

## SAFETY DATA SHEET – CARBON DIOXIDE

Version 2.1 17/10/12

### 1. IDENTIFICATION OF THE SUBSTANCE/ PREPARATION AND OF THE COMPANY

Product Identifier/Name:	Carbon Dioxide
Chemical Formula:	CO <sub>2</sub>
Uses of the substance:	Drinks dispense & Industrial.
Restrictions on use:	No data available
Company Identification:	Gas Link Wales & West Ltd
<b>Emergency Telephone No:</b>	<b>01443 222200</b>
<b>Email:</b>	<a href="mailto:matthew@glwwgroup.co.uk">matthew@glwwgroup.co.uk</a>

### 2. HAZARDS IDENTIFICATION:

**Classification according to regulation 1272/2008 (CLP)**

Compressed Gas H280: Contains gas under pressure; may explode if heated.

**Label elements according to regulation 1272/2008 (CLP)**

Hazard pictograms/symbols



Signal Word:	Warning
Hazard Statements:	H280: Contains gas under pressure. May explode if heated.
Precautionary Statements:	P403: Store in well-ventilated area.

**Classification (Directive)**

Not a hazardous substance or preparation according to EC-directives 67/548EEC or 1999/45/EC  
No EC labelling required

**Other Hazards**

Can cause rapid suffocation.  
Compressed liquefied gas.  
Avoid breathing gas.  
Direct contact with liquid can cause frostbite.  
Self-contained breathing apparatus (SCBA) may be required

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### **3. COMPOSITION/ INFORMATION ON INGREDIENTS**

CAS Number: 124-38-9  
EEC Number: 204-69-6 (from EINECS)  
Concentration: 100%

### **4. FIRST AID MEASURES**

#### **Description of first aid measures:**

General advice: Remove victim to uncontaminated area wearing self-contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing has stopped

Eye & Skin Contact: Adverse effects not expected

Ingestion: Ingestion is not considered a potential route of exposure.

Inhalation: Move victim to fresh air. If breathing has stopped, apply artificial respiration. In case of shortness of breath, give oxygen. Keep victim warm and rested. Call Doctor.

Symptoms of asphyxiation: Shivering, sweating, blurred vision, headache, shortness of breath, rapid breathing, loss of coordination and mobility and nausea.

### **5. FIRE FIGHTING MEASURES**

Suitable Extinguishing Media: All known extinguishing media can be used.

Specific Hazards: Exposure to fire may cause containers to rupture/ explode. Non-flammable.

Advice for firefighters: If safe to do so, stop flow of product. Move container away or cool with water from a protected position. In confined spaces use self-contained breathing apparatus.

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### **6. ACCIDENTAL RELEASE MEASURES**

- Personal Precautions: Monitor CO<sub>2</sub> level. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Monitor oxygen levels. Evacuate area. Ensure adequate air ventilation.
- Environmental Precautions: Should not be released into the environment. Prevent further leakage if safe to do so. Prevent from entering sewers, basements and work pits or any place where its accumulation could be dangerous.
- Clean Up Methods: Ventilate area.
- Additional advice: Increase ventilation to the release area and monitor concentrations. If leak is from cylinder or cylinder valve, call the Gas-Link Wales emergency number. If leak is in the users system, close the cylinder valve, safely vent the pressure, and safely vent the pressure before attempting repairs.

### **7. HANDLING AND STORAGE**

Protect cylinders from physical damage; do not drag, roll, slide or drop. Do not allow storage area temperature to exceed 50°C (122°F). Only experienced and properly trained persons should handle compressed gases/cryogenic liquids. Before using the product determine its identity by reading the label. Know and understand the properties and hazards of the product before use. When in doubt as to the correct handling procedure for a particular gas, contact the supplier.

Do not remove or deface content identifying labels. When moving cylinders, even for short distances, use cylinder trolley or hand truck designed to transport cylinders. Leave valve protection guards in place. Secure cylinders against either a wall or bench or place in a cylinders stand. Before connecting cylinder, check the complete gas system for suitability, in particular check pressure rating and material compatibility. Open valve slowly. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. Close cylinder valve after each use and when empty, even if still connected to equipment. Never attempt to repair or modify container valves or safety relief devices. Damaged valves should be immediately reported to the supplier.

