

MATERIAL SAFETY DATA SHEET For Liquid Carbon Dioxide

Section 1 IDENTITY OF SUBSTANCE / COMPANY UNDERTAKING

Product name: Liquid Carbon Dioxide

Use: Fire fighting agent

Identification of the companies:

Yara Industrial, Immingham, North East Lincolnshire, DN40 2NS

Section 2 COMPOSITION AND INGREDIENT INFORMATION

Chemical name	CAS No	Content, %
Carbon Dioxide	124-38-9	100

Section 3 IDENTIFICATION OF THE HAZARDS FOR PEOPLE AND ENVIRONMENT

The substance is not classified as dangerous according to Directive 67/548/EEC and its amendments.

Additional Hazards:

Liquefied Gas.

Acts as a simple asphyxiant. Can displace the normal air and cause suffocation from lack of oxygen. The vapour / gas is heavier than air and will spread along the ground. Extremely cold material. Can cause burns similar to frostbite.

See section 11 for more detailed information on health effects and symptoms.

Section 4 FIRST AID MEASURES

Eyes Immediately flush eyes with plenty of water for at least 15 minutes, keeping eyelids open. Get medical attention immediately.

Skin In case of contact with liquid, warm frozen tissue with water and get medical attention.

Inhalation If inhaled, remove to fresh air. If breathing is difficult, give oxygen. In all cases of doubt or when symptoms persist, seek medical attention.

Ingestion Not applicable.

Section 5 FIRE FIGHTING MEASURES

Extinguishing Media The product itself has fire-extinguishing properties. Extinguish the fire using a suitable agent for surrounding the fire.

Special Exposure Hazards Container explosion may occur under fire conditions or when heated.

Fire fighters should wear positive pressure self-contained breathing apparatus (SCUBA) and full turnout gear.

Hazardous Thermal Decomposition Products These products are carbon oxides (CO, CO₂)

Section 6 ACCIDENTAL RELEASE MEASURES

Personal Precautions

Use suitable protective equipment (section 8). Follow all fire-fighting procedures (Section 5).

Environmental Precautions and Clean-up Methods

Stop leak if without risk. Prevent entry to sewers, basements or confined areas. Watch for accumulation in low, confined areas. CO₂ can displace the normal air and cause suffocation from lack of oxygen.

Note: See section 8 for personal protective equipment and section 13 for waste disposal.

Section 7 HANDLING & STORAGE

Handling

Avoid contact with eyes, skin and clothing. Acts as a simple asphyxiant. Can displace the normal air and cause drowsiness, dizziness and nausea. See section 11 for more detailed information on health effects and symptoms.

Storage

Storage should be in a defined, ventilated, segregated and approved area designed for the purpose. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapours below their respective Occupational Exposure Limits (OEL).

Specific Uses

Liquid carbon dioxide (also valid for compressed carbon dioxide) must never be used to rinse tanks, containers or equipment containing flammable liquids/gases, particulates or dust. Risk of explosion in presence of static discharge. If carbon dioxide gas is used to rinse equipment, tanks or containers, take precautionary measures against static discharges.

Section 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Ingredient Name

Occupational Exposure Limits

Carbon Dioxide

EH40-WEL (United Kingdom (UK), 1/2005).

STEL: 2740 mg/m³ 15 Minutes. Form: All Forms

STEL: 15000ppm 15 Minutes. Form: All Forms

TWA: 9150 mg/m³ 8 Hours. Form: All Forms

TWA: 5000ppm 8 Hours. Form: All Forms

Exposure Controls:

Respiratory Protection

Use a properly fitted, air purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hand Protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eye Protection

Recommended: Use safety eyewear designed to protect against splashing of liquids.

Skin Protection

Personal protective equipment for the body should be selected based on the task being performed and the risks involved. Wash hands, forearms and face thoroughly after handling chemical products, before eating, drinking smoking or using the lavatory and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 9 PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquefied Gas
Colour:	Colourless
Odour:	Odourless
Melting / Freezing Point:	Sublimation temperature: -78.5°C (-109.3°F)
Density g/cm ³ :	1.03g/cm ³ (-20°C / -4°F)
Solubility:	Very slightly soluble in water
Solubility (at 20°C):	1.688g/l (in water)
Vapour Density:	1.53 (air = 1)
Critical Temperature:	30.9°C (87.6°F)

Section 10 STABILITY AND REACTIVITY

Stability

Stable under recommended storage and handling conditions (See section 7).

Hazardous Decomposition Products

These products are carbon oxides (CO, CO₂).

Section 11 TOXOLOGICAL INFORMATION

Potential Acute Health Effects

Adverse health effects are considered unlikely, when the product is used according to directions.

Over-exposure Signs / Symptoms

Target Organs: Causes damage to the following organs: Lungs, cardiovascular system, skin, eyes, central nervous system.

Other adverse effects: Extremely cold material. Can cause burn similar to frostbite.

Additional Information: Acts as a simple asphyxiant: symptoms include headache, dizziness, fatigue, drowsiness and in extreme cases, loss of consciousness. Potential suffocation hazard.

Section 12 ECOLOGICAL INFORMATION

Adverse Effects:

The product is not expected to harm the environment when used properly according to directions.

Section 13 DISPOSAL CONSIDERATIONS

Methods Of Disposal

With adequate ventilation and otherwise under conditions where the low temperature will NOT present a hazard or problem, the liquid may be allowed to evaporate. A cold "fog", heavier than air, will be formed. Do not puncture or incinerate container. Dispose of in accordance with all applicable local and national regulations.

Hazardous Waste

Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 91/689/EEC.

Section 14 REGULATORY INFORMATION

EU Regulations

Risk phrases: This product is not classified according to EU Legislation.

Product Use: Industrial Applications.

Classification and labelling have been performed according to EU Directives 67/548/EEC and 1999/45/EC (Including amendments) and the intended use.