Carbon Dioxide (CO2)

Safety Data Sheet

This SDS conforms to U.S.Code of Federal Regulations 29 CFR 1910.1200, Hazard Communication
Date of issue: 07/14/2025

SECTION: 1. Product and company identification

1.1. Product identifier

Product form Name	: Substance :Carbon dioxide
CAS No	: 124-38-9
Formula	: CO2
Other means of identification	: Carbon Dioxide, carbonic anhydride, carbonic acid gas, dry ice

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture	: Food/Beverage use. Use as directed.
Uses advised against	: Any other use.

1.3. Details of the supplier of the safety datasheet

Distribution in the USA:

Soda Sense
CO2 Exchange LLC
1010 S Mainline Drive
Green Bay, WI, 54165
www.sodasense.com

Distribution in Canada:

Soda Sense
CO2 Exchange LLC
3129 Red Fife Rd Unit 6
Rosser, Manitoba, R0H 1E0
www.sodasense.ca

1.4. Emergency telephone number

Emergency number : Onsite Emergency: 1-920-863-4764

CHEMTREC, 24hr/day 7days/week
—Within USA: 1-800-424-9300

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Classification : Gases under pressure (compressed gas), asphyxiant

Precautionary Statement : Liquified gas. Contact with product may cause cold burns or frostbite

2.2. Label elements

Hazard pictogram (GHS-US) :

GHS04

Signal word (GHS-US) : WARNING

Hazard statements (GHS-US) : H280 - CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
OSHA-H01 - MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION
CGA-HG01 - MAY CAUSE FROSTBITE
CGA-HG03 - MAY INCREASE RESPIRATION AND HEART RATE

Precautionary statements (GHS-US) : P202 - Do not handle until all safety precautions have been read and understood
P261 - Avoid breathing gas
P262 - Do not get in eyes, on skin, or on clothing
P271+P403 - Use and store only outdoors or in a well-ventilated place
CGA-PG05 - Use a back flow preventive device in the piping
CGA-PG10 - Use only with equipment rated for cylinder pressure
CGA-PG06 - Close valve after each use and when empty
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)

2.3. Other hazards

Other hazards not contributing to the classification : Asphyxiant in high concentrations

WARNING: Concentration levels of carbon dioxide above about 1 percent are dangerous. Soda Sense recommends continuous monitoring with alarms to indicate unsafe conditions before and during potential personnel exposure. Use appropriate monitoring devices to ensure a safe oxygen level (minimum of 19.5 percent) and a safe carbon dioxide level.

2.4. Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substance

Name	Product identifier	%
Carbon Dioxide	(CAS No) 124- 38 -9	99.5 - 100

3.2. Mixture

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

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove victim to uncontaminated area wear self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

First-aid measures after skin contact : In case of frostbite, spray with water for at least 15 minutes. Apply sterile dressing. Obtain other medical assistance.

First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Contact an ophthalmologist immediately.

First-aid measures after ingestion : Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects, both acute and delayed

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Low concentrations of CO2 cause increased respiration and headache.

4.3. Indication of any immediate medical attention and special treatment needed

Dizziness or drowsiness. Difficult or rapid breathing. Any signs of frostbite.

SECTION 5: Fire fighting measures

5.1. Extinguishing media

Suitable extinguishing media All known extinguishants can be used for surrounding fire. Carbon dioxide is non-flammable but if heated the bursting discs may rupture to release all of the contained CO2.

5.2. Special hazards arising from the substance or mixture

Explosion hazard : Heat of fire can build pressure in container and cause it to rupture. Containers are equipped with a pressure relief device. (Exceptions may exist where authorized by DOT.) No part of the container should be subjected to a temperature higher than 125°F (52°C).

Reactivity : No reactivity hazard other than the effects described in sub-sections below.

5.3. Advice for firefighters

Firefighting instructions : **WARNING! Liquid and gas under pressure.**

Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with OSHA 29 CFR 1910.156 and applicable standards under 29 CFR 1910 Subpart L—Fire Protection.

Other information : Containers are equipped with a pressure relief device. (Exceptions may exist where authorized by DOT[U.S.] or TC [Canada].).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : **WARNING! Liquid and gas under pressure.. Rapid release of gaseous carbon dioxide through a pressure relief device (PRD) or valve can result in the formation of dry ice, which is very cold and can cause frostbite.**.

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Try to stop release.

