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SAFETY DATA SHEET

VICTORY FIRE & GAS INC
1713 Lewis Street, Bay City, MI 48706
Phone: +1 989.322.0856 Email: info@victoryfiregas.com

SECTION 1 : IDENTIFICATION: PRODUCT IDENTIFIER AND CHEMICAL IDENTITY

PRODUCT IDENTIFIER:

CARBON DIOXIDE

OTHER MEANS OF IDENTIFICATION:

CO₂, CO₂ AGENT FOR FIRE EXTINGUISHER

RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST:

Use Of Substance / Mixture: Fire Extinguishing Agent for use on electrical and flammable liquids.

DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET:

Supplier:	VICTORY FIRE & GAS INC
Street:	1713 Lewis Street, Bay City, MI 48706
Postal Code/City:	Bay City, MI 48706
Country:	U.S.A
Telephone:	+1 989.322.0856 - 9am-5pm Aet Mon-Fri
E-Mail: Website:	Http://www.victoryfiregas.com
Dept. Responsible For Information:	Compliance

Emergency Contact Number: +1 989.322.0856

SECTION 2 : HAZARD(S) IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE OR MIXTURE:


Classification according to the the globally harmonized System of Classification and Labeling of Chemicals (GHS) including Work, Health and Safety Regulations

Classified as dangerous - Gases under Pressure - compressed Gas

Classification according to the code for the Transport of Dangerous goods by road and rail

Classified as Dangerous Goods

LABEL ELEMENTS:

Hazard Pictograms	
Pictogram Code	UN 1044 Class 2.2
Signal word	warning
Hazard Statements	
Physical Hazards	Contains gas and liquid under pressure; may explode if heated.
Health Hazards	
Environmental Hazards	
Combinations	
Precautionary Statements	
General	
Prevention	
Response	
Storage	Protect from sunlight. Store in a well ventilated space.

OTHER HAZARDS:

None.

SECTION 3 : COMPOSITION / INFORMATION ON INGREDIENTS

MIXTURE INGREDIENTS

Ingredient (Designation)	CAS No.	Concentration	Classification according to Globally Harmonized system of classification and labeling of chemical(GHS)
Carbon Dioxide	124-38-9	100%	H280 Press. Gas(liq)

SECTION 4: FIRST AID MESURES

DESCRIPTION OF FIRST AID MEASURES:

After inhalation

Call doctor if victim unconscious, move to uncontaminated area and give assisted respiration. Low concentration of CO2 cause increased respiration and headache. Remove victim to uncontaminated area to breath fresh air. Keep warm and quiet. Continued treatment should be symptomatic and supportive.

After skin contact

Wash affected area with water. If irritation persists, seek medical attention.

After eye contact

Wash with water for a minimum of 15 minutes. Seek medical advice if symptoms persist.

After ingestion

Seek medical advice. Show this material safety data sheet.

MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE, DELAYED AND AGGREGATED

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Low concentrations of CO₂ cause increased respiration and headache. See section 11 for toxicological information.

INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

None

SECTION 5 : FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA

Product is an extinguishing media. Use appropriate fire extinguisher for surrounding environment.

SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Exposure to fire may cause containers to rupture/explode. No hazardous combustion products expected.

ADVICE FOR FIRE FIGHTERS

In case of fire the product may be violently or explosively reactive. If safe to do so, remove containers from path of fire. Keep containers and fire-exposed surfaces cool with water spray. This product should be prevented from entering drains and watercourses.

Appropriate personal protective equipment for fire fighters:

Fire fighters should wear self-contained breathing apparatus (SCUBA) and full protective clothing to prevent exposure to vapors, fumes or products of combustion. Avoid eye and skin contact.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:

Try to stop release. Avoid eye and skin contact. Wear appropriate personal protective equipment and clothing to minimize exposure. Increase ventilation.

ENVIRONMENTAL PRECAUTIONS

Agent is pure CO₂. Try to stop release. Prevent from entering sewers, basements and work pits, or any place where its accumulation can be dangerous.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP

None, Ventilate the area.

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. Consider pressure relief device(s) in gas installations. Ensure the complete gas system was (or

is regularly) checked for leaks before use. Do not smoke while handling product. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Avoid suck back of water, acid and alkalis. Do not breathe gas. Avoid release of product into atmosphere.

advice on safe handling of gas receptacle:

Refer to supplier's container handling instructions. Do not allow backfeed into the container. 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. Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment. Close container valve after each use and when empty, even if still connected to equipment. 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. Container valve guards or caps should be in place. 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 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 STANDARDS:

CAS NO.	Substance	Occupational Exposure Limits
124-38-9	CARBON DIOXIDE	LIV(EU)-8H - ppm 5000 LIV(EU)-8H -mg/m ³ 9000 TLV©-TWA*ppm 5000 TLV©-STEL** ppm 30000

*TWA (time Weighted average): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day week.

