemical substance.

(\*)(TLV) - Within the context of workplace safety, represents the maximum airborne concentration of a chemical substance to which an adult can be exposed to in the workplace over the course of his or her lifetime without suffering significant harm.



## EXPOSURE CONTROLS

### Appropriate Engineering Controls:

Provide adequate general and local exhaust ventilation (natural or mechanical) especially in a confined space. Systems under pressure should be regularly checked for leakages. Ensure exposure is below occupational exposure limits (where available). Oxygen detectors should be used when asphyxiating gases may be released.

### Individual Protective Measures, e.g., Personal Protective Equipment:

The following recommendations should be considered:

Eye Protection :	Wear chemical goggles or safety glasses with side shields .
Skin Protection :	Gloves.
Respiratory Protection :	Not normally needed. In oxygen deficient atmospheres, use a self-contained breathing apparatus, as a purifying respirator will not provide protection.
Body Protection	Normal work wear.

## SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

### INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES – EXTINGUISHING AGENT

Appearance /Physical State:/ color:	Liquified gas under pressure / colorless
Molecular weight	44.01 g/mol
Odor:	None
Odor threshold	No data available
pH	3.7
Freezing Point (°C/F)	-56.6 / -69.9
Boiling Point (°C/F)	-78.5 / -109.3 (sublimation)
Relative Density, liquid	0.82 (Water = 1)
Relative Density, gas	1.52 (Air = 1) Heavier than air, may accumulate in confined spaces, particularly at or below ground level.
Vapor pressure psig / (bar)	830 / (57.3) at 1 atm and 70°F/21°C
Flash Point (°C/F)	None
Explosive Properties	None
Oxidizing Properties	Not applicable
Water Solubility (mg/l)	2000mg/l completely soluble
Partition coefficient n-octanol/water (Log Kow)	0.83
Critical Temperature (°C /°F)	-31.06 / -23.9
Flammability Range (Vol% In Air):	Not flammable

## SECTION 10 : STABILITY AND REACTIVITY

### CHEMICAL STABILITY

No special measures are necessary. Stable under normal ambient storage and handling conditions.



## REACTIVITY

Pressurized containers may rupture or explode when exposed to heat of a fire.

## CONDITIONS TO AVOID

Extremes of temperature over +60°C (+140°F). In presence of water carbonic acid is formed.

## INCOMPATIBLE MATERIALS

Certain reactive metals, hydrides, moist cesium monoxide or lithium acetylene carbide diamino may ignite. Passing carbon dioxide over a mixture of sodium peroxide may explode. Will ignite and explode when heated with powdered aluminum, beryllium, cerium alloys, magnesium-aluminum alloys, manganese, thorium, titanium, and zirconium. Metal acetylides will also ignite and explode on contact with carbon dioxide. For additional information on compatibility refer to ISO 11114

## HAZARDOUS DECOMPOSITION PRODUCTS

In electrical discharge will yield oxygen and carbon monoxide. In contact with water will generate carbonic acid.

## HAZARDOUS POLYMERIZATION

Does not occur, however carbon dioxide acts as to catalyze the polymerization of acrylaldehyde and aziridine

# SECTION 11 : TOXICOLOGICAL INFORMATION

## INFORMATION ON POSSIBLE ROUTES OF EXPOSURE

Likely routes of exposure: Inhalation, skin, and eye contact.

Acute Toxicity	In high concentrations CO <sub>2</sub> causes rapid circulatory insufficiency even at normal levels of oxygen concentration. Symptoms are headache, nausea, and vomiting, which may lead to unconsciousness and death. Unlike simple asphyxiants, carbon dioxide has the ability to cause death even when normal oxygen levels (20-21%) are maintained. 5% CO <sub>2</sub> has been found to act synergistically to increase the toxicity of certain other gases (CO, NO <sub>2</sub> ). CO <sub>2</sub> has been shown to enhance the production of carboxy- or met-hemoglobin by these gases possibly due to carbon dioxide's stimulatory effects on the respiratory and circulatory systems.
Chronic toxicity	May displace oxygen and cause rapid suffocation
Eye Contact:	Contact with cold liquid/gas/solid may cause burns/frostbite
Skin Contact:	Contact with liquid/gas/solid may cause burns/frostbite
Inhalation:	Increased respiration, headache, mild narcotic effects. Increased blood pressure and pulse rate, unconsciousness, death. Carbon dioxide is an asphyxiate with effects due to lack of oxygen. It stimulates respiration and then cause respiratory depression. High concentrations results in narcosis. Lack of oxygen can kill
Ingestion:	Unlikely route of exposure . Product is gas at normal temperature and pressure.
Reproductive toxicity	No evidence carbon dioxide is tetra genic for humans
Carcinogenicity	Not considered carcinogenic by NTP, IARC and OSHA
Germ cell Mutagenicity	Available data indicates this product is not expected to be mutagenic
Aspiration Hazard	Not an aspiration hazard.



#### ACUTE TOXICITY DATA:

The following data is available for components of this product greater than 1% by weight in concentration.