Do not subject cylinders to abnormal mechanical shocks which may cause damage to their valve or safety devices. Never attempt to lift a cylinder by its valve protection cap or guard. Do not use cylinders as rollers or supports or for any purpose other than to contain the gas as supplied. Never strike an arc on a compressed gas cylinder or make a cylinder part of an electrical circuit. Do not smoke while handling product or cylinders. Never recompress a gas or a gas mixture. Never attempt to transfer gases from one cylinder to another. Always use backflow protection devices in piping. Never use direct flame or electrical heating devices to raise the pressure of a cylinder. Prolonged periods of cold temperature below –30°C (20°F) should be avoided. Suck back of water into container must be prevented. Purge air from system before introducing gas. Do not allow back feed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature.

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### **8. EXPOSURE CONTROLS/ PERSONAL PROTECTION**

#### **Control parameters:**

Exposure limit(s)

Carbon dioxide Time weighted average (TWA): EH40  
WEL 5,000ppm 9,150 mg/m<sup>3</sup>

Carbon dioxide Short Term Exposure limit (STEL): EH40 WEL  
15,000ppm 27,400 mg/m<sup>3</sup>

Carbon dioxide Time weighted average (TWA): EU ELV  
5,000ppm 9,000 mg/m<sup>3</sup>

Exposure Controls: Provide Natural or mechanical ventilation to prevent accumulation above exposure limits. Systems should be regularly checked for leakage. Oxygen detectors should be used

#### **Personal protective equipment**

Respiratory protection: Self-contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen deficient atmosphere.  
Air purifying respirators will not provide protection. Users of breathing apparatus must be trained.

Hand protection: Sturdy work gloves are recommended for handling cylinders. The breakthrough time of the selected gloves must be greater than the intended use period.

Eye protection: Safety glasses recommended when handling cylinders.

Skin & body protection: Safety footwear is recommended when handling cylinders.

Special instructions for protection and hygiene: Ensure adequate ventilation, especially in confined areas.

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### **9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance/ Colour:	Liquefied gas, Colourless gas.
Odour:	No odour warning properties
Odour threshold:	No data available
pH:	Not applicable
Melting point range:	-56.6 °C
Boiling point range:	-88.1 °C
Flash point	Not applicable.
Evaporation Rate	Not applicable.
Flammability (solid/gas)	No data available
Upper/Lower	
Explosion/flammability limit:	No data available
Vapour pressure:	57.3 bar @ 20 °C
Water solubility:	2.000g/l
Relative vapour density:	1.519 (air = 1)
Relative density:	0.82 (water = 1)
Partition coefficient (n-octanol/water)	Not applicable
Auto ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	Not applicable.
Explosive properties:	No data available
Oxidizing properties:	No data available
Molecular weight:	44.01g/mol
Density:	0.0018 g/cm <sup>3</sup> (0.112lb/ft <sup>3</sup> ) at 21°C (70°F) Note: (as vapour)
Specific volume:	0.5456 m <sup>3</sup> /kg at 21°C

### **10. STABILITY AND REACTIVITY**

Reactivity:	Refer to possibility of hazardous reactions and/or incompatible materials sections.
Chemical Stability:	Stable under normal conditions.
Possibility of hazardous reactions:	No data available.
Conditions to avoid:	No data available.
Hazardous decomposition products:	No data available.

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### 11. TOXICOLOGICAL INFORMATION