**STEL(Short term exposure limit): The average airborne concentration over a minute period which should not be exceeded at any time during a normal eight-hour workday.

EXPOSURE CONTROLS

Appropriate Engineering Controls:

Provide adequate general and local exhaust ventilation. 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. Consider work permit system e.g. For maintenance activities.

Individual Protective Measures, E.G. Personal Protective Equipment:

The following recommendations should be considered: Wear safety glasses with side shields. Wear leather safety gloves and safety shoes when handling cylinders. Self contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres.

Environmental Exposure Controls

Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for controls specific methods for waste gas treatment.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

EXPOSURE CONTROLS

Appropriate Engineering Controls:

Use with good general ventilation. Systems under pressure should be regularly checked for leakages.

Individual Protective Measures, E.G. Personal Protective Equipment:

The following recommendations should be considered although not needed: wear chemical goggles, chemical resistant gloves and dust mask.

Environmental Exposure Controls

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical State:	Liquid
Colour:	Colourless
Odour:	No Odour warning properties
Ph:	Not applicable for Gas Mixture
Boiling Point (°C):	>-78.5(s)
Vapour Pressure (at 20°C)	57.3Bar
Relative density, Gas (air=1)	1.52
Solidification Point	-30~0°C
Water Solubility (g/l)	0.83
Flammability Range (Vol% In Air):	Non Flammable.
Relative Density, Liquid(water=1)	1.03

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Other Information:	Stability in Temperature: -45°C ~+60°C
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SECTION 10 - STABILITY AND REACTIVITY

REACTIVITY

No reactivity hazard other than the effects described in sub-sections below. Stable under normal conditions..

CHEMICAL STABILITY

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

POSSIBILITY OF HAZARDOUS REACTIONS

No Information Available

CONDITIONS TO AVOID

Extremes of temperature over 60 °C

INCOMPATIBLE MATERIALS

None.

HAZARDOUS DECOMPOSITION PRODUCTS

Under Normal Conditions Of Storage And Use, Hazardous Decomposition Products Should Not Be Produced.

SECTION 11 - TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Acute Toxicity:	In high concentrations cause rapid circulatory insufficiency. Symptoms are headache, nausea and vomiting, which may lead to unconsciousness. Unlike simple asphyxiates, carbon dioxide has the ability to cause death even when normal oxygen levels (20-21%) are maintained. 5% CO ₂ has been found to act synergistically to increase the toxicity of certain other gases (CO, NO ₂). CO ₂ 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.
Skin corrosion/irritation:	Not classified as a skin irritant. May cause frostbite injury or cold burns.
Serious eye damage/irritation:	Not classified as an eye irritant. Contact with dry ice powder may cause frostbite injury or cold burns.

INFORMATION ON POSSIBLE ROUTES OF EXPOSURE

Eye Contact:	The liquid form of this material can produce chilling sensations, discomfort and also frostbite.
Skin Contact:	Evaporation of liquid from skin can produce chilling sensations. Frostbite can occur. Avoid carbon dioxide snow.
Inhalation:	Carbon dioxide is an asphyxiate. effects of oxygen deficiency (below 6 %) are as follows: convulsive movements, possible respiratory collapse and death.
Ingestion:	If ingested, liquid can cause similar to frostbite.
Acute Overexposure	Carbon Dioxide is non-toxic at normal temperature and pressure. By diluting the oxygen concentration in air below the level necessary to support life, it can act as an asphyxiant. Effects of oxygen deficiency are: 12-16%: breathing and pulse rate increased, muscular coordination slightly disturbed; 10-14%: emotional upset, normal fatigue, disturbed respiration; 6- 10% nausea and vomiting, collapse or loss of consciousness; below 6%: convulsive movements, possible respiratory collapse and death.
Chronic Overexposure	Long term exposure to carbon dioxide has no known health effects. Prolonged exposure to an oxygen deficient atmosphere (below 18% oxygen in air) may affect the heart and nervous system.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY

No Date Available

PERSISTENCE AND DEGRADABILITY

No Data Available

OTHER ADVERSE EFFECTS

When discharged in large quantities may contribute to the greenhouse effect. Can cause frost damage to vegetation.

FURTHER INFORMATION

Contains greenhouse gas(es) not covered by 842/2006/ec.

Global warming potential [CO₂=1]: 1

SECTION 13 – DISPOSABLE CONSIDERATIONS

DISPOSABLE METHODS


Not to be disposed of with household garbage. Dispose of waste according to applicable local and national regulations.

May be vented to atmosphere in a well ventilated place. Discharge to atmosphere in large quantities should be avoided. Do not discharge into any place where its accumulation could be dangerous. Dispose of waste according to local, state or commonwealth regulations.

