SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product Name	**CARBON DIOXIDE FIRE EXTINGUISHING AGENT**

Other means of identification

Synonyms	**C02, Carbon Dioxide Gas**

Recommended use of the chemical and restrictions on use

Recommended Use	**Fire Suppression**
Uses advised against	**Not for human or animal drug use**

Details of the Supplier of the Safety Data Sheet

Extinguisher Manufacturer	**STRIKE FIRST CORPORATION** **777 Tapscott Rd. Toronto Ontario** **M1X 1A2**
Contact Information	**Phone: (416) 299-7767** **Fax: (416) 299-8039** **Email: info@strike-first.com**
Chemical Supplier Name	**Air Liquide Canada Inc.**
Supplier Address	**1250, René Lévesque West Blvd. Suite 1700** **Montreal, QC, H3B 5E6** **Canada**
Supplier Contact Numbers	**Phone: 1-800-817-7697** **Website: www.airliquide.com**
Emergency Telephone Number	**CHEMTREC 1-800-424-9300 or** **(703) 527-3887**

2. HAZARDS IDENTIFICATION

This SDS covers the products as sold in pressurized and non-pressurized containers. GHS classifications for both are listed below.

Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

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 elements, including precautionary statements

Hazard Symbol	Signal Word	Hazard Statement
	**Warning**	Contents under pressure, may explode if heated
	**Warning**	Carbon dioxide is a simple asphyxiate. May displace oxygen and cause rapid suffocation. May cause frostbite in contact with skin or eyes.

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	May be harmful in contact with skin.
	332	Harmful if inhaled.
Environmental		None
Precautionary:		
General	P101	If medical advice is needed, have product container or label at hand.
Prevention	P251 261	Do not pierce or burn, even after use. Avoid breathing gas.
	271	Use only outdoors or in a well-ventilated area.
	280	Wear protective gloves/protective clothing/eye protection/face protection.
Response	P312 321	Call a POISON CENTER/doctor if you feel unwell. Specific treatment (see
	336	Section 4. First Aid Measures)
	304+340	Thaw frosted parts with lukewarm water. Do not rub affected areas.
	305+310	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
	313+333	IF IN EYES: Immediately call a doctor.
		May be harmful in contact with skin or if inhaled.
Storage	P405 403+233	Store locked up.
	410+403	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.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms CARBON DIOXIDE FIRE EXTINGUISHING AGENT

Chemical Name	CAS No	Weight - %	GHS Classification
Carbon Dioxide	124-38-9	>99.9	Pressurized Gas

4. FIRST AID MEASURES

First aid measures

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

Skin contact — 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.

Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects — May cause drowsiness or dizziness.

Most Important Symptoms and Effects both acute and delayed — Low concentrations of CO2 cause increase respiration and headache.

Indication of any immediate medical attention and special treatment if needed

Notes to Physician — Treat symptomatically

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Cool fire-exposed cylinders until flames are extinguished. Damaged cylinders should be handled on by specialists.

Unsuitable Extinguishing Media
CAUTION: Do not use water jet to extinguish.

Specific hazards arising from the chemical
No information available.

Hazardous Combustion Products
Carbon oxides.

Explosion Data
Sensitivity to Mechanical Impact — No.

Sensitivity to Static Discharge — No.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHS/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Evacuate personnel to safe areas. Ensure adequate ventilation & monitor oxygen level.

Environmental precautions

Environmental precautions Prevent spreading of vapors through sewers, ventilation systems and confined areas.

Methods and material for containment and cleaning up

Methods for containment Stop the flow of gas or remove the cylinder to outdoor location if safe to do so. If leak is in cylinder or valve, contact Emergency contact is Section 1.

Methods for cleaning up Return cylinder/extinguisher to authorized distributor.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Handle in accordance with good industrial hygiene and safety practice. Pressurized cylinder should be handles by experience and properly trained personnel.

Conditions for safe storage, including any incompatibilities

Storage Keep container tightly closed. Keep/store only in original container.