Substance	LCLo (inhalation in humans)
Carbon dioxide	90,000 ppm / 5 minutes

## SECTION 12 : ECOLOGICAL INFORMATION

#### ECOTOXICITY:

LC50 (Rainbow trout) 60mg/l 96 hr

#### DEGRADEABILITY:

Carbon dioxide occurs naturally in the atmosphere

#### BIOACCUMILATION POTENTIAL

Carbon dioxide occurs naturally in the atmosphere

#### MOBILITY IN SOIL

Carbon dioxide occurs naturally in the atmosphere

#### ENVIRONMENTAL PROTECTION

Contains no heavy metal salts. Residue from fires extinguished with this material may be hazardous.

## SECTION 13 : DISPOSABLE INFORMATION

#### DISPOSABLE METHODS

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 regulations. Be aware that product used on a fire may be altered or contaminated and thereby require different disposal considerations. No harm to the environment expected from this preparation. Dispose of waste according to applicable local and national regulations. Residue from fires extinguished with this material may be hazardous.

## SECTION 14 : TRANSPORT INFORMATION

This product is not defined as a hazardous material under U.S. Department of Transportation 49 CFR 172, or by Transport Canada "Transportation of Dangerous Goods" regulations. Please Note: Although this material is not considered hazardous, when contained in a stored pressure fire extinguisher pressurized with a non-flammable gas, the extinguisher itself is considered a hazardous material by the U.S. Department of Transportation (USDOT) and Transport Canada (TC). Individuals must be certified as Hazardous Material Shipper for all transportation modes. The proper shipping name shall be Fire Extinguisher and the UN Identification Number is UN 1044. The proper name for bulk shipments is Carbon Dioxide and UN Identification Number is UN1013. Use Class 2.2, Non- Flammable Gas, when shipping via air and consult latest IATA and IMDG Regulations prior to shipping by air or water.



See table below.

This section is believed to be accurate at time of creation. It is not intended to be a complete statement or summary of all applicable laws, rules, or hazardous material regulations in place at time of shipping.

Bulk shipments	
DOT CFR 172.101 Data	Carbon Dioxide, 2.2, UN1013
UN Proper Shipping name	Carbon Dioxide
UN Class	(2.2) Non-Flammable Gas
UN Number	UN1013
UN Packaging group	Not applicable
Classification for Air / Transportation (IATA)	Consult current IATA Regulations prior to shipping by air
Classification for Water / Transport IMDG	Consult current IATA Regulations prior to shipping by water
Fire Extinguishers	
DOT CFR 172.101 Data	Fire Extinguishers, 2.2, UN1044
UN Proper Shipping name	Fire Extinguishers
UN Class	(2.2)
UN Number	UN1044
UN Packaging group	Not applicable
Classification for Air / Transportation (IATA)	Consult current IATA Regulations prior to shipping by air
Classification for Water / Transport IMDG	Consult current IATA Regulations prior to shipping by water

## SECTION 15 : REGULATORY INFORMATION

### SAFETY, HEALTH, AND ENVIRONMENTAL REGULATIONS / LEGISLATION SPECIFIC FOR THE SUBSTANCE

#### United States TSCA Inventory :

All components are in compliance with the inventory listing requirements of the US Toxic Substance Control Act (TSCA) Chemical Substance Inventory. Status : Yes

**Canada DSL Inventory :** All substances in this product have been verified for inclusion on the Domestic Substance List (DSL). Status : Not controlled.

#### 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 any 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 or CERCLA Reportable Quantities or 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 (Only if material is pressurized extinguisher)  
Reactive Hazard      No

### 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

### State Regulatory Information:

Chemicals in this product covered under the specific State regulations noted

Alaska Designated Toxic and Hazardous Substances	None
California Permissible Exposure Limits for Chemical Contaminants	None
Florida Substance list	None
Illinois Toxic Substance List - None	None
Kansas Section 302/303 List - None	None
Massachusetts Substance list- Mica dust Minnesota List of Hazardous Substances	None
Missouri Employer Information/Toxic Substance List	None
Minnesota List of Hazardous Substances	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

### KEY LITERATURE REFERENCES AND SOURCES

#### NFPA RATINGS

US Nation Fire Protection Agency (NFPA) hazard ratings: (Scale of 0 to 4, with 0 = lowest increasing to 4 = highest hazard, refer to NFPA for details related to the relative rating for each category)

Health -1

Flammability – 0

Reactivity – 0

Special Hazards – SA – simple asphyxiant



## LEGEND

ACGIH	American Conference of Governmental Industrial Hygienists
CAS#	Chemical Act Service Number
EC50	Effect Concentration 50%
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration 50%
LD50	Lethal Dose 50%
N/A	Denotes no applicable information found or available
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
STEL	Short Term Exposure Limit
STOT	Specific Target Organ Toxicity
TLV	Threshold Limit Value
TSCA	Toxic Substance Control Act

## INFORMATION AND REFERENCES

The information provided is given in good faith. The information and recommendations in this SDS are based on sources believed to be accurate. Victory Fire and Gas assumes no responsibility for accuracy or completeness of information provided. It is the user's responsibility to determine suitability or completeness of information.

We make **NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED**, with respect to such information, and we assume no liability resulting from its use. Users should ensure that any use or disposal of the material in accordance with applicable Federal, State, and local laws and regulations. Please refer to our internet website for more information: [www.victoryfiregas.com](http://www.victoryfiregas.com). For contact information please go to page 1 of this SDS.

**END OF SDS.**