



Billi	Safety Data Sheet	WHS Australia - Revision No. 04
	CARBON DIOXIDE (CO2)	Date of Revision - 20/12/2022 Next Revision - 20/12/2027

Section 1: Identification of the substance / mixture and of the Company

1.1	Identification of the substance or mixture		
	IUPAC name	CARBON DIOXIDE	
	Synonym	CO2	
	CAS n°	124-38-9	
	EINECS n°	204-696-9	
1.2	Use of the substance/ mixture		
	Food additive (E290) to charge / refrigerate drinks with gas		
	CO2 enrichment for aquariums		
	Technical gas – industrial use		
1.3	Company identification		
	Corporate name	Billi Pty Ltd	
	Address, City	42 Lucknow Crescent, Thomastown	
	Region and Country	Victoria Australia	
	Phone Number	+61 9469 0400	
	Email Address	service@billi.com.au	

Section 2: Classification of the substance or mixture

2.1	Classification of the substance or mixture		
	Classification under (EC) Regulations N° 1272/2008:	GAS UNDER PRESSURE - PRESSURIZED GAS	
	Classification under Directive N° 67/548/CEE:	PRODUCT NOT CLASSIFIED AS DANGEROUS	
	Free from the recording obligation according to the enclosures IV and V of the (EC) regulation nr. 1907/2006 (REACH)		
2.2	Label elements		
	GHS Danger Symbols :		GHS04
	Signal Word:		Warning
	Hazard Statements	H280:	Contains gas under pressure; may explode if heated
	Storage Statements	P403:	Store in a well-ventilated place
		P410:	Protect from sunlight
	Danger symbols under the Directive no. 67/578/CEE:		None
	"R" Phrases:		None
	"S" Phrases:		None
	ADR symbols		Label No 2.2: Carbon dioxide is a non-flammable, non-toxic gas
2.3	Danger identification		
	At high concentration, may cause suffocation.		

Section 3: Composition/ information on ingredients

3.1	Substance			
	IUPAC name	CAS n°	EINECS n°	Concentration
	Carbon dioxide	124-38-9	204-696-9	≥ 99,99%
	Carbon dioxide does not contain other products and / or impurities that can modify its classification			

Section 4: First aid measures

4.1	Description of first aid measures		
	Immediately seek medical advice.		
	Wearing breathing apparatus, move the exposed individual from the exposure to fresh air and keep warm expanses.		
	If unconscious, loose clothes and lay down on one side.		
	If the patient is experiencing breathing difficulties, give oxygen under low pressure.		
	If the patient is not breathing, give artificial respiration. In case of cardiac arrest, carry out a heart massage.		
4.2	Most important symptoms and effects, both acute and delayed		
	SKIN CONTACT: In case of lesions due to low temperature, please refer to the here below instructions: Immediately remove the contaminated clothes. Do not rub the skin burn or break blisters. Put the burned body parts in the lukewarm water (40°C). In case of burn of your fingers and/or hands, if it is possible, separate them with strips of gauze or clean clothes.		

Section 4 Continued**EYE CONTACT:**

Immediately wash down for at least 15 minutes. Immediately seek medical advice.

INHALATION:

In case of illness or suffocation symptoms, move the injured person away from the accident site to a ventilated place. Immediately call a doctor.

In high concentrations may cause asphyxiation. Symptoms may be loss of mobility and consciousness. Victims may not be aware. At low concentrations may cause narcotic effects, symptoms may include dizziness, headache, nausea and loss of coordination. The use of masks with filters is not effective.

Section 5: Firefighting measures**5.1 Extinguishing media**

All known extinguishing media can be used.

5.2 Special hazards arising from the substance or mixtures

Fire exposure can cause an explosion or a burst of the cylinder.

5.3 Special protection devices

Use the breathing apparatus in confined space.

5.4 Advice for firefighters

Cool the cylinder with water from a protected position.

Equipment: Wear complete equipment with eye shield helmet and neck protection, pressure or demand breathing apparatus

Section 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Use the breathing apparatus to enter the concerned area. Evacuate the area and ensure proper ventilation.

Wear protective equipment to avoid skin and eye contact or inhalation.

If the release is in a small area with poor ventilation, it may cause suffocation. Wear breathing apparatus.

6.2 Environmental precautions

Prevent it from entering sewers, basements, excavations and workpits where accumulations can be dangerous.

6.3 Methods and material for containment and clearing up

If the loss is in confined area with poor ventilation, it could cause the suffocation, otherwise no other procedures are necessary.

Section 7: Handling and storage**7.1 Precautions for safe handling**

Avoid direct contact with the product.

Do not eat, drink or smoke in the working areas or plants.

For container handling, use proper personal protective equipment such as safety shoes and gloves.

Carefully handle the containers, thus avoiding violent collisions between them or against other surfaces, as well as falls and other mechanical strains susceptible to damage their integrity / resistance.

Do not allow backflow into the cylinder.

Do not completely empty the cylinder.

In case of doubt, please contact your supplier.

7.2 Conditions for safe storage, including any incompatibilities

Gas containers cannot be directly exposed to sunshine, nor be close to heat sources or in places where temperature is above 50°C.

Ensure proper ventilation (natural or forced) where carbon dioxide is stored and/or used.

Section 8: Exposure controls/personal protection**8.1 Control parameters**

Carbon dioxide: threshold values TLV-TWA: 5000 ppm - [ACGIH 2003]
ILV (EU) 8h: 5000 ppm

8.2 Exposure controls**8.2.1 Ensure proper ventilation.**

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.