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Carbon Dioxide 124-38-9	TWA: 5000 ppm STEL: 30000 ppm	TWA [1]: 5000 ppm TWA [2]: 9000 mg/m^3	IDLH: 4000 ppm

ACGIH TLV: American Conference of Government Industrial Hygienist – Threshold Limit Value OSHA PEL: Occupational Safety and Health Administration – Permissible Exposure Limits NIOSH IDLH Immediately Dangerous to Life or Health

Appropriate engineering controls

Engineering measures	CO2 detectors should be used when CO2 may be released. Systems under pressure should be regularly checked for leakages. Ensure exposure is below occupational exposure limits (where available). Consider the use of a work permit system e.g. for maintenance activities.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shield (or goggles).
Skin and body protection	Wear protective gloves and protective clothing and safety shoes
Respiratory protection	No protective equipment is needed under normal conditions. If exposure limits are exceeded, use positive pressure respirator with escape cylinder or self-contained breathing apparatus for oxygen-deficient atmosphere.
Hygiene measures	Handle in accordance with good industrial hygiene and safety practice. 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical state	: Gas
Appearance	: No data available
Color	: White
Odor	: No odor warning properties
Odor Threshold	: < Odor threshold is subjective and inadequate to ward overexposure
pH	: Not applicable for gases and gas mixtures
Relative evaporation rate (butyl acetate=1)	: No data available
Relative evaporation rate (ether = 1)	: Not applicable
Molecular mass	: 44.01 g/mol
Melting point	: -56.6 ºC
Freezing point	: -56.6 ºC
Initial boiling point	: -78.5 ºC – No data available for boiling range
Flash point	: Not applicable for gas and gas mixtures
Critical temperature	: 30 ºC
Auto-ignition temperature	: Non-flammable
Decomposition temperature	: Not applicable
Flammability (solid gas)	: Non flammable
Vapor pressure	: 5730 kPa
Vapor pressure at 50 ºC	: Not applicable
Critical pressure	: 7381.8 kPa
Relative vapor density at 20 ºC	: Not applicable
Relative density	: 0.82
Relative gas density	: Heavier than air
Solubility	: Water; no reliable data available
Partition coefficient n-octanol/water (Log Pow)	: Not applicable for gas-mixtures
Viscosity, kinematic	: Not applicable
Viscosity, dynamic	: Not applicable
Explosive properties	: Not applicable
Oxidizing properties	: Not applicable
Explosion limits	: Non flammable
Lower explosive limit (LEL)	: No data available

Upper explosive limit (UEL) : No data available
Physical state : Refrigerated solidified gas

Other information

Sublimation point : No data available
Gas group : Compressed gas

10. STABILITY AND REACTIVITY

Reactivity : No reactivity hazard other than the effects described in sub-section below
Chemical Stability : Stable under normal conditions
Possibility of hazardous reactions : None
Conditions to avoid : Avoid moisture in installation systems
Incompatible materials : None. For additional information on compatibility refer to ISO 11114
Hazardous decomposition products : Not produced under normal conditions
Hardening Time : No additional information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation Asphyxiate, low concentration may cause drowsiness or dizziness, increased respiration and headache, increased blood pressure & pulse rate, High exposure may cause unconsciousness, death

Eye contact Contact with eyes may cause burns/frostbite

Skin contact Contact with skin may cause burns/frostbite

Ingestion Not applicable under normal conditions

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50 - Rat
Carbon Dioxide 124-38-9	No information available	No information available	820,000 ppm/4h

Other toxicity categories

Chemical Name	Germ Cell Mutagenicity	Carcinogenicity	Reproductive	TOST Single Exp	TOST Repeated Exposure	Aspiration
Carbon Dioxide 124-38-9	None	None	None	Central Nervous System, Respiratory System	None	None

