Billi™	**Safety Data Sheet**	Revision n° 04 Date of Revision 01/12/2012 Printed on 01/12/2012
	CARBON DIOXIDE	

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

1.1 Identification of the substance or mixture

IUPAC name	CARBON DIOXIDE
Synonym	CO_2
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
C02 enrichment for aquariums
Technical gas – industrial use

1.3 Company identification

Corporate name	Billi (UK) LLP
Address, City	6b Central Avenue, St Andrews Business Park
Region and Country	Norwich, United Kingdom
Phone Number	+44 020 7456 6789
Email Address	sales@billi-uk.com

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 AMONG THE DANGEROUS ONES

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

Attention	Warning	
Danger information	H280:	It contains gas under pressure; it can explode if it is warming up
Suggestion - Conservation	P410+P403:	Gas-based containers cannot be directly exposed to sunshine rays. Ensure proper ventilation (natural or forced)

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 not a flammable and toxic gas

2.3 Danger identification

At high concentration, it 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 not breathing, give artificial respiration.
If the patient is breathing difficulties, give oxygen under low pressure.
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.

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

INHALATION:
In case of indisposition or suffocation symptoms, move the injured person away from the accident site to a fresh and 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 of.
At low concentrations may cause narcotic effects, symptoms may include dizziness, headache, nausea and loss of coordination.
The use of masks with filters is ineffective.

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 equipments to avoid skin, eyes contact and inhalation and personal clothes.
If the loss is in a little area with poor ventilation, it could be possible the suffocation. Wear breathing apparatus.
Immediately, contact Azure UK.

6.2 Environmental precautions

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

6.3 Methods and material for containment and clearing up

The loss is in confined area with poor ventilation, it could cause the suffocation.
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 backfeed into the cylinder.
Do not completely empty the cylinder.
Suck back of water into the cylinder must be prevented.
For any doubt, please contact your supplier.

7.2 Conditions for safe storage, including any incompatibilities

Gas-based containers cannot be directly exposed to sunshine rays, nor be closed to heat sources or in places where temperature can reach 50° C or more.
Ensure proper ventilation (natural or forced) where carbon dioxide is stored and/or used.

Section 8: Exposure controls/personal protection

8.1 Control parameters

8.1.1 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

Eyes 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 condition or good ventilated work areas. In case of release, please refer to the point 6.1

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 slackness conditions or CO2 similar accumulations can persists 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 dissolved in water, forms carbonic acid (H2CO3). This last one has a slightly acid reaction and it is corrosive for the 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

No known toxicological effects from this product.
The substance forms under-oxygenated atmospheres.
You can have health problems for more than 8 hours breathing air containing more than 5000 ppm (0.5%) of CO2. 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 CO2 can cause asphyxiation and paralysis of the respiratory centres, 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.

Section 12: ecological information

12.1 Toxicity

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

12.2 Persistence and degradability

No data available.

12.3 Bio-accumulative potential

Low

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

It is not requested a chemical safety report

12.6 Other adverse effects

Big quantity of Carbon dioxide (C02) is the main cause of the accelerated green house effect.

Section 13: Disposal considerations

13.1 Waste treatment methods

The waste treatment methods have to be verified every time with reference to the waste composition, National and EC standards in force. The handling and precautions in case of accidental waste, please refer to the a/m points 6 and 7. Actions or precautions must be verified accordingly 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
	Passengers — Packaging instruction: 200 Max. quantity: 150kg ERG Code: 2L
14.7	Environmental hazards
	Not applicable
14.8	Special precautions for users
	Avoid transports on vehicle where the loading area is not separated from the cabin. Assure that the drivers knows the potential dangers of the loading and he 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
	It is not requested a chemical safety report

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

Remark for the User:

The information on this sheet is based on the available knowledge at the time of our last revision.
The user must make sure that information is appropriate and complete for the specific product destination.
This document cannot be considered as a warranty for specific properties of the product.
As product use does not fall on our direct control, the user must bear full responsibility for complying with all the rules and regulations in force relating to hygiene and safety. We disclaim any responsibility for improper uses.