Carbon Dioxide CO2 Fire Extinguisher

SECTION 1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name:	Carbon Dioxide Fire Extinguisher (Capacity 2, 5, 10, 20, 30kg)
Other names:	CO2 Fire Extinguisher
Recommended Use:	Fire extinguisher for use on electrical and flammable liquid fires (Class B).
Supplier: Address:	Firechief Global Sentura House, 3 Lands End Way Oakham, Rutland LE15 6RB
Email:	sales@firechiefglobal.com
Emergency No.:	0330 999 0019 Office Hours: Monday to Friday | 08:00 - 17:00

SECTION 2. Hazards identification

• Hazard Classification:	Class 2 Sub Class 2
• Hazards Identification:	Liquefied gas. Contact with product may cause cold burns or frost bite.

Hazard Class and Category Code - Regulation EC 1272/2008 (CLP)

• Physical hazards:	Gases under pressure - Compressed gas - Warning (H280)

Classification EC 67/548 or EC 1999/45/CE

Not included in Annex VI.
Not classified as dangerous preparation/substance.
No EC labelling required.

Label element

Labelling Regulation EC 1272/2008 (CLP)

• Propellant hazard pictograms

• Hazard pictograms code:	GHS04
• Signal word:	Warning
• Hazard statements:	H280 - Contains gas under pressure; may explode if heated.
• Precautionary statements	
- Storage:	P403 - Store in a well-ventilated place.
- Labelling EC 67/548 or EC 1999/45	
- Symbol(s):	None.
- R Phrase(s):	None.
- S Phrase(s):	None.

Other hazards

Asphyxiant in high concentrations.

Contact with liquid may cause cold burns/frostbite.

In high concentrations CO2 causes rapid circulatory insufficiency even at normal levels of oxygen concentration. Symptoms are headache, nausea and vomiting, which may lead to unconsciousness and death.

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SECTION 3. Composition/information on ingredients

Substance Name:	Carbon Dioxide
CAS No.:	124-38-9
EC-No,:	204-696-9
Extinguisher Content Mass (kg):	2, 5, 10, 20, 50kg

Contains no other components or impurities which will influence the classification of the product.

SECTION 4. First Aid measures

Inhalation:	Call doctor if victim is unconscious, move to uncontaminated area. Perform Cardiopulmonary Resuscitation (CPR) or assisted respiration if required. Low concentrations of CO2 cause increased respiration and headache. Remove victim to uncontaminated area to breathe fresh air. Keep warm and quiet. Continued treatment should be symptomatic and supportive.
Eye Contact:	Immediately flush eyes with plenty of water for 15 minutes whilst holding lids open. If redness, itching or burning occurs get medical attention.
Skin Contact:	Wash material off skin with copious amounts of water and soap for at least 15 minutes. If redness, itching or burning occurs get medical attention. In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.
Ingestion:	Not applicable
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 (at % of Oxygen in air): 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 5. Fire fighting measures

Suitable Extinguishing Media:	This is an extinguishing agent - use water spray or fog
Hazards from Combustion	None
Products: PPE for Fire Fighters:	Rescuers should not enter oxygen depleted room without the use of self contained full face breathing equipment. Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.
Hazchem Code:	2TE
Specific hazards	Exposure to fire may cause containers to rupture or explode. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems. If possible, stop flow of product. Use water spray or fog to knock down fire fumes if possible. Move containers away from the fire area if this can be done without risk.

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SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Try to stop release. Evacuate area. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ensure adequate air ventilation. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Act in accordance with local emergency plan. Stay upwind. Oxygen detectors should be used when asphyxiating gases may be released
Emergency Procedures:	Evacuate area and ventilate. Do not enter area where high concentrations may exist without appropriate protective equipment.
Methods and Materials for Containment and clean Up:	Keep area evacuated and free from ignition sources until any spilled liquid has evaporated. (ground free from frost).

SECTION 7. Handling and storage

General: Protect cylinders from physical damage; do not drag, roll, slide or drop. Handle in well-ventilated areas. The maintenance and repair of the fire extinguisher must be carried out by qualified personnel in accordance with relevant regulations.
Never use direct flame or electrical heating devices to raise the pressure of the container.
Do not remove or deface labels provided by the supplier for the identification of the contents of the extinguisher.

