



Material Safety Data Sheet

1. Product and Company Identification

Product name : **Carbon Dioxide, Liquid**

Chemical formula : CO₂

Synonyms : Carbonic Acid, Carbon Dioxide Liquid, Carbon Dioxide, Refrigerated Liquid, Carbonic Anhydride; UN 2187

Company : Specialty Gases of America, Inc
6055 Brent Dr.
Toledo, OH 43611

Telephone : 419-729-7732

Emergency : 800-424-9300

2. Composition/Information on Ingredients

Components	CAS Number	% Volume
Carbon Dioxide, Liquid	124-38-9	100%

3. Hazards Identification

Emergency Overview

Containers may rupture or explode if exposed to heat.
May cause difficulty breathing.

Potential Health Effects

Inhalation : Changes in blood pressure, ringing in the ears, nausea, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, tingling sensation, tremors, weakness, visual disturbances, suffocation, convulsions, unconsciousness, coma.

Eye contact : Blurred vision, frostbite.

Skin contact : Blisters, frostbite.

Ingestion : Frostbite.

Chronic Health Hazard : Not applicable.

4. First Aid Measures

General advice : None.

Eye contact : Contact with liquid: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

Skin contact : If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115°F; 41-46°C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blanket. Get immediate medical attention.

Ingestion : If a large amount is swallowed, get medical attention.

- Inhalation : If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.
- Note to physicians : For inhalation, consider oxygen.

5. Fire-Fighting Measures

- Suitable extinguishing media : Use extinguishing agents appropriate for surrounding fire.
- Specific hazards : Negligible fire hazard. Containers may rupture or explode if exposed to heat.
- Fire fighting : Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For tank, rail car or tank truck: Evacuation radius: 800 meters (1/2 mile). Use extinguishing agents appropriate for surrounding fire. Cool containers with water spray until well after the fire is out. Do not get water directly on material. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

6. Accidental Release Measures

- Occupational spill/release : Do not touch spilled material. Stop leak if possible without personal risk. Reduce vapors with water spray. Keep unnecessary people away. Isolate hazard area and deny entry. Ventilate closed spaces before entering.
- Additional advice : None.

7. Handling and Storage

Handling

Secure cylinder when using to protect from falling. Use suitable hand truck to move cylinders.

Storage

Store in accordance with all current regulations and standards. Protect from physical damage. Store in a well-ventilated area. Subject to storage regulation: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.

8. Exposure Controls / Personal Protection

Exposure limits

- ACGIH : 5000 ppm TWA
30000 ppm STEL
- OSHA (final) : 5000 ppm TWA; 9000 mg/m³ TWA
- OSHA (vacated) : 30000 ppm STEL; 54000 mg/m³ STEL
10000 ppm TWA; 18000 mg/m³ TWA
- NIOSH : 30000 ppm STEL; 54000 mg/m³ STEL
5000 ppm TWA; 9000 mg/m³ TWA

IDLH

40000 ppm

Engineering measures/Ventilation

Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

Personal protective equipment

- Respiratory protection : The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.
40000 ppm – Any supplied-air respirator.

	Any self-contained breathing apparatus with a full facepiece.
	Emergency or planned entry into unknown concentrations or IDLH conditions – Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
	Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
	Escape – Any appropriate escape-type, self-contained breathing apparatus.
Hand protection	: Wear insulated gloves.
Eye protection	: For the gas: Eye protection is not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.
Skin and body protection	: For the gas, Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.
Protective materials	: Leather

9. Physical and Chemical Properties

Form	: Liquefied Gas.
Color	: Colorless.
Odor	: Odorless.
Taste	: Acid taste.
Molecular weight	: 44.01
Vapor pressure	: 569 mmHg @ -82°C
Vapor density	: 1.5 (air = 1)
Specific gravity	: 1.101 @ -37°C (water = 1)
Boiling point	: -109.3 to -79°F (-78.50 to -61.7°C)
Melting point	: -94 to -69.8°F (-70.0 to -56.56°C)
Water solubility	: Soluble.
Solvent solubility	: Soluble: hydrocarbons, organic solvents, acetone, alcohol

10. Stability and Reactivity

Stability	: Stable at normal temperatures and conditions.
Conditions to avoid	: Protect from physical damage and heat. Containers may rupture or explode if exposed to heat. Avoid contact with water or moisture.
Materials to avoid	: Combustible materials, oxidizing materials, metal salts, reducing agents, metal carbide, metals, bases, potassium, sodium, ethyleneimine.
Hazardous decomposition products	: Thermal decomposition products: oxides of carbon, oxygen.

11. Toxicological Information

The components of this material have been reviewed in various sources and the following selected endpoints are published:

CARBON DIOXIDE, LIQUID (124-38-9) : Inhalation LC50 Mouse: 836 ppm/4H

Acute Toxicity Level

CARBON DIOXIDE, LIQUID (124-38-9) : Non toxic: inhalation

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, NTP, OSHA or DFG.

Target Organs

CARBON DIOXIDE, : Central nervous system
LIQUID (124-38-9)

Medical Conditions Aggravated by Exposure

Heart or cardiovascular disorders, respiratory disorders

12. Ecological Information

No LOLI ecotoxicity data are available for this product's components.

13. Disposal Considerations

Waste from residues : Dispose in accordance with all applicable regulations.
/ unused products
Contaminated : Return cylinder to supplier.
packaging

14. Transport Information

DOT (US only)

Proper shipping : Carbon Dioxide, refrigerated liquid
name
Class : 2.2
UN/ID No. : UN2187
Labeling : Non-Flammable Gas

15. Regulatory Information

U.S. Federal Regulations

None of this product's components are listed under SARA Section 302/304 (40 CFR 355 Appendix A), SARA Section 311/312 (40 CFR 370.21), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

SARA 311/312

Acute: Yes
Chronic: No
Fire: No
Reactive: No
Pressure: Yes

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
CARBON DIOXIDE, LIQUID	124-38-9	Yes	Yes	Yes	Yes	Yes	Yes

Not regulated under California Proposition 65

16. Other Information

Prepared by : Specialty Gases of America, Inc.

For additional information, please visit our website at www.americangasgroup.com.