6.3. Methods and material for containmentandcleaningup

For containment : Prevent waste from contaminating the surrounding environment. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, provincial, and local regulations. If necessary, call your local supplier for assistance.

6.4. Reference to other sections

See also sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautionsforsafe handling

Precautions for safe handling : Avoid breathing gas. Do not get in eyes, on skin, or on clothing.

This gas is heavier than air and in an enclosed space tends to accumulate near the floor, displacing air and pushing it upward. This creates an oxygen-deficient atmosphere near the floor. Ventilate space before entry. Verify sufficient oxygen concentration

WARNING: Concentration levels of carbon dioxide above about 1 percent are dangerous. Soda Sense recommends continuous monitoring with alarms to indicate unsafe conditions before and during potential personnel exposure. Use appropriate monitoring devices to ensure a safe oxygen level (minimum of 19.5 percent) and a safe carbon dioxide level

Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand

truck,etc.) designed to transport cylinders. Never insert an object (e.g, wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty.Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents. For other precautions in using this product,see section 16.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a cool, well-ventilated place. Store and use with adequate ventilation. Store only where temperature will not exceed 125°F (52°C) and away from direct sunlight and other sources of heat. Firmly secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods.

CO2 us a heavy gas and any leakage will gather on the lowest level and slowly fill up a closed room.

7.3. Specific end use(s)

Canisters for use in drink making equipment should be used in accordance with the instructions of the drink machine provider. Do not tamper with or remove valve or canister.

SECTION 8: Exposure controls and personal protection

8.1. Control parameters and exposure limit value

Carbon dioxide (124-38-9)

Exposure Limit					
Component	**Result**	**ACGIH**	**OSHA**	**Canada Ontario**	**Canada Quebec**
Carbon Dioxide	STEL	30000 ppm STEL	Not Established	30000 ppm STEL	30000 ppm STEL 54000 mg/m3 STEV
	TWA	5000 ppm TWA	5000 ppm TWA 9000mg/m3 TWA	5000 ppm TWA	5000 ppm TWA 9000 mg/m3 TWAEV

8.2. Exposure controls

Appropriate engineering controls : Use a local exhaust system with sufficient flow velocity to maintain an adequate supply of air in the worker's breathing zone. Mechanical (general): General exhaust ventilation may be acceptable if it can maintain an adequate supply of air. **WARNING: Concentration levels of carbon dioxide above about 1 percent are dangerous.** Soda Sense recommends continuous monitoring with alarms to indicate unsafe conditions before and during potential personnel exposure. Use appropriate monitoring devices to ensure a safe oxygen level (minimum of 19.5 percent) and a safe carbon dioxide level.

Personal protective equipment : Wear work gloves and metatarsal shoes for cylinder handling. Protective equipment where needed. Select in accordance with OSHA 29 CFR 1910.132, 1910.136, and 1910.138.

Eye protection	: Wear safety glasses when handling cylinders; vapor-proof goggles and a face shield during canister changeout or whenever contact with product is possible. Select eye protection in accordance with OSHA 29 CFR 1910.133.
Skin and body protection	: As needed for welding, wearhand, head, and body protection to help prevent injury from radiation and sparks.(SeeANSI Z49.1.) At a minimum, this includes welder's gloves and protective goggles, and may include arm protectors, aprons, hats, and shoulder protection as well as substantial clothing.
Respiratory protection	: When workplace conditions warrant respirator use, follow a respiratory protection programthatmeetsOSHA29CFR 1910.134, ANSI Z88.2, or MSHA 30 CFR 72.710 (where applicable).Use an air-supplied or air-purifying cartridge if the action level is exceeded. Ensure that the respirator has the appropriate protection factor for the exposure level.If cartridge type respirators are used, the cartridge must be appropriate for the chemical exposure. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).
Thermal hazard protection	: Wear cold insulating gloves when trans filling or breaking transfer connections.

