



Safety Data Sheet

Replacement CO₂ Cartridges - Part #: KD101

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1: Identification	
Chemical Name:	Carbon Dioxide (CO ₂)
Application:	Replacement CO ₂ Cylinders for Kleer Drain Instant Drain Opener
Supplier:	Mosa Industrial Corp 18, Kehu 3Rd. Huwei, Yunlin 63247 Taiwan
Distributor:	VPC Global 28839 Industry Dr Valencia, CA 91355 USA
Phone:	661-257-3923

2: Hazard Identification	
OSHA/HCS Status:	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910:1200)
Classification:	Gasses under pressure - Liquefied gas; Simple Asphyxiant
EMERGENCY OVERVIEW:	Warning! Do not permit physical damage or overheating of cylinders. Contents are under pressure; cylinders may rupture and travel a considerable distance. Avoid contact with skin and clothing. Avoid breathing gas. Keep container closed. Use only with adequate ventilation. Contact with rapidly expanding gas, liquid or solid can cause frostbite.
Routes of exposure and Potential Health Effects	
Inhalation:	May cause asphyxia
Eye Contact:	May cause stinging sensation; may cause irritation.
Skin Contact:	May cause frostbite with redness, tingling, pain or numbness.
Ingestion:	May be harmful if swallowed. May cause frostbite damage to lips, mouth and mucous membranes may occur.
Target Organs:	Simple Asphyxiant. Poisoning may affect heart, respiratory and nervous system.
Signs and Symptoms:	Signs may include discomfort or pain, with redness, tingling, pain or numbness. Symptoms may include frostbite, redness; the skin may become hard, white and develop blisters.
Medical Conditions Aggravated by Exposure:	Acute or chronic respiratory conditions may be aggravated by overexposure to this gas.
Chronic:	Repeated exposure may cause chilblain.

3: Composition/Information on Ingredients	
Chemical / Weight	Carbon Dioxide (CO ₂ , E290 Specification) / 99.99%
CAS / EC Number	124-38-9 / 204-696-9

4: First-Aid Measures	
Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Eye Contact:	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.





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4: First-Aid Measures

Skin Contact:	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. In case of frostbite, warm affected skin in warm water. If warm water is unavailable, gently wrap affected area in a blanket. Allow circulation to return naturally and obtain immediate medical attention.
Ingestion:	Do not induce vomiting unless directed to go so by medical personnel. Never give anything by mouth to an unconscious person. Treat symptomatically and get medical attention.
Notes to Physician:	None

5: Fire-Fighting Measures

Flammability:	Not flammable by OSHA / WHMIS criteria. Fire Hazard Class: E
Explosion Data:	Sensitivity of Mechanical impact: No data available. Sensitivity to Static Discharge: No data available.
General Hazard:	May rupture in heat or fire.
Fire Fighting Instructions:	Use an extinguishing agent suitable for surrounding fires. If involved in fire, shut off flow immediately if it can be done without risk. Apply water from a safe distance to cool container and protect surrounding area.
Fire Fighting Equipment:	Wear full turnout gear with self-contained breathing apparatus.
Extinguishing Media:	Dry Chemical, carbon dioxide (CO ₂), or halon. For larger fires, use water spray, fog or standard foam.
Hazardous Combustion Products:	Oxides of carbon. Oxides of nitrogen.
Special Information:	None.

6: Accidental Release Measures

Personal Precautions:	Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment (Section 8). Shut off gas supply if this can be done safely. Isolate area until gas has dispersed.
Environmental Precautions:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
Methods for Containment:	Prevent further leakage or spillage if safe to do so.
Methods for Clean-Up:	Ventilate area. Avoid skin contact. Dispose at an approved disposal site.
Other Information:	Not available.

7: Handling and Storage

Handling:	Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Do not puncture or incinerate container. Wash thoroughly after handling. High pressure gas. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; don't drag, roll, slide, or drop. Do not attempt to refill spent cylinders. Ventilation should be provided, it is recommended to use protective equipment if multiple cylinders are released in a confined space. Use chargers and dispensers only in accordance with instructions. Maximum environmental temperature in use not to exceed 50°C (122°F).
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7: Handling and Storage

Do not use for any other purpose. Do not inhale. Misuse can be physically harmful and dangerous to your health.

Storage: Keep container tightly closed. Keep container in a well-ventilated area. Avoid breathing product vapor or mist. Store in a cool dry place, away from heat, sparks, flame and direct sunlight. Keep out of reach of children. Storage temperature limit: 50°C (122°F). Never dispose of full chargers. Never force open.

8: Exposure Controls/Personal Protection

Exposure Limits: LC50: 160mg/m³/6H (The recommended airborne exposure limit TWA = 5000 ppm molar averaged over an 8-hour work shift. LC 50 = 2.80-9.16 mg/1/96H (with mouse)

Engineering Controls: Use only with adequate ventilation to minimize worker exposure.

Personal Protective Equipment:
 Eye/Face Protection: Wear safety glasses with side shields.
 Hand Protection: Wear suitable gloves.
 Skin and Body Protection: Wear suitable protective clothing.
 Respiratory Protection: In case of insufficient ventilation, wear suitable respiratory equipment.

General Hygiene Considerations: Handle in accordance with good industrial hygiene and safety practices.