#### Information on toxicological effects.

Effects on eyes:	Contact with liquid may cause cold burns/frostbite
Effects on skin:	Contact with liquid may cause cold burns/frostbite.
Inhalation effects:	Concentrations of 10% CO <sub>2</sub> or more can produce unconsciousness or death. Unlike simple asphyxiants, carbon dioxide has the ability to cause death even when normal oxygen levels (20-21%) are maintained. Carbon dioxide is physiologically active, affecting circulation and breathing. At concentrations between 2 and 10%, carbon dioxide can cause nausea, dizziness headache, mental confusion, increased blood pressure and respiratory rate. In high concentrations may cause asphyxiation. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themselves.
Ingestion effects:	Ingestion is not considered a potential route of exposure.
Symptoms:	Exposure to oxygen deficient atmosphere may cause the following symptoms; dizziness, Salivation, Nausea, Vomiting, Loss of mobility/consciousness.
Acute oral toxicity:	No data available on the product itself.
Inhalation:	Unlike simple asphyxiants, carbon dioxide has the ability to cause death even when normal oxygen levels (20-21%) are maintained. 5% Co <sub>2</sub> has been found to act synergistically to increase the toxicity of certain other gases (CO <sub>2</sub> NO <sub>2</sub> ). CO <sub>2</sub> has been shown to enhance the production of carboxy- or met-haemoglobin by these gases possibly due to carbon dioxide's stimulatory effects on the respiratory and circulatory systems.
Acute dermal Toxicity:	No data available on the product itself.
Skin corrosion/irritation:	No data available
Serious eye damage /eye irritation:	No data available
Sensitisation:	No data available.

#### Chronic toxicity or effects from long-term exposure.

Carcinogenicity:	No data available
Reproductive toxicity:	No data available on the product itself.
Gem cell mutagenicity:	No data available on the product itself.
Specific target organ systemic toxicity (single exposure):	No data available.
Specific target organ systemic toxicity(repeated exposure):	No data available on the product itself.
Aspiration hazard:	No data available.

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### 12. ECOLOGICAL INFORMATION

#### **Toxicity**

Aquatic toxicity: No data available on the product itself.

Toxicity to fish –Components:

Carbon dioxide: LC50 (1h): 240 mg/l Species: Rainbow trout. (Oncorhynchus mykiss)

Carbon dioxide LC50 (96h): 35mg/l Species: Rainbow trout. (Oncorhynchus mykiss)

Toxicity to other organisms: No data available on the product itself.

Persistence and degradability: No data available on the product itself.

Bio accumulative potential: No data available on the product itself.

Mobility in soil: No data available on the product itself.

Other adverse effects: When discharged in large quantities may contribute to greenhouse effect

### 13. DISPOSAL CONSIDERATIONS

Waste treatment methods: Contact Gas Link Wales if guidance is required.  
Return unused product in original cylinder to supplier.

Contaminated packaging: Return cylinder to supplier.

### 14. TRANSPORT INFORMATION

#### **ADR**

UN ID No. : UN1013  
Proper Shipping Name . Carbon Dioxide  
Class/ Division : 2.2  
Tunnel code : (C/E)  
Hazard Identification No. : 2.0  
Label(s) : 2.2

#### **IATA**

UN ID No. : UN1013  
Proper Shipping Name . Carbon Dioxide  
Class/ Division : 2.2  
Label(s) : 2.2

#### **IMDG**

UN ID No. : UN1013  
Proper Shipping Name . Carbon Dioxide  
Class/ Division : 2.2  
Label(s) : 2.2

#### **RID**

UN ID No. : UN1013  
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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 emergency.

Before transporting product containers check that they are firmly secured and ensure:

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- Cylinder valve outlet is closed and not leaking.
- Valve outlet cap, nut or plug (where provided) is correctly fitted.
- Valve protection device (where provided) is correctly fitted).
- Adequate ventilation.
- Compliance with applicable regulations

### **15. REGULATORY INFORMATION**

Safety, health and environmental regulations/legislation specific for the substance or mixture,

<b>Country</b>	<b>Regulatory List</b>	<b>Notification</b>
USA	TSCA	Included on Inventory
EU	EINECS	Included on Inventory

WGK Identification Number: Not water endangering.

### **Chemical Safety Assessment**

This product does not meet the minimum volume threshold. CSA has not yet been completed.

### **16. OTHER INFORMATION**

Ensure all national/ local regulations are observed.

Hazard statements: H280 Contains gas under pressure; may explode if heated.

Cylinder Identification: Gas Link Wales & West / Wales & West Cellar Gas.

Valve Connection: BS 341 No. 8

Ensure all users of this product understand the hazards of asphyxiation.

Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

### **DISCLAIMER**

Details given in this document are believed correct at the time of going to press.

Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

***For more information contact Wales & West Cellar Gas on 01443 222200***