9.1. Information on basic physical and chemical properties

Physical state at 68°F	: Liquefied gas in canister, gas when not pressurized
Apprearance or color	: Colorless liquid or gas
Molecular mass	: 44 g/mol
Odor	: Odorless
Odor threshold	: Not applicable
pH	: 3.7 (carbonic acid)
Melting point	: -70°F (-56.6°C)
Boiling point	: -109.3°F (-78.5°C)
Sublimation point	: -109.3°F (-78.5°C)
Critical temperature	: 86°F (30°C)
Flash point	: Not applicable
Flammability	: No flammable
Evaporation rate	: High
Vapor pressure	: 57.3 bar (831 psig)
Relative Density, gas (air=1)	: 1.52
Relative Density, liquid (water=1)	: 1.22
Critical pressure	: 73.7 bar (1069 psig)
Solubility	: Water: 2000 mg/l. Completely soluble.
Log Pow	: 0.82
Log Kow	: Not applicable
Viscosity (kinematic)	: Not applicable
Viscosity (dynamic)	: Not applicable
Explosive properties	: Not explosive
Oxidizing properties	: Not applicable
Decomposition properties	: Not available
Autoignition temperature	: Not applicable

9.2. Other information

Additional information	:Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level

9.3. Hazardous decomposition products

None

SECTION 10: Reactivity and stability

10.1. Reactivity

Unreactive under normal conditions

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

None.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

Alkali metals, Alkaline earth metals, Acetylide forming metals, Chromium, Titanium > 1022°F (550°C), Uranium (U) > 1382°F (750°C), Magnesium > 1427°F (775°C).

10.6. Hazardous decomposition products

Electrical discharges and high temperatures decompose carbon dioxide into carbon monoxide and oxygen. The welding process may generate hazardous fumes and gases.

SECTION 11: Toxilogical information

11.1. Information on toxicological effects

Carbon Dioxide Concentration Inhaled	EFFECTS
1%	Breathing rate increases slightly.
2%	Breathing rate increases to 50% above normal level. Prolonged exposure can cause headache, tiredness.
3%	Breathing increases to twice the normal rate and becomes labored. Weak narcotic effect. Impaired hearing, headache, increased blood pressure and pulse rate.
4-5%	Breathing increases to approximately four times normal rate, symptoms of intoxication become evident and slight choking may be felt.

5-10%	Characteristic sharp odor noticeable. Very labored breathing, visual impairment, headache and ringing in the ears. Judgement may be impaired, followed with minutes by a loss of consciousness.
10-100%	Unconsciousness occurs more rapidly above 10% level. Prolonged exposure to high concentrations may eventually result in death from asphyxiation.

Skin/eye contact : No harm expected for carbon dioxide gas. Cold gas from a discharging canister, liquid or solid carbon dioxide (dry ice) may cause severe frostbite.
Repeated exposure : No harm expected from repeat exposure to gas.
Acute dose effect : LClo = 90.000ppm, 5 minutes, human.
Carcinogenicity : Carbon dioxide is not listed by NTP, OSHA or IARC.

SECTION 11: Ecological information

12.1. Toxicity

When discharged in large quantities, CO2 may contribute to the greenhouse effect.
Carbon dioxide readily absorbs into water.

12.2. Global Warming Potential

[CO2=1] 1

12.3. Ozone depletion

Carbon dioxide is not an ozone-depleting chemical.

12.4. Persistence and degradability

No ecological damage caused by this product.

12.5. Bioaccumulitive potential

Carbon dioxide (124-38-9)
BCF fish 1 : No Bioaccumulation
Log Pow : 0.83
Log Kow : Not applicable
Bioaccumulative : No ecological damage caused by this product

12.5. Mobility in soil

Carbon dioxide (124-38-9)
Mobility in soil : No data available
Ecology - soil : No ecological damage caused by this product

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : May be vented to atmosphere in a well ventilated place. Discharge to atmosphere in large quantities should be avoided. Do not discharge into any place where its accumulation could be dangerous. Contact supplier if guidance is required.

Waste disposal recommendations :Do not attempt to dispose of residual or unused quantities. Return container to supplier.

SECTION 14: Transport information

In accordance with DOT

Transport document description UN-No.(DOT) : UN1013 Carbon dioxide, 2.2 : UN1013

Proper Shipping Name (DOT) : Carbon dioxide

Class (DOT) : 2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115

Hazard labels (DOT) : 2.2 - Non-flammable gas

Packing group : Not applicable

Environmental hazards: : None

DOT-SP 20796

Transport by sea

UN Number : UN 1013

Proper Shipping Name (IMDG) : Carbon dioxide

Class (IMDG) : 2.2

Packing group (packing instruction) : P200

Environmental hazards : None

Special precautions for user

Emergency schedules

Fire : F-C

Spillage : S-V

Transport by air

IATA UN Number : UN 1013

UN shipping name : Carbon dioxide

Transport hazard class : 2.2

Packing group (packing instruction) : P200 (Passenger and cargo aircraft)

Environmental hazards : None

Additional information

Emergency Response Guide (ERG) Number	: 120
Other information	:No supplementary information available.
Special transport precautions	:Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers: - Ensure there is adequate ventilation. - Ensure that containers are firmly secured. - Ensure cylinder valve is closed and not leaking. - Ensure valve outlet cap nut or plug (where provided) is correctly fitted. - Ensure valve protection device (where provided) is correctly fitted.