9: Physical and Chemical Properties

Physical State:	Gas	Appearance	
Odor:	Odorless	Gas:	Colorless
Fire Hazard:	Non-Flammable	Liquid:	Clear
External surface:	Color - Gold	Solid:	Colorless acicular crystals
Material of body:	Special deep drawing steel	Sealing method:	Welding
	METRIC UNITS		US / IMPERIAL UNITS
Overall Length (approx):	65.8 mm		2.59 in
Body Diameter:	18.2 mm		0.717 in
Neck Diameter:	8.5 mm		0.335 in
Internal Volume (approx):	10.2 mL		0.62 in ³
Net weight of CO ₂ (approx):	8 g		0.32 oz
Tare wt. charger (approx):	22 g		0.88 oz
Gross wt. charger (approx):	30 g		1.20 oz
Bursting pressure:	>500 bar		>7250 lbg/in ²
Pressure / Temperature Characteristics at filling density of 0.78 kg/liter:	52 bar at 20°C		750 lbf/in ² at 68°F
	185 bar at 50°C		2680 lbf/in ² at 122°F
	290 bar at 70°C		4200 lbf/in ² at 158°F
	425 bar at 100°C		6160 lbf/in ² at 212°F
	470 bar at 110°C		6815 lbf/in ² at 230°F



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9: Physical and Chemical Properties

Gas density at 1 atm:	1.836 kg/m ³ at 20°C	0.115 lb/ft ³ at 68°F
Relative density (air=1):	1.53 at 20°C	1.53 at 68°F
Critical Temperature:	36.5°C	98°F
Molecular Weight:	44	44

10: Stability and Reactivity

General Stability:	Stable under normal temperatures and pressures.
Incompatible Materials And Conditions To Avoid:	Metals, acids, oxidizers, and heat.
Hazardous Decomposition Products:	Temperatures above 1700° C may cause decomposition and the release of oxygen and highly toxic carbon monoxide.
Hazardous Polymerization:	Hazardous polymerization has not been reported to occur under normal temperature and pressures.

11: Toxicological Information

Toxicity:	0.01% v/v (non-toxic, anesthetic effect if inhaled. Recommended maximum 0.01% v/v for continuous working conditions)
Effects of Acute Exposure	
Eyes:	At high concentration in air, may cause stinging sensation; may cause irritation.
Skin:	No adverse effects have been reported from the gas. Due to rapid evaporation, the liquid may cause frostbite with redness, tingling, pain or numbness. In severe cases, the skin may become hard, white and develop blisters.
Ingestion:	May be harmful if swallowed. May cause stomach distress, nausea or vomiting.
Inhalation:	Multiple cylinders released in a confined space may cause asphyxia.
Effects of Chronic Exposure	
Target Organs:	Simple asphyxiant. Poisoning may affect heart, respiratory and nervous system.
Chronic Effects:	Causes damage to the following organs: lungs, cardiovascular system, skin, eyes, central nervous system (CNS), eye, lens or cornea.
Carcinogenicity:	Not hazardous by OSHA / WHMIS criteria.
Mutagenic Effects:	Not hazardous by OSHA / WHMIS criteria.
Reproductive Effects:	Not hazardous by OSHA / WHMIS criteria
Developmental Effects:	Teratogenicity: Not hazardous by OSHA / WHMIS criteria. Embryotoxicity: Not hazardous by OSHA / WHMIS criteria.
Respiratory Sensitization:	Not hazardous by OSHA / WHMIS criteria.
Skin Sensitization:	Not hazardous by OSHA / WHMIS criteria.
Toxicologically Synergistic Materials:	No data available.

12: Ecological Information

Ecotoxicity:	This product itself and its products of degradation are not toxic.
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12: Ecological Information		
Persistence / Degradability:	No data available.	
Bioaccumulation / Accumulation:	No data available.	
Mobility in Environment:	No data available.	
13: Disposal Considerations		
Disposal Instructions:	Comply with all applicable state, local and federal laws. Used cylinders are recyclable steel.	
14: Transportation Information		
Non-hazardous		
Class	2.2	
UN No.	UN2037 (Special Provision 191)	
Title	Receptacles, small, containing gas (gas cartridges) 50 IMDGC (Receptacles with capacity not exceeding 50ml containing only non-toxic constituents, are not subject to provisions of IMDGC)	
15: Regulatory Information		
USA:	The SDS was prepared pursuant to the OSHA HazCom 2012 Standards.	
Canada:	This product has been classified in accordance with the hazard criteria of the Controlled Product Regulations.	
WHMIS:	Class A: Compressed gas. CEPA DSL: Carbon Dioxide	
State Issues:	Not listed for California Proposition 65	
NFPA (National Fire Protection Association):	Health – 1 Fire – 0 Reactivity – 0 (Hazard Ratings: 0 = minimal, 1 = slight, 2 = moderate, 3 = severe, 4 = extreme)	
Foreign Chemical Inventories:	All ingredients are listed on the chemical inventories of the following countries: Canada (DSL), Japan, European Union, Australia	
16: Other Information		
Current Issue Date:	November, 2015-A	
Previous Issue Date:	August, 2015-B	
Packaging:		
Single Unit	1 package of 4 cylinders	4 total cylinders per package
Carton	5 packages of 4 cylinders	20 total cylinders per carton
Case	15 cartons of 20 cylinders	300 total cylinders per case
Pallet	56 cases of 300 cylinders	16,800 total cylinders per pallet