

Section 1. Identification of the material and the supplier

Product: **Carbon Dioxide**
 Relevant identified uses: Technical gas - industrial use. Welding applications; Food additive (E290) to charge/ refrigerate drinks with gas; CO2 enrichment for aquariums.
 Uses advised against: All those not identified as relevant.
 Australian Importer: **BROMIC PTY LTD (ABN 88 001 648 979)**
 Address: 10 Phiney Place
 Ingleburn
 NSW 2565 AUSTRALIA
 Telephone: 02 9426 5222
Emergency Telephone: 1300 276 642
 Date of SDS Preparation: 6 December 2021

Section 2. Hazards Identification

Classified as Hazardous according to the Globally Harmonised System of Classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia

Pictograms



Signal Word: **Warning**

GHS Category	Hazard Code	Hazard Statement
Liquified Gas	H280	Contains gas under pressure may explode if heated.

Prevention Code	Prevention Statement
P103	Read label before use.

Response Code	Response Statement
None allocated	

Storage Code	Storage Statement
P410 + P403	Protect from sunlight. Store in a well-ventilated place.

Section 3. Composition / Information on Ingredients

Ingredients	Wt%	CAS NUMBER.
Carbon dioxide	99.99	124-38-9

Section 4. First Aid Measures

If in Eyes	In case of eye contact, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention.
If on Skin	Contact with liquid may cause cold burns/frostbite. In case of frostbite wash with lukewarm water for at least 15 minutes. Apply a sterile dressing. Seek medical attention if symptoms persist.
If Swallowed	Ingestion is not considered a potential route of exposure.
If Inhaled	Remove person to fresh air. Remove contaminated clothing and loosen remaining clothing. Allow person to assume most comfortable position and keep warm. Keep at rest until fully recovered. Get medical advice if breathing becomes difficult.

Most important symptoms and effects, both acute and delayed

Symptoms: Low concentrations of CO₂ cause increased respiration and headache. High concentrations of CO₂ cause rapid respiratory failure. Symptoms are headache, nausea, vomiting and loss of consciousness.

Section 5. Fire Fighting Measures

Hazard Type	Contains gas under pressure; may explode if heated.
Hazards from combustion products	Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode. Use water spray to cool fire exposed containers. May accumulate in confined spaces, particularly at or below ground level.
Suitable Extinguishing media	Use fire extinguishing methods suitable to surrounding conditions.
Precautions for firefighters and special protective clothing	Wear Safe Work Australia approved self-contained breathing apparatus and full protective clothing.
HAZCHEM CODE	2T

Section 6. Accidental Release Measures

Wear approved respiratory protection, chemical resistant gloves, protective clothing and safety boots. Evacuate all non-essential personnel from affected area. Do not breathe vapours. Ensure adequate ventilation.

In the event of a major spill, prevent spillage from entering drains or water courses.

Stop leak if safe to do so. Ensure adequate ventilation.

Section 7. Handling and Storage

Precautions for Handling:

- Use of safe work practices are recommended to avoid inhalation of vapours.
- Read labels before use.
- Use only outdoors or in a well-ventilated area.
- Use only properly specified equipment which is suitable for this product, its supply pressure and temperature.
- Only experienced and properly instructed persons should handle gases under pressure.
- Open slowly the valve in order to avoid pressure shot.
- Do not allow backfeed into the container. Avoid the backfeed of water.
- Protect cylinders from physical damage; do not drag, roll, slide or drop.
- When moving cylinders, even for short distances, use a cart.

- Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use.
- Close container valve after each use and when empty, even if still connected to equipment.
- Do not attempt to transfer gases from one cylinder/container to another.
- Do not use direct flame or electrical heating devices to raise the pressure of a container.
- Food, beverages and tobacco products should not be stored or consumed where this material is in use.
- Do not smoke while handling product.

Precautions for Storage:

- Store in a cool, dry and well ventilated area.
- Do not expose to the sun or temperatures exceeding 50 °C.
- Keep containers in upright position.
- Protect from heat, sparks, open flames and other sources of ignition.
- Keep away from combustible materials.
- Containers' valve guards or caps should be in place.
- Check periodically for damage or leaks.

Section 8 Exposure Controls / Personal Protection

WORKPLACE EXPOSURE STANDARDS (provided for guidance only)

Substance	TWA		STEL	
	ppm	mg/m ³	ppm	mg/m ³
Carbon dioxide [124-38-9]	5,000	9,000	30,000	54,000

Workplace Exposure Standard – Time Weighted Average (WES-TWA). The time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure. Workplace Exposure Standard – Short-Term Exposure Limit (WESSTEL). The 15-minute average exposure standard. Applies to any 15- Minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply. 5. Workplace exposure standards for airborne contaminants, Safe work Australia.

Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapour below occupational exposure standards. Can form sub-oxygen atmospheres (O2 less than 18%) In closed spaces, please check the percentage of oxygen in the air. Under oxygenated areas, use a breathing apparatus. Assess the opportunity to check the concentration in air.

Personal Protection Equipment



Eyes	Safety glasses with top and side shields or goggles. See NZ Standards AS/NZS 1336 and 1337 for more information.
Hands and Skin	Safety leather gloves, protective clothing and safety boots. See NZ Standards AS/NZS 2161, 2210.1 and 2210.2 for more information.
Respiratory	Wear approved self-contained breathing apparatus in case of insufficient ventilation or leaks.

