



Material Safety Data Sheet

Conforms to 93/112/EC and ISO 11014-1

Revision: 2022.01.01

1. Identification of the substance/preparation and of the company/undertaking

Product name : 25 g CO2 chargers

Part Number(s): 20119, 20121, 20117

Chemical formula : CO2

Manufacturer/Supplier: Muc-Off Ltd.

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2. Composition / information on ingredients

Substance/Preparation : Substance

Chemical name*	CAS No.	EC Number	Symbol	R-Phrases
Carbon Dioxide	124-38-9	204-696-9	Xn	R20

3. Hazards identification

Oxygen levels below 19.5% may cause asphyxia. Carbon dioxide exposure can cause nausea and respiratory problems.

High concentrations may cause vasodilatation leading to circulatory collapse.

4. First aid measures

First-Aid measures

Inhalation : Remove affected person to fresh air; provide oxygen if breathing is difficult; if affected person is not breathing, administer CPR and seek emergency medical attention.

Ingestion : Not expected under normal conditions due to gaseous state.

Skin Contact : Wash affected area with soap and water; if irritation persists, seek medical attention.

Eye Contact : Check for and remove contact lenses. Flush eyes with clear running water for 15 minutes while holding eyelids open; if irritation persists, seek medical attention.

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5. Fire-fighting measures

FLASH POINT (METHOD USED) Non - flammable	FLAMMABLE LIMITS LEL : Not applicable UEL: Not applicable
	AUTOIGNITION TEMPERATURE : Not determined NFPA CLASS : None

GENERAL HAZARDS: Product is not flammable or combustible. Products of combustion include compounds of carbon, hydrogen and oxygen, including carbon monoxide.

EXTINGUISHING MEDIA

Carbon dioxide, water, water fog, dry chemical, chemical foam.

FIRE FIGHTING PROCEDURES

Self - contained respiratory equipment; cool containers to prevent pressure buildup and possible explosion when exposed to extreme heat.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers can explode due to buildup of pressure when exposed to extreme heat. Contents under pressure. Do not use or store near heat sources.

HAZARDOUS COMBUSTION PRODUCTS

Smoke, fumes or vapors, oxides of carbon.

6. Accidental release measures

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Evacuate and ventilate area. Allow gas to escape to air. Remaining liquid may be absorbed on to an approved absorbent and placed in an approved container for disposal.

7. Handling and storage

Handling :

Keep container closed when not in use; protect containers from abuse; protect from extreme temperatures, keep away from sources of heat. Do not puncture container. Do not attempt to refill container. Keep away from direct sunlight and heat. Never dispose of full chargers. Never force open. Keep out of reach of children and minors.

Storage :

Do not heat. Maximum environmental temperature in use not to exceed 50°C (122°F).

Packaging materials

Recyclable steel

Recommended use :

Use original container.

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8. Exposure controls/personal protection

Engineering controls :	The use of local exhaust ventilation is required to control emissions near the source. Provide mechanical ventilation of confined spaces.
Personal protection	
Respiratory system :	None required while threshold limits are kept below maximum allowable concentrations; if TWA exceeds limits, NIOSH approved respirator must be worn. Refer to 29 CFR 1910.134 or European Standard EN 149 for complete regulations.
Protective gloves :	Utilize appropriate gloves for protection needed from cold, based on exposure.
Eue Protection :	Chemical safety goggles. Refer to 29 CFR 1910.133 or European Standard EN166.
Other protective clothing or equipment :	Safety eyewash station nearby.
Work/Hygienic practices :	Practice safe workplace habits. Minimize body contact with this, as well as all chemicals in general.