UNCLEANED PACKAGING

Disposal according to official regulations.

SECTION 14 - TRANSPORT INFORMATION

Labeling Adg, lmo/lmdg, lcao/lata	 2.2 Non Flammable, Non Toxic Gas
Road And Rail Transport (Adg Code)	
Classification:	Classified as dangerous goods according to U.S Department of Transportation 49 CFR 172, and dangerous goods as defined by Transport CANADA "Transport of dangerous Goods" Regulations.
Un number	1013
Proper shipping name:	Fire extinguishers with compressed or liquefied gas
Transport hazard class/division:	2.2
Packing group:	N/a
Hazchem - emergency action code	No hazchem code issued to these articles. No hin issued under rid and adr.
Special provisions:	225
Limited quantities:	N/A

Marine Transport (Imo/Imdg)	
Classification:	Classified as dangerous goods by the criteria of the international maritime dangerous goods code (IMDG code) for transport by sea.
Un number:	1044
Proper shipping name:	Fire extinguishers with compressed or liquefied gas
Division:	2.2
Environmental hazards for transport Purposes:	Not a known pollutant according to the international maritime dangerous Goods (IMDG) code. Substance is not classified as having an acute aquatic toxicity hazard.
Emergency Schedule (ems) - fire:	F-C
Emergency Schedule (ems) - Spillage:	S-V
Special provisions:	225
Air Transport (Icao/Iata)	
Classification:	Classified as dangerous goods by the criteria of the international air transport association (IATA) dangerous goods regulations for transport by air.
Un number:	1044
Proper shipping name:	Fire extinguishers with compressed or liquefied gas
Division:	2.2
Packing instruction (cargo aircraft only):	213
Packing instruction (Passenger and cargo aircraft):	Restricted.
Special provisions:	A19

SECTION 15 - REGULATORY INFORMATION

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

Classified as hazardous according to the globally harmonised System of Classification and labelling of Chemicals (GHS) including Work, health and Safety regulations. Not Classified as a Scheduled Poison according to the Standard for the uniform Scheduling of medicines and Poisons (SUSMP).

International Inventory Status: Some ingredients are on the following inventories

Country	Agency
U.S.A.	TSCA
Canada	DSL
Europe	EINECS/ELINCS
Australia	AICS
Japan	MITI
South Korea	KECL

U.S. Federal Regulatory Information: None of the chemicals in this product are under SARA reporting requirements or have SARA Threshold Planning Quantities or CERCLA Reportable Quantities.

State Regulatory Information: Chemicals in this product are covered under the specific State regulations noted:

Alaska Designated Toxic and Hazardous Substances- Carbon Dioxide

California Permissible Exposure Limits for Chemical Contaminants- Carbon Dioxide
Florida Substance list- Carbon Dioxide
Illinois Toxic Substance List- Carbon Dioxide
Kansas Section 302/303 List- No
Massachusetts Substance list- Carbon Dioxide
Minnesota List of Hazardous Substances- Carbon Dioxide
Missouri Employer Information/Toxic Substance List- Carbon Dioxide
New Jersey Right to Know Hazardous Substance List- Carbon Dioxide
North Dakota List of Hazardous Chemicals, Reportable Quantities- No
Pennsylvania Hazardous Substance List- Carbon Dioxide
Rhode Island Hazardous Substance List- Carbon Dioxide
Texas Hazardous Substance List- No
West Virginia Hazardous Substance List- Carbon Dioxide
Wisconsin Toxic and Hazardous Substances- Carbon Dioxide
California Proposition 65- No component is listed on the California Proposition 65 List

CHEMICAL SAFETY ASSESSMENT:

A csa does not need to be carried out for this product.

SECTION 16 - OTHER INFORMATION

KEY LITERATURE REFERENCES AND SOURCES

Classification in accordance with the Globally harmonized System of classification and labeling of chemicals (GHS) including Work, health and Safety regulations

National code of Practice for the Preparation of material Safety data Sheets 2nd edition [nohsc:2011(2003)].

This Safety Data Sheet where necessary has been established in accordance with the applicable European Union legislation and has used calculation methods of regulation (EC) 1272/2008 CLP / (EC) 1999/45 DPD.

Standard for the uniform Scheduling of medicines and Poisons.

Australian inventory of Chemical Substances (AICS)

Australian Code for the transport of Dangerous goods by road & rail (2015, 7th edition, 7.4)

Model Work health and Safety regulations, Schedule 10: Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.

International air transport association (IATA) Dangerous goods regulations for transport by air.

Workplace exposure standards for airborne contaminants, Safe work Australia.

International maritime Dangerous goods Code (IMDG Code) for transport by sea.

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Please refer to our internet website for more information: www.zxfire.net, For contact information please go to page 1 of this SDS.

END OF SDS.