	<b>SAFETY DATASHEET</b>	Page : 1/10
		Revised edition n° : 10.0
		Revision date : 05/2023
<b>Carbon dioxide (R744)</b>		<b>MTG018A</b>

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

Trade name	Carbon dioxide
Chemical description	Carbon dioxide
CAS N°	124-38-9
CE N°	204-696-9
Index N°	--
Registration n°	Listed in Annex IV / V REACH, exempted from registration
Chemical formula	CO <sub>2</sub>

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Industrial and professional Test gas/Calibration gas Purge gas, diluting gas, inerting gas Shield gas for welding processes Laboratory use Food applications Contact supplier for more information on uses
Uses advised against	Consumer use not recommended

### 1.3. Details of the supplier of the safety data sheet

Company identification	MULTIGAS Route de l'Industrie 102 CH-1564 Domdidier
Phone number	+41 (0) 26 676 94 94
E-mail address	<a href="mailto:info@multigas.ch">info@multigas.ch</a>

### 1.4. Emergency telephone numbers

145 (Toxicology Centre Zurich) or +41 (0) 44 251 51 51  
 +41 (0) 26 676 94 94 (Multigas)


## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Gases under pressure : Liquefied gas

H280

	<b>SAFETY DATASHEET</b>	Page : 2/10
		Revised edition n° : 10.0
		Revision date : 05/2023
<b>Carbon dioxide (R744)</b>		<b>MTG018A</b>

For the complete H-sentences texts mentioned in that chapter, refer to Section 16

## 2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms



GHS04

Signal word

Warning

Hazard statements

H280 Contains gas under pressure; may explode if heated

Precautionary statements

P410+403 Protect from sunlight. Store in a well-ventilated place

## 2.3. Other hazards

Asphyxiant in high concentrations

Contact with liquid may cause cold burns/frostbite

In high concentrations CO<sub>2</sub> cause rapid circulatory insufficiency. Symptoms are headache, nausea and vomiting, which may lead to unconsciousness

## SECTION 3: Composition/information on ingredients

### 3.1. Substances


Name	Product identifier	Concentration	Classification
Carbon dioxide	(CAS-No.) 124-38-9 (EC-No.) 204-696-9 (EC Index-No.) --- (Registration-No.)--	100%	Press. Gas (Liq.), H280

For the complete H-sentences texts mentioned in that chapter, refer to Section 16

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

### 3.2. Mixtures

Not established

	<b>SAFETY DATASHEET</b>	Page : 3/10
		Revised edition n° : 10.0
		Revision date : 05/2023
<b>Carbon dioxide (R744)</b>		<b>MTG018A</b>

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

<b>General advice</b>	See a doctor. Show this safety data sheet to the attending physician
<b>In case of inhalation</b>	In case of inhalation, remove the person from the contaminated area. In case of respiratory arrest, give artificial respiration. See a doctor
<b>In case of skin contact</b>	Wash with soap and plenty of water. Take victim immediately to hospital. See a doctor
<b>In case of eyes contact</b>	Rinse thoroughly with plenty of water for at least 15 minutes and consult a doctor
<b>In case of ingestion</b>	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. See a doctor

### 4.2. 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 CO<sub>2</sub> cause increased respiration and headache.  
 Refer to section 11

### 4.3. Indication of any immediate medical attention and special treatment needed

None

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

<b>Suitable extinguishing media</b>	Water spray or water mist. Dry powder. Carbon dioxide. Foam
<b>Unsuitable extinguishing media</b>	Do not use water jet

### 5.2. Special hazards arising from the substance or mixture

<b>Specific hazards</b>	Exposure to fire may cause containers to rupture/explode
<b>Hazardous combustion products</b>	None

### 5.3. Additional information

Cool endangered receptacles with water spray jet from a protected position

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Avoid breathing vapours, spray mists or gases  
 Provide adequate ventilation  
 Evacuate personnel to a safe place  
 Use an oxygen detector in the event of a leak

**Carbon dioxide (R744)**

**MTG018A**

Personal protective equipment, see section 8

**6.2. Environmental precautions**

Try to stop the leak

**6.3. Methods and material for containment and cleaning up**

Ventilate the area

Keep area evacuated and free from ignition sources until any spilled liquid has evaporated (ground free from frost)

**6.4. Reference to other sections**

See also sections 8 and 13

**SECTION 7: Handling and storage**

**7.1. Precautions for safe handling**

For precautions, see section 2.2

**7.2. Conditions for safe storage, including any incompatibilities**

Store in a cool place. Keep container tightly closed in a dry and well-ventilated place