Safe Storage: Store in cool, dry, well ventilated areas out of direct sunlight and away from heat and ignition sources. Do not expose any cylinder part to temperatures above 55°C, store upright on a level floor, secure in position and protect from damage. Full cylinders stored separately from empties.
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.
Store containers in location free from fire risk and away from sources of heat and ignition.
Keep away from combustible materials.

SECTION 8. Exposure controls/personal protection

Personal Protection: Ensure adequate ventilation. Protect eyes, face and skin.
National Exposure Controls: Carbon Dioxide ES-TWA 5,000 ppm & Carbon Dioxide ES-STEL 30,000 ppm

Carbon dioxide (124-38-9)		
OEL : Occupational Exposure Limits		
EU	TWA IOELV (EU) 8 h [mg/m³]	9000 mg/m³
	TWA IOELV (EU) 8 h [ppm]	5000 ppm
United Kingdom	WEL - LTEL - UK [mg/m³]	9150 mg/m³
	WEL - LTEL - UK [ppm]	5000 ppm
	WEL - STEL - UK [mg/m³]	27400 mg/m³
	WEL - STEL - UK [ppm]	15000 ppm
Ireland	OEL (IE)-(8-hour reference period) [mg/m3]	9000 mg/m³
	OEL (IE)-(8-hour reference period) [ppm]	5000 ppm
	OEL (IE)-(15min reference period) [mg/m3]	27000 mg/m³
	OEL (IE)-(15min reference period) [ppm]	15000 ppm
	Notes (IE)	IOELV

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. CO2 detectors should be used when CO2 may be released.

Individual protection measures: A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk.

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SECTION 9. Physical and chemical properties

Color:	Colorless
Odor:	Odorless
Relative Density, gas (air=1):	1.52
Relative Density, Liquid (air=1):	0.82
Solubility in Water [mg/l]:	2000
Melting Point:	-78.5°C
Boiling Point:	-56.6°C
Flammability range:	Non flammable
Critical Temperature:	30°C
Vapour Pressure [20°C]:	57.3 bar
Other Data:	Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level.

SECTION 10. Stability and reactivity

Chemical Stability:	Stable under normal conditions of handling and use.
Incompatible Materials:	Not applicable
Hazardous Reactions:	None
Conditions to Avoid:	None
Hazardous Decomposition Products:	None

SECTION 11. Toxicological information

Acute toxicology

Unlike simple asphyxiants, carbon dioxide has the ability to cause death even when normal oxygen levels (20-21%) are maintained. 5% CO2 has been found to act synergistically to increase the toxicity of certain other gases (CO, NO2). CO2 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.

Eye Contact:	The liquid form of this material can produce chilling sensations and 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:	Not a likely route of entry.
Acute Overexposure:	Contact can produce chilling sensations, light headedness, giddiness, shortness of breath, muscular tremors and weakness, and acrocyanosis. Also unconsciousness or even death.
Chronic Overexposure:	Prolonged exposure to an oxygen deficient atmosphere (below 18 % oxygen) may affect the heart and nervous system.

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SECTION 12. Ecological information

Eco toxicity:	Not available
Mobility:	Not available
Bio Accumulative Potential:	Not available
Persistence and Degradability:	Not available
Environmental Fate (Exposure):	Not available

SECTION 13. Disposal considerations

General:	Dispose of in compliance with local authority regulations. It can be discharged to atmosphere in a well ventilated place, this should be avoided in large quantities . Where accumulation could be dangerous do not discharge. The gas cylinders are refillable. If the cylinder should be placed out of service, ask the manufacturer / supplier about recovery / recycling information.
Special Precautions for Landfill or Incineration:	Do not incinerate

SECTION 14. Transport Information

UN No.:	1044 FIRE EXTINGUISHERS with compressed or liquefied gas
Class and Subsidiary Risk:	D.G. Class 2.2 Non-flammable, non-toxic gases
Special Precautions for User:	None
UN Proper Shipping Name:	FIRE EXTINGUISHER Packing Group III 2TE
Packing Group:	
Hazchem Code:	

SECTION 15. Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulations

Restrictions on Use:	No one.
Seveso regulations 96/82/CE:	Not included.
National regulation	Ensure all national/local regulations are observed..
Chemical Safety Assessment	This product is not necessary to carry out a chemical safety assessment (CSA).

SECTION 16. Other information

Training advice:	**After use indoors, ventilate thoroughly.** Do not breathe the gas. Keep container in a well-ventilated place.
List of full text of the indications section 3:	H280 - Contains gas under pressure; may explode if heated.

Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out. Details given in this document are believed to be correct at the time of going to press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

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