8.2.2 Eye and face protection:

Use safety glasses and face shield in accordance with EN 166

Skin protection:

Use gauntlet according to EN 388

Respiratory protection:

No other protection devices are necessary in normal use in well ventilated work areas.

In case of release, please refer to the point 6.1

CARBON DIOXIDE**Section 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties**

Molecular weight	44 g/mole
Melting point	-78,5 °C
Boiling point	-56,6 °C
Critical temperature	31 °C
Relative density, gas (air=1)	1,52
Relative density, liquid (water=1)	1,03
20°C Vapour pressure	57,3 bar
Solubility in water (mg/l)	2000 (15 °C; 1,013 bar)
Colour	colourless
Odour	No odour warning properties
Auto-ignition temperature	not applicable
Ignition limit (% vol. in air)	not applicable
Solubility in other solvents	not applicable
Partition coefficient: n-octane-water	not applicable
Other information	Gas/vapour heavier than air. May accumulate in confined areas, particularly at ground or below ground level.

9.2 Other information

Carbon dioxide (CO₂) in gas is about 1.5 times heavier than the air and it tends to stratify down with the possibility to accumulate itself in pits, cellars and holes in the ground. In stagnant conditions CO₂ accumulations can persist for many hours.

Section 10: Stability and reactivity**10.1 Reactivity**

The product is reactive with some substances, for example: ammonia or amines.

10.2 Chemical stability

Stable under normal use and storage conditions.

10.3 Possibility of hazardous reactions

CO₂ in water forms carbonic acid (H₂CO₃) which is a slightly acid and is corrosive to carbon steel and some non-ferrous materials.

10.4 Conditions to avoid

Avoid the storage of the product in confined areas

10.5 Incompatible materials

None

10.6 Hazardous decomposition products

None

Section 11: Toxicological information**11.1 Information on toxicological effects**

There are no known toxicological effects from this product. The substance forms under-oxygenated atmospheres.

You can have health problems if you breathe air containing more than 5000 ppm (0.5%) of CO₂ for more than 8 hours. If the concentration increases up to 15000 ppm (1.5%) problems appear after just 10 minutes. At 2% of concentration, you may experience headaches and loss of concentration. At higher levels, around 10%, the CO₂ can cause asphyxiation and paralysis of the respiratory centres. Air 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.

Section 12: Ecological information**12.1 Persistence and degradability**

No data available.

12.2 Bio-accumulative potential

Low

12.3 Mobility in soil

No data available.

12.4 Results of PBT and vPvB assessment

A chemical safety report was not requested

12.5 Other adverse effects

Carbon dioxide (CO₂) is the main cause of the accelerated greenhouse effect

Section 12: Ecological information continued

12.6 Toxicity										
Test	Area	Organism test	Taxonomic group	Toxicological Endpoint	Value mg/l	Test time	Method	GLP	Year	Substance test
Acute/Protract	Water	Trout	Fish	LC0	240	1 h	-	No	1984	Substance according to par. 1.1 -1.4 of IUCLID dossier
Acute/Protract	Water	Trout	Fish	LC0	60-240	12 h	-	No	1984	Substance according to par. 1.1 -1.4 of IUCLID dossier
Acute/Protract	Water	Trout	Fish	LC0	35	96 h	-	No	1984	Substance according to par. 1.1 -1.4 of IUCLID dossier

Section 13: Disposal considerations

13.1 Waste treatment methods
Waste treatment methods have to be verified with reference to the waste composition, National and EC standards in force. For handling and precautions in case of accidental waste, please refer to points 6 and 7. Actions or precautions must be verified according to the waste composition.

Section 14: Transport information

14.1	UN number	UN 1013
14.2	UN proper shipping name	CARBON DIOXIDE
14.3	Transport hazard class	2
14.3	Label	2.2
14.4	Packing group	Not applicable
14.5	Sea transport	EMS: F-C, S-V Proper Shipping name: Carbon dioxide
14.6	Air transport	Cargo Packaging instruction: 200 Max. quantity: 150kg Passenger Packaging instruction: 200, Max. quantity: 50kg ERG Code: 2L
14.7	Environmental hazards	Not applicable
14.8	Special precautions for users	Avoid transport on vehicles where the loading area is not separated from the cabin or does not have ventilation. Assure that the driver knows the potential dangers of the loading and is able to operate in case of emergency.
14.9	Transport in bulk according to Annex II of MARPOL 73/78 and IBC code	Not applicable

Section 15: Regulatory information

15.1	Safety, health and environmental regulations/legislation specific for the substance or mixture	Ensure all National/local regulations are observed.
15.2	Chemical safety assessment	A chemical safety report was not requested.

Section 16: Other information

GENERAL BIBLIOGRAPHY:	
1.	(EC) Regulation no. 1907/2006 of the European Parliament (REACH)
2.	(EC) Regulation no. 1272/2008 of the European Parliament (CLP)
3.	The Merck Index. Ed. 10
4.	Handling Chemical Safety
5.	Niosh - Registry of Toxic Effects of Chemical Substances
6.	INRS - Fiche Toxicologique
7.	Patty - Industrial Hygiene and Toxicology
8.	N.I. Sax - Dangerous properties of Industrial Materials-7 Ed., 1989
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The user must make sure that information is appropriate and complete for the specific product destination.	
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