SECTION 15: Regulatory information

15.1. US Federal regulations

Carbon dioxide (124-38-9)	
Listed on the United StatesTSCA (Toxic Substances Control Act) inventory	
SARA Section 311/312 HazardClasses	Immediate (acute) health hazard Sudden release of pressure hazard

15.2. International regulations

CANADA

Carbon dioxide (124-38-9)
Listed on the Canadian DSL(Domestic Substances List)

Carbon dioxide (124-38-9)
Listed on the Canadian DSL(Domestic SubstancesList)

EU-Regulations

Carbondioxide (124-38-9)
Listed on the EEC inventoryEINECS (European Inventory of Existing Commercial Chemical Substances)

15.2.2. International regulations

Carbon dioxide (124-38-9)
Listed on the AICS (AustralianInventory of Chemical Substances) Listed on IECSC (InventoryofExisting Chemical Substances Produced or Imported in China) Listed on the JapaneseENCS(Existing & New Chemical Substances) inventory Listed on the KoreanECL(Existing Chemicals List) Listed on NZIoC (NewZealandInventory of Chemicals) Listed on PICCS (PhilippinesInventory of Chemicals and Chemical Substances) Listed on the CanadianIDL(Ingredient Disclosure List) Listed on INSQ (MexicanNational Inventory of Chemical Substances) Listed on CICR (TurkishInventory and Control of Chemicals)

15.3. US State regulations

Carbon dioxide(124-38-9)	
U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

15.4. Identification

Canister design codes:
49cfr178.46; 178.69; 178.70; 178.71 (DOT-3AL-1800 and UN ISO 7866 cylinder specification)
AN/CSA-B339-02 (TC-3ALM-124 cylinder specification)

Approval # CA1999060006 for DOT-3AL-1800 and for UN ISO 7866 aluminium cylinders DOT-SP 20796
Approval # TC 217 for TC-3ALM-124 aluminium cylinders.
Registration # M-9903 marked on each cylinder

15.5. National regulations

Soda Sense/ CO2 Exchange LLC carbon dioxide cylinders conform to Department of Transportation (DOT) and Canadian Transport of Dangerous Goods Regulations where marked on the cylinders.

15.6. Chemical safety assessment

ACSA does not need to be carried out for this product. Exposure data is included elsewhere in this SDS. Usage instructions are supplied with each product.

SECTION 16: Other information

This issue of the Safety Data Sheet is dated July 2025.

Ensure all national/local regulations are observed.

The hazard of asphyxiation is often overlooked and must be stressed during operator training.

Ensure storage areas are ventilated.

Contact with liquid CO2 can cause cold burns/frostbite. Rapidly discharged cylinders can become very cold and protective gloves should be worn.

Do not breathe the gas.

High concentration levels of CO2 discharged from single cylinders are unlikely to occur in other than extremely confined locations.

Store cylinders away from direct sunlight or other sources of heat. Store in an ambient temperature below 50ºC.

Store the cylinders securely in boxes to prevent them rolling or falling on warehouse personnel.

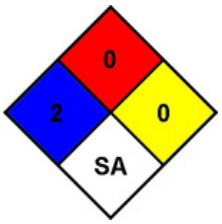
Do not throw or impact the cylinders.

Ensure packaging is kept dry.

Cylinders are heavy; care should be taken to lift the boxes correctly to avoid back injuries.

When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Before using any plastics, confirm their compatibility with this product.

NFPA health hazard	: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.
NFPA fire hazard	: 0 - Materials that will not burn.
NFPA reactivity	: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.
NFPA specific hazard	: SA - This denotes gases which are simple asphyxiants.



HMISIIIRating

Health	:1Slight Hazard - Irritation or minor reversible injury possible
Flammability	:0Minimal Hazard :3Serious Hazard
Physical	

Advice

While proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted. Details given in this document are believed to be correct at the time of going to press.

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.