

### 1. CHEMICAL AND COMPANY IDENTIFICATION

**Product Identification:** Carbon Dioxide (CO<sub>2</sub>) Cartridge

**Trade Name/Chemical Family/Synonyms:** Oxide of Carbon

**Product Description:** CO<sub>2</sub> Cartridge

**Product Use:** Food Industry

**Manufacturer:** Liss Patrongyártó, Töltő és Forgalmazó Kft  
(Liss Ltd.)  
Carl von Linde út 1.  
H-9653 Répcelak  
Tel: +06 (95) 588 100  
Fax: +06 (95) 588 114

**Distributor:** Hologic Inc.  
250 Campus Drive  
Marlborough, Massachusetts  
01752  
USA  
**Telephone: 800-442-9892**

Emergency Telephone:  
Tel: +36 1 476 6464

**EMERGENCY TELEPHONE NUMBERS: (24 hours a day and 7 days a week)** **For Health/Transportation/Chemical Spills (Multilingual capabilities and free calls accepted)**  
Continental United States: (800) 424-9300  
Outside of continental United States: +(703) 527-3887

### 2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical	CAS Registry #	EU Nr.	Wt. %
Carbon Dioxide	124-38-9	204-696-9	99.99

### 3. HAZARDS IDENTIFICATION

**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.

**4. FIRST AID MEASURES**

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<b>Inhalation:</b>	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
<b>Eye Contact:</b>	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
<b>Skin Contact:</b>	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.
<b>Ingestion:</b>	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.
<b>Notes to Physician:</b>	None

**5. FIRE FIGHTING MEASURES**

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<b>Flammability:</b>	Not flammable by OSHA / WHMIS criteria. Fire Hazard Class: E
<b>Explosion Data:</b>	Sensitivity of Mechanical impact: No data available. Sensitivity to Static Discharge: No data available.
<b>General Hazard:</b>	May rupture in heat or fire.
<b>Fire Fighting Instructions:</b>	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.
<b>Fire Fighting Equipment:</b>	Wear full turnout gear with self-contained breathing apparatus.
<b>Extinguishing Media:</b>	Dry Chemical, carbon dioxide (CO <sub>2</sub> ), or halon. For larger fires, use water spray, fog or standard foam.
<b>Hazardous Combustion Products:</b>	Oxides of carbon. Oxides of nitrogen.
<b>Special Information:</b>	None

**6. ACCIDENTAL RELEASE MEASURES**

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<b>Personal Precautions:</b>	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.
<b>Environmental Precautions:</b>	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
<b>Methods for Containment:</b>	Prevent further leakage or spillage if safe to do so.
<b>Methods for Clean-Up:</b>	Ventilate area. Avoid skin contact. Dispose at an approved disposal site.
<b>Other Information:</b>	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 cartridges. Ventilation should be provided, it is recommended to use protective equipment if multiple cylinders are released in a confined space.

**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.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTIVE EQUIPMENT**

**Exposure limit values:** **IDLH:** 40,000 ppm  
**STEL:** 30,000 ppm 15 minute(s)  
**TWA:** 5000 ppm 8 hour(s)

**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**

<b>Appearance:</b> Colorless gas	<b>Color:</b> Colorless
<b>Odor:</b> Odorless	<b>Physical State:</b> Gas
<b>Specific Gravity (Water=1):</b> 1.52 @ 21° C	<b>VOC Content, wt. %:</b> Not available
<b>Solubility in Water:</b> Soluble	<b>Vapor Density (Air=1):</b> 1.5
<b>Freezing Point (°F/°C):</b> Not available	<b>Vapor Pressure mm/Hg:</b> 43700 mmHg @ 21° C
<b>Evaporation Rate:</b> Not available	<b>pH:</b> Not available
<b>Viscosity:</b> Not available	<b>Boiling Point (°F/°C):</b> -109°F ( -79° C)
<b>Lower Flammability Limit:</b> Not available	<b>Upper Flammability Limit:</b> Not available
<b>Coefficient of Water/Oil Distribution:</b> Not available	<b>Auto-ignition Temperature:</b> Not available

**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**

**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.
- Persistence / Degradability:** No data available.
- Bioaccumulation / Accumulation:** No data available.
- Mobility in Environment:** No data available.

**13. DISPOSAL CONSIDERATION**

**Disposal Instructions:** Comply with all applicable state, local and federal laws.

**14. TRANSPORTATION INFORMATION**

Regulatory Information	UN number	Proper shipping name	Class	Packing group	Label
DOT Classification	2037	Receptacles, small, containing gas (Gas cartridges)	2	Not applicable (gas)	2.2

**15. REGULATORY INFORMATION**

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<b>USA:</b>	The MSDS was prepared pursuant to the Hazardous Communication Standard (29 CFR 1910.1200).
<b>Canada:</b>	This product has been classified in accordance with the hazard criteria of the Controlled Product Regulations.
<b>WHMIS:</b>	Class A: Compressed gas. CEPA DSL: Carbon Dioxide
<b>State Issues:</b>	Not listed for California Proposition 65
<b>NFPA (National Fire Protection Association):</b>	Health – 1      Fire – 0      Reactivity – 0 Hazard Ratings: 0 = minimal, 1 = slight, 2 = moderate, 3 = severe, 4 = extreme
<b>Foreign Chemical Inventories:</b>	All ingredients are listed on the chemical inventories of the following countries: Canada (DSL) Japan European Union Australia

**16. OTHER INFORMATION**

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<b>Current Issue Date:</b>	June, 2009
<b>Previous Issue Date:</b>	Initial Hologic
<b>Other Information:</b>	None

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**Information Note: Where no corresponding data was contained in manufacturer's MSDS, additional research is required and available upon request. THE INFORMATION RELATES TO THIS SPECIFIC MATERIAL. IT MAY NOT BE VALID FOR THIS MATERIAL IF USED IN COMBINATION WITH ANY OTHER MATERIALS OR IN ANY PROCESS. IT IS THE USER'S RESPONSIBILITY TO SATISFY ONESELF AS TO THE SUITABILITY AND COMPLETENESS OF THIS INFORMATION FOR HIS OR HER OWN PARTICULAR USE.**