Content under pressure

**7.3. Specific end use(s)**

None

**SECTION 8: Exposure controls/personal protection**

**8.1. Control parameters**


**Components with occupational exposure limits**

Component	CAS N°	Exposure value type	Control parameter	Source
Carbon dioxide	124-38-9	TWA	5000 ppm	SUVA: Limit values of exposure to workstations
			9000 mg/m <sup>3</sup>	
		OEL	-	SUVA: Limit values of exposure to workstations
			-	

**8.2. Exposure controls**

**8.2.1. Appropriate engineering controls**

Provide adequate general and local exhaust ventilation

	<b>SAFETY DATASHEET</b>	Page : 5/10
		Revised edition n° : 10.0
		Revision date : 05/2023
<b>Carbon dioxide (R744)</b>		<b>MTG018A</b>

CO<sub>2</sub> detectors must be used when CO<sub>2</sub> is likely to be released

### 8.2.2. Individual protection measures, e.g. personal protective equipment

<b>Eye/face protection</b>	Wear goggles and a face shield when transfilling or breaking transfer connections. Standard EN
<b>Skin / hand protection</b>	<p>Wearing chemical resistant gloves Standard EN 374-Protective gloves against chemicals</p> <p><b>For long-term use</b>  Material: Butyl rubber.  Glove thickness: 0.3 mm  Penetration time: 480 min</p> <p><b>For short-term use</b>  Material: Chloroprene rubber  Glove thickness: 0.6 mm  Penetration time: 30 min</p> <p>Have appropriate, chemical-resistant protective clothing ready for use in emergencies</p>
<b>Respiratory protection</b>	When the risk assessment shows that the use of respirable respirators is appropriate, use a full face mask with EN 14387 multipurpose cartridge. If the mask is the only means of protection, use a full face respirator. Use NIOSH (US) or CEN (EU) tested and approved equipment

### 8.2.3. Environmental exposure controls

-

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### Appearance

- **Physical state at 20°C / 101.3kPa** Gas
- **Colour** Colourless

**Odour** No data available

**Odour threshold** No data available

**pH** No data available

**Melting point / Freezing point** -56.6°C (at 5.2 atm)

**Boiling point** -78.5°C (Sublimation)

**Flash point** No data available

**Evaporation rate** No data available

**Flammability (solid, gas)** Non-flammable

**Explosive limits** No data available

**Carbon dioxide (R744)**
**MTG018A**

Vapour pressure [20°C]	57.3 bar
Vapour pressure [50°C]	No data available
Vapour density	No data available
Relative density, liquid (water=1)	0.82
Relative density, gas (air=1)	1.52
Water solubility	2 g/l
Partition coefficient n-octanol/water (Log Kow)	0.83
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidising properties	No data available

**9.2. Other information**

Molar mass	44 g/mol
Critical temperature [°C]	30°C
Critical pressure [bar]	73.8 bar
Relative vapour density	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level

**SECTION 10: Stability and reactivity**
**10.1. Reactivity**

No reactivity hazard other than the effects described in sub-sections below

**10.2. Chemical stability**

Stable under recommended storage conditions

**10.3. Possibility of hazardous reactions**

No data available


**10.4. Conditions to avoid**

No data available

**10.5. Incompatible materials**

None

For additional information on compatibility refer to ISO 11114

	<b>SAFETY DATASHEET</b>	Page : 7/10
		Revised edition n° : 10.0
		Revision date : 05/2023
<b>Carbon dioxide (R744)</b>		<b>MTG018A</b>

#### **10.6. Hazardous decomposition products**

No data available

### **SECTION 11: Toxicological information**

#### **11.1. Chemical safety assessment**

<b>Acute toxicity</b>	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, NO <sub>2</sub> ). CO <sub>2</sub> has been shown to enhance the production of carboxy- or met-hemoglobin by these gases possibly due to carbon dioxide's stimulatory effects on the respiratory and circulatory systems
<b>Skin corrosion/irritation</b>	No data available
<b>Serious eye damage/irritation</b>	No data available
<b>Respiratory or skin sensitisation</b>	No data available
<b>Germ cell mutagenicity</b>	No data available
<b>Carcinogenicity</b>	No data available
<b>Reproductive toxicity</b>	No data available
<b>STOT-single exposure – Target organ(s)</b>	No data available
<b>STOT-repeated exposure</b>	No data available
<b>Ingestion hazard</b>	No data available

