Carbon dioxide

EIGA018A_SE

2.2 : Non flammable, non toxic gas.

Warning

SECTION 1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name : Carbon dioxide

SDS Nr : EIGA018A_SE

Chemical description : Carbon dioxide
CAS No :000124-38-9
EC No :204-696-9
Index No :---

Registration-No. : Listed in Annex IV / V REACH, exempted from registration.

Chemical formula : CO_2

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

Relevant identified uses : Industrial and professional. Perform risk assessment prior to use.
Test gas / Calibration gas. Purging. Laboratory use
Contact supplier for more uses information

1.3. Details of the supplier of the safety data sheet

Company identification : AGA Gas AB
S-181 81 Lidingö, Sweden
Tel: +46 (0)8-706 95 00
E-mail: kundservice@se.aga.com
Hemsida: www.aga.se

1.4. Emergency telephone number

Emergency telephone number : Kemiakuten: 020-99 60 00 (24 h)

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

Hazard Class and Category Code Regulation EC 1272/2008 (CLP)

• **Physical hazards** : Gases under pressure - Compressed gas - Warning - (CLP : Press. Gas) - H280

Classification EC 67/548 or EC 1999/45

: Not classified as dangerous substance/mixture.
Not included in Annex VI.
No EC labelling required.

2.2. Label elements

Labelling Regulation EC 1272/2008 (CLP)

• **Hazard pictograms**

SECTION 2. Hazards identification (continued)

- **Hazard pictograms code** : GHS04
- **Signal word** : Warning
- **Hazard statements** : H280 - Contains gas under pressure; may explode if heated.
- **Precautionary statements**
  - **Storage** : P403 - Store in a well-ventilated place.

Labelling EC 67/548 or EC 1999/45

: No EC labelling required.

2.3. Other hazards

: Asphyxiant in high concentrations.
Contact with liquid may cause cold burns/frostbite.

SECTION 3. Composition/information on ingredients

3.1. Substance / 3.2. Mixture

Substance.

Substance name		Contents	CAS No	EC No	Index No	Registration no	Classification
Carbon dioxide	:	100 %	124-38-9	204-696-9	-----	* 1	Not classified (DSD/DPD) --- Liq. Gas (H280)

Contