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	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	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	Azure UK (borg & overström T/A)
Address, City	Synergy House, Fakenham Road, Morton on the Hill
Region and Country	Norfolk, United Kingdom
Phone Number	+44 01362 695 006
Email Address	sales@azureuk.co.uk

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

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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 expenses. 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.

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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.

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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.
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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	LCO	240 mg/l	1 h	-	No	1984	Substance according to par. 1.1 -1.4 of IUCLID dossier
	Acute/Protract	Water	Trout	Fish	LCO	60-240 mg/l	12 h	-	No	1984	Substance according to par. 1.1 -1.4 of IUCLID dossier
	Acute/Protract	Water	Trout	Fish	LCO	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 (CO2) 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.
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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:	
<ol style="list-style-type: none"> 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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