

Material Safety Data Sheet

(R744 Carbon Dioxide)

Information in this format is provided as a service to our customers and is intended only for their use. Others may use it at their own discretion and risk. It is subject to revision as additional knowledge and experience are gained. Please return to this website for the most current version.

R744 (Carbon Dioxide)

1. PRODUCT AND COMPANY IDENTIFICATION

Material Identification

Corporate MSDS Number: R744 CAS Number: 124-38-9
Product Name R744
Chemical Formula CO2
Chemical Name Carbon Dioxide
Product Use Foam blowing agent, refrigerant, aerosol propellant

Company Identification

MANUFACTURER/DISTRIBUTOR: Cosutin Industrial CO., Limited
Add: Unit B, 10/F Lee May Building 788-790 Nathan Road, Mongkok, Kowloon, H.K.
Tel.: +852 21395855 Fax: +852 81673777
PHONE NUMBERS Product Information: +86 136 31481545
Transport Emergency: +86 136 31481545
Medical Emergency: +86 136 31481545

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient Name	CAS No.	Typical Wt. %
Carbon Dioxide	124-38-9	100%

EC No (from EINECS) 204-696-9

Contains no other components or impurities which will influence the classification of the product.

3. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008/EC (CLP/GHS)

Press. Gas (Compressed gas) – Contains gas under pressure; may explode if heated.

Classification according to Directive 67/548/EEC & 1999/45/EC

Not classified as hazardous to health.

Risk advice to man and the environment

Liquefied gas.

Label elements**Labelling Pictograms****Signal word:** Warning**Hazard statements**

H280 Contains gas under pressure; may explode if heated

EIGA-As Asphyxiant in high concentrations

Precautionary statements**Precautionary statement prevention:** None**Precautionary statement response:** None**Precautionary statement storage** P403: Store in a well-ventilated place**Precautionary statement disposal:** None**Other hazards:** None

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 stopped.**Inhalation:** Remove victim to uncontaminated area wearing self-contained breathing apparatus.
Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.**Skin contact** In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.**Eye contact:** Immediately flush eyes thoroughly with water for at least 15 minutes.**Ingestion:** Ingestion is not considered a potential route of exposure.**Most important symptoms and effects, both acute and delayed**

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Low concentrations of CO2 cause increased respiration and headache.

Indication of any immediate medical attention and special treatment needed

None

5. FIRE FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media: All known extinguishants can be used.

Special hazards arising from the substance or mixture

Specific hazards Exposure to fire may cause containers to rupture or explode.

Hazardous combustion products: None

Advice for fire fighters

Specific methods If possible, stop flow of product. Move container away or cool with water from a protected position.

Special protective equipment: In confined space use self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Evacuate area. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ensure adequate air ventilation. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

Environmental precautions

Try to stop release.

Methods and materials for containment and cleaning up

Ventilate area.

7. HANDLING AND STORAGE

Precautions for safe handling

Suck back of water into the container must be prevented. Do not allow feedback into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Check regularly tightness of plant. Refer to suppliers handling instructions. The substance must be handled in accordance with good industrial hygiene and safety procedures. Purge system with dry inert gas (e.g. helium or nitrogen) before gas is introduced and when system is placed out of service. Do not smoke when handling product. Only experienced and properly instructed persons should handle gases under pressure. Protect cylinders from physical damage; do not drag, roll, slide or drop. Never use direct flame or electrical heating devices to raise the pressure of the container. Do not remove or deface labels provided by the supplier for the identification of the cylinder contents. When moving cylinders, even for short distances, use a cart (trolley, hand truck etc.) designed to transport cylinders. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use. Ensure the complete gas system has been (or is regularly) checked for leaks before use. If user experiences any difficulty operating cylinder valve discontinue use and contact cylinder supplier. Close container 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 reported immediately to the supplier. Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment. Keep container valve outlets clean and free from contaminants, particularly oil and water. Never attempt to transfer gases from one cylinder/container to another. Avoid suck-back of water, acid and alkalis.

Conditions for safe storage, including any incompatibilities

Keep container below 50oC in a well-ventilated place. Observe all regulations and local requirements regarding storage of containers. Containers should not be stored in conditions likely to encourage corrosion. Containers should be stored in the vertical position and properly secured to prevent falling over. Stored containers should be periodically checked for general conditions and leakage. Container valve guards or caps should be in place. Store containers in a location free from fire risk and away from sources of heat and ignition. Keep away from combustible materials.