9. Physical and chemical properties and specifications

Physical state (gas, liquid, solid) :	Gas
Vapor density at 20 oC (68 oF) :	8.56 psia
Vapor pressure at 20 oC (68 oF) , 1 atm (Air = 1) :	1.53
Evaporation point :	Not Available
Boiling point (CO2 Sublimes) :	. - 78.5° C (- 109.3° F)
Freezing point :	. - 56.6° C (- 69.8° F)
Specific gravity :	Not Available
Solubility (H2O) :	Very soluble
Odor and appearance :	A colorless, odorless gas.
Specifications:	
Net weight CO2	25.0+0.5g -1.0g
Water Capacity	32.0ml
Filing Density	78.10%
Test Pressure	3500 Psi
Burst Pressure of a Cylinder	>7200 Psi
Cap Piercing Force	180---240N
CO2 Purity	99.90% Purity
CO2 Cylinder Temperature Test	160° F ±10° F (70° F±6° C)30min.

Dimension and property of charger	METRIC UNITS
(Overall Length (approx)):	105±1.5 m/m
(Body Diameter):	25.4 ±0.3m/m
(Neck Diameter):	8.6 mm
(Internal Volume (approx.)):	32ml
(Net weight of CO2 (approx)):	25 g
(Tare wt. of charger (approx)):	71 g
(Gross wt. of charger (approx)):	96 g
(Bursting pressure):	>500 bar
(Pressure /Temperature Characteristics at filling density of 0.78 kg/liter)	52 bar at 20 oC 185 bar at 50 oC 290 bar at 70 oC 425 bar at 100 oC 470 bar at 110 oC
CO2 Gas	
Physical state	Gas or liquefied gas
Color	Colorless
Odor	Odorless
Molecular weight	44.01 g/mole
Molecular formula	CO2
Boiling point	-78.55°C
Vapor density	1.53 (Air=1)

10. Stability and reactivity

Stability :	The product is stable.
Materials to avoid :	Strong oxidizers, strong acids.
Hazardous Decomposition Products	Decomposition will not occur if handled and stored properly. In case of a fire, oxides of carbon, hydrocarbons, fumes or vapors, and smoke may be produced.

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11. Toxicological information

Hazardous Ingredients	CAS #	EINECS #	LD50 of Ingredient (Specify Species and Route)	LC50 of Ingredient (Specify Species)
Carbon dioxide	124-38-9	204-696-9	Information not found	Information not found

12 Ecological information

No data are available on the adverse effects of this material on the environment. Neither COD nor BOD data are available. Based on the chemical composition of this product it is assumed that the mixture can be treated in an acclimatized biological waste treatment plant system in limited quantities. However, such treatment should be evaluated and approved for each specific biological system. None of the ingredients in this mixture are classified as a Marine Pollutant.

13. Disposal considerations

Waste Disposal Method : Dispose of in accordance with Local, State, and Federal Regulations. This product may produce concentrated hazardous vapors in a disposal container creating a dangerous environment. Refer to "40 CFR Protection of Environment Parts 260 - 299" for complete waste disposal regulations. Consult your local, state, or Federal Environmental Protection Agency before disposing of any chemicals. Do not flush to sanitary sewer or waterway.

14. Transport information

UN NUMBER	UN 1013
PROPER SHIPPING NAME	CARBON DIOXIDE
CLASS	2.2
ADR/RID CLASSIFICATION CODE	2A
PACKING GROUP	N/A
PACKING INSTRUCTIONS	P200
LABEL	2.2 NON-FLAMMABLE GAS
HAZARD SYMBOLS	NONE
HAZARD IDENTIFICATION NUMBER (HIN)	20
SAFETY	NON HAZARDOUS
REFERENCE	49 CFR 173.302, .306, .314

15. Regulatory information

EU Regulations Components of this product identified by CAS numbers are on the European Inventory of Existing Commercial Chemical Substances.

Hazard symbol(s) :



Classification : Harmful
 Risk Phrases : R20- Harmful by inhalation.
 Safety Phrases: S38 - In case of insufficient ventilation, wear suitable respiratory equipment.
 Contains : CO2

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16 Other information

Specific toxicity tests have not been conducted on this product. Our hazard evaluation is based on Information from similar products, the ingredients, technical literature, and/or professional experience.

HMIS Hazard Ratings	Health	* = Chronic Health Hazard 0 = Insignificant 1 = Slight Safety Glasses, Gloves	2 = Moderate 3 = High 4 = Extreme
	1		
	Flammability		
	0		
Physical Hazard	0		
	0		