12. ECOLOGICAL INFORMATION

Ecotoxicity
Ecology – general : No data available

Hazardous to the aquatic environment, short term (acute) : Not classified
Hazardous to the aquatic environment, long term (acute) : Not classified

Chemical Name	Partition coefficient n-octanol/water (Log Kow)	Partition coefficient n-octanol/water (Log Kow)
Carbon Dioxide	Not applicable for gas-mixtures	Not applicable for gas-mixtures

Persistence Degradability
No data available

Bioaccumulation
Bioaccumulative potential – No ecological damage caused by this product

Chemical Name	Partition coefficient n-octanol/water (Log Kow)	Partition coefficient n-octanol/water (Log Kow)
Carbon Dioxide	Not applicable for gas-mixtures	Not applicable for gas-mixtures

Mobility in soil
Ecology - soil – Because of its high volatility, the product is unlikely to cause ground or water pollution. Partition into soil is unlikely

Chemical Name	Partition coefficient n-octanol/water (Log Kow)	Partition coefficient n-octanol/water (Log Kow)
Carbon Dioxide	Not applicable for gas-mixtures	Not applicable for gas-mixtures

Other adverse effects
Ozone – Not classified
Effect on ozone layer - None
Other adverse effects – No known effects from this product

13. DISPOSAL INFORMATION

Waste treatment methods : Discharge to atmosphere in large quantities should be avoided. Contact supplier if guidance is required. Do not discharge into any place where its accumulation could be dangerous. Ensure that the emission levels from local regulations or operating permits are not exceeded. Refer to the EIGA code of practice Doc.30 "Disposal of Gases", downloadable at http://www.eiga.org for more guidance on suitable disposal methods. Return unused product in original container to supplier.

Additional information : External treatment and disposal of waste should comply with applicable local and/or national regulations.

14. TRANSPORTATION INFORMATION

UN number	DOT	TDG	MEXICO	IMDG	IATA
	UN1013	UN1013	UN1013	UN1013	UN1013

UN proper shipping name	CARBON DIOXIDE	CARBON DIOXIDE	CARBON DIOXIDE	CARBON DIOXIDE	CARBON DIOXIDE
Transport hazard classes	2.2 	2.2 	2.2 	2.2 	2.2 
Packing group	-	-	-	-	-
Environment	No	No	No	No	No

NOTES:
This product is not defined as a hazardous material under U.S. Department of Transportation (DOT) 49 CFR 173, or by Transport Canada "Transportation of Dangerous Goods" regulations.
Special Precautions for Shipping:
If shipped in a stored pressure-type fire extinguisher, and pressurized with a non-flammable, nontoxic inert expellant gas, the fire extinguisher is considered a hazardous material by the US Department of Transportation and Transport Canada. The proper shipping name shall be FIRE EXTINGUISHER and the UN designation is UN 1013. The DOT hazard class is Limited Quantity when shipped via highway or rail. Use a Non-Flammable Gas label (class 2.2) when shipping via air.

15. REGULATORY INFORMATION

International Inventories
All ingredients are on the following inventories

Country(ies)	**Agency**	**Status**
United States of America (USA)	TSCA	Yes
Canada	WHMIS	Not controlled
Australia	AICS	Listed or exempt
Europe	EINECS	Not Classified

REACH Title VII Restrictions
No information available

Chemical Name	Dangerous Substances	Organic Solvents	Harmful Substances Whose Names Are To be Indicated On The 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

US Federal Regulations

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.

US State Regulations

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
This product does not contain any material the following Proposition 65 chemicals.

International Regulations

Mexico
National occupational exposure limits
Mexico – Occupational Exposure Limits – Not determined

Canada
WHMIS Hazard Class - Not Determined

16. OTHER INFOMRATION

Prepared By	**Strike First Corporation**
	777 Tapscott Road
	Scarborough ON
	M1X 1A2 Canada
Revision Date	**March 20, 2023**
Revision Note	**Origination**

Disclaimer:
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information , and belief at the date of this publication. This information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the test.

END OF SAFETY DATA SHEET