### **SECTION 12: Ecological information**

#### **12.1. Toxicity**

<b>Assessment</b>	No data available
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#### **12.2. Persistence and degradability**

No data available

#### **12.3. Bioaccumulative potential**


No data available

#### **12.4. Mobility in soil**

No data available

#### **12.5. Results of PBT and vPvB assessment**

PBT / vPvB assessment is not available because the chemical safety assessment is not required / is not conducted

	<b>SAFETY DATASHEET</b>	Page : 8/10
		Revised edition n° : 10.0
		Revision date : 05/2023
<b>Carbon dioxide (R744)</b>		<b>MTG018A</b>

### 12.6. Endocrine-disrupting properties

No data available

### 12.7. Other adverse effects

Effect on the ozone layer: None

Effect on global warming: May contribute to the greenhouse effect when discharged in large quantities

Global warming potential [CO2=1]: 1

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

<b>Product</b>	<p>May be vented to atmosphere in a well ventilated place</p> <p>Discharge to atmosphere in large quantities should be avoided</p> <p>Do not discharge into any place where its accumulation could be dangerous</p> <p>Return unused product in original cylinder to supplier</p>
<b>Contaminated container</b>	<p>Eliminate as unused product</p> <p>Contact the supplier if instructions are needed</p>
<b>OMoD Code</b>	<p>16 05 05</p> <p>Gases in pressure containers other than those mentioned in 16 05 04</p>

## SECTION 14: Transport information

### 14.1. UN number

Transport par road/rail ADR / RID	Transport by sea IMDG	Transport by air IATA
1013	1013	1013

### 14.2. UN proper shipping name

Transport par road/rail ADR / RID	Transport by sea IMDG	Transport by air IATA
Carbon dioxide	Carbon dioxide	Carbon dioxide

### 14.3. Transport hazard class(es)


Labelling



ADR/RID  
IMDG  
IATA

2.2 : Non-flammable, non-toxic gases



	<b>SAFETY DATASHEET</b>	Page : 9/10
		Revised edition n° : 10.0
		Revision date : 05/2023
<b>Carbon dioxide (R744)</b>		<b>MTG018A</b>

**14.4. Packing group**

ADR/RID IMDG IATA	Not established
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**14.5. Environmental hazards**

ADR/RID	None
IMDG	None
ICAO-TI / IATA-DGR	None

**14.6. Special precautions for user**

No data available

**14.7. Transport in bulk according to Annex II of Marpol and the IBC Code**

Not applicable

**SECTION 15: Regulatory information**

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


This safety data sheet complies with the requirements of Regulation (CE) No. 1907/2006

**15.2. Chemical safety assessment**

A CSA does not need to be carried out for this product

**SECTION 16: Other information**

<b>Indication of changes</b>	Revised safety data sheet in accordance with commission regulation (EU) No 2015/830
<b>Abbreviations and acronyms</b>	ADR : European Agreement concerning the International Carriage of Dangerous Goods by Road CAS : Chemical Abstract Service number (USA) CLP : Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008 CSA : Chemical Safety Assessment EIGA : European Industrial Gases Association EINECS : European Inventory of Existing Commercial Chemical Substances EN : European Standard ATE : Acute Toxicity Estimate

	<b>SAFETY DATASHEET</b>	Page : 10/10
		Revised edition n° : 10.0
		Revision date : 05/2023
<b>Carbon dioxide (R744)</b>		<b>MTG018A</b>

IATA :	International Air Transport Association
IMDG Code :	International Maritime Dangerous Goods Code
LC50 :	Lethal Concentration to 50 % of a test population
OMoD :	Swiss Ordinance on the movement of waste
PBT :	Persistent, Bioaccumulative and Toxic
PPE:	Personal Protection Equipment
REACH :	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID :	Regulations concerning the international carriage of dangerous goods by rail
RMM :	Risk Management Measures
STOT-SE :	Specific Target Organ Toxicity - Single Exposure
UN :	United Nations
vPvB :	Very Persistent and Very Bioaccumulative
WGK:	Water Hazards Class

#### Full text of H, EUH and P statements used in sections 2 and 3

##### Hazard statements

H280                      Contains gas under pressure; may explode if heated

##### Precautionary statements

P410+403                Protect from sunlight. Store in a well-ventilated place

##### Disclaimer of liability

Details given in this document have been prepared based on the most available reliable documents and are believed to be correct at the time of going to press

They do not claim to be exhaustive and should be considered as a guide