Section 9 Physical and Chemical Properties

Appearance	Colourless Gaseous
Odour	Odourless
Odour Threshold	Odour threshold is subjective and inadequate to warn for overexposure.
pH	Not available

Initial Boiling Point	-78.5°C
Melting Point	-56.6 °C
Freezing Point	Not available
Flash Point	Not available
Flammability	Not available
Upper and Lower Explosive Limits	Not available
Vapour Pressure @20°C	57.3 bar
Vapour Density	Not available
Relative Density @20°C	1.52 g/cm ³ (gas)
Solubility in water	2000 mg/L (completely soluble)
Partition Coefficient:	Not available
Auto-ignition Temperature	Not available
Decomposition Temperature	Not available
Viscosity @ 100°C	Not available
Volatile Component	Not available

Section 10. Stability and Reactivity

Stability of Substance	Stable under normal conditions of storage and handling.
Possibility of Hazardous Reactions:	CO ₂ dissolved in water, forms carbonic acid (H ₂ CO ₃) which is corrosive for the carbon steel and some non-ferrous materials.
Conditions to Avoid	Avoid the storage of the product in confined areas.
Incompatible Materials	None
Hazardous Decomposition Products	Oxygen and carbon monoxide.

Section 11 Toxicological Information

Acute Effects:

Swallowed	Not applicable.
Dermal	Not applicable.
Inhalation	You can have health problems for more than 8 hours breathing air containing more than 5000 ppm (0.5%) of CO ₂ . If the concentration increases up to 15000 ppm (1.5%) have problems after just 10 minutes. At 2% of concentration, it is already experiencing a headache and loss of concentration. At higher levels, around 10%, the CO ₂ can cause asphyxiation and paralysis of the respiratory centers, although the amount of oxygen in the air is still above 19% and then just for breathing. Breathe an even richer in carbon dioxide can cause immediate loss of consciousness and death. Some symptoms of asphyxiation may include rapid breathing, fatigue, nausea, vomiting and cyanosis.
Eye	Not applicable.
Skin	Not applicable.

Chronic Effects:

Carcinogenicity	Not applicable.
Reproductive Toxicity	Not applicable.
Germ Cell Mutagenicity	Not applicable.
Aspiration	Not applicable.
STOT/SE	Not applicable.
STOT/RE	Not applicable.

Section 12. Ecotoxicological Information

This product is not hazardous to the environment.

Persistence and degradability	Nil information available
Bioaccumulation	No information available
Mobility in Soil	No information available
Other adverse effects	No information available

Section 13. Disposal Considerations

Disposal Method:

Discharge to atmosphere in large quantities should be avoided.

Do not discharge into any place where its accumulation could be dangerous.

May be vented to atmosphere in a well ventilated place.

Dispose according to applicable local and state government regulations.

Precautions and methods to avoid: None known.

Section 14 Transport Information

This product is classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code) (7th edition).

Road, Rail, Sea and Air Transport

UN No	1013
Class - Primary	2.2
Packing Group	Not applicable
Proper Shipping Name	CARBON DIOXIDE
Marine Pollutant	No
Hazchem Code	2T
Limited quantities statement	If the product's individual container is below 500ml, it can be transported as a non-DG as long as the product packaging is still labelled as per DG requirements and the driver is given safety information in accordance with Chapter 3.4 of the UNRTDG.

Road and Rail Transport

UN No: 1013
Class-primary 2.2
Packing Group N/A
Proper Shipping Name CARBON DIOXIDE

Air Transport

UN No: 1013
Class-primary 2.2
Packing Group N/A
Proper Shipping Name CARBON DIOXIDE
Cargo Pkg Inst: 200
Max Net Qty/Pkg: 150kg
Passenger Pkg Inst: 200
Max Net Qty/Pkg: 75kg
ERG Code: 2L

Sea Transport

UN No: 1013
Class-primary 2.2
Packing Group N/A
Proper Shipping Name CARBON DIOXIDE

Special Precautions for user

Avoid transport on vehicles where the load space is not separated from the driver's compartment. Assure that the drivers knows the potential dangers of the loading and he is able to operate in case of emergency. Ensure that the cylinders are firmly secured.

Section 15 Regulatory Information

Classified as Hazardous according to the Globally Harmonised System of Classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.

Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Section 16 Other Information

Glossary

Cat	Category
EC ₅₀	Median effective concentration.
EEL	Environmental Exposure Limit.
EPA	Environmental Protection Authority
HSNO	Hazardous Substances and New Organisms.
HSW	Health and Safety at Work.
LC ₅₀	Lethal concentration that will kill 50% of the test organisms inhaling or ingesting it.
LD ₅₀	Lethal dose to kill 50% of test animals/organisms.
LEL	Lower explosive level.
OSHA	American Occupational Safety and Health Administration.
TEL	Tolerable Exposure Limit.
TLV	Threshold Limit Value-an exposure limit set by responsible authority.
UEL	Upper Explosive Level
WES	Workplace Exposure Limit

References:

1. Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice.
2. Standard for the Uniform Scheduling of Medicines and Poisons.
3. Australian Code for the Transport of Dangerous Goods by Road & Rail.
4. Model Work Health and Safety Regulations, Schedule 10: Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.
5. Workplace exposure standards for airborne contaminants, Safe work Australia.
6. American Conference of Industrial Hygienists (ACGIH).
7. Globally Harmonised System of classification and labelling of chemicals.

Disclaimer

This document has been prepared by TCC (NZ) Ltd and serves as the suppliers Safety Data Sheet ('SDS'). It is based on information concerning the product which has been provided to TCC (NZ) Ltd or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer. While TCC (NZ) have taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, TCC (NZ) Ltd accept no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS

The information herein is given in good faith, but no warranty, express or implied is made.

Please contact BROMIC PTY LTD, if further information is required.

Issue Date:

6 December 2021

Review Date:

6 December 2026