Specific end uses

None

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limit value

Value type	Value	Note
Great Britain – STEL	15.000 ppm	EH 40/07
Great Britain - LTEL	5.000 ppm	EH 40/07

Exposure controls**Appropriate engineering controls**

Product to be handled in a closed system. Gas detectors should be used when toxic quantities may be released. Keep concentrations well below occupational exposure limits. Oxygen detectors should be used when asphyxiating gases may be released. The substance must be handled in accordance with good industrial hygiene and safety procedures. Consider work permit system e.g. for maintenance activities. Systems under pressure should be regularly checked for leaks. Provide adequate general or local ventilation.

Personal protective equipment**Eye and face protection**

Safety eyewear, goggles or face shield to EN166 should be used to avoid exposure to liquid splashes.

Skin and hand protection

Wear leather safety gloves and safety shoes when handling cylinders.

Respiratory protection

Not required.

Thermal hazards

Not required.

Environmental Exposure Controls

Specific risk management measures are not required beyond good industrial hygiene and safety procedures. Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance/colour	Colourless gas
Odour	No odour warning properties
Melting point	-56,6C
Boiling point	-78,5C
Flash point	Not applicable for gases and gas mixtures
Flammability range	Non flammable
Vapour pressure 20C	57,3 bar
Relative density, gas	1,52
Solubility in water	2000 mg/l
Partition coefficient: n-octanol/water	0,83 logPow
Auto-ignition temperature	Not applicable
Explosive properties	Explosive acc. EU legislation: Not explosive Explosive acc. transport regulations: Not explosive
Oxidising properties	Not applicable
Molecular weight	44 g/mol
Sublimation point	-78,5C
Critical temperature	31C
Relative density, liquid	1,03
Other information	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

10. STABILITY AND REACTIVITY

Reactivity	Unreactive under normal conditions
Chemical stability	Stable under normal conditions
Possibility of hazardous reactions	None
Conditions to avoid	None
Incompatible materials	For material compatibility see latest version of ISO-11114.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

In high concentrations may cause rapid circulatory insufficiency even at normal levels of oxygen concentration. Symptoms are headache, nausea and vomiting, which may lead to unconsciousness and even death.

12. ECOLOGICAL INFORMATION

Toxicity	When discharged in large quantities may contribute to the greenhouse effect
Persistence and degradability	Not applicable
Bioaccumulative potential	Not applicable
Mobility in soil	The substance is a gas. Not applicable.
Results of PBT and vPvB assessment	Not classified as PBT or vPvB
Other adverse effects	When discharged in large quantities may contribute to the greenhouse effect
Global Warming Potential (GWP)	1

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Do not discharge into any place where its accumulation could be dangerous. Vent to atmosphere in a well-ventilated place. Discharge to atmosphere in large quantities should be avoided. Contact supplier if guidance is required.

EWC No. 16 05 05

14. TRANSPORTATION INFORMATION

ADR/RID

Class	2
Classification code	2A
UN number	1013
Labelling no	2.2
Proper shipping name	CARBON DIOXIDE
Packing group	P200
Hazard number	20
Emergency Action Code	2T

Environmental hazards None
Special precautions for user None

IATA

Class 2.2
UN number 1013
Labelling number 2.2
Proper shipping name CARBON DIOXIDE
Packing group P200
Environmental hazards None
Special precautions for user None

IMDG

Class 2.2
UN number 1013
Labelling no. 2.2
Proper shipping name CARBON DIOXIDE
Packing group P200
EmS FC; SV
Environmental hazards None
Special precautions for user None

Transport in bulk according to Annex II of MARPOL73/78 and the IBC code
Not applicable

Other transport information

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 ensure that they are firmly secured. Ensure that the cylinder valve is closed and not leaking. Ensure that the valve outlet cap, nut or plug (where provided) is correctly fitted. Ensure that the valve protection devise (where provided) is correctly fitted. Ensure adequate ventilation. Ensure compliance with applicable regulations.

15. REGULATORY INFORMATION

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

Seveso Directive 96/82/EC: Not covered

Chemical Safety Assessment

A Chemical Safety Assessment does not need to be carried out for this substance.

16. OTHER INFORMATION

Ensure all national/local regulations are observed. The hazard of asphyxiation is often overlooked and must be stressed during operator training. Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

Note

When using this document care should be taken as the decimal sign and its position complies with rules for the structure and drafting of international standards and is a comma on the line. As an example 2,000 is two (to three decimal places) and not two thousand, whilst 1.000 is one thousand and not one (to three decimal places).

This datasheet was prepared in accordance with Regulation (EC) No. 1907/2006.

Information in this publication is believed to be accurate and is given in good faith but it is for the user to satisfy itself of the suitability for its own particular purpose. Accordingly, Cosutin Industrial Co., Limited gives no warranty as to the fitness of the product for any particular purpose and any implied warranty or condition, statutory or otherwise, is excluded except to the extent that such exclusion is prevented by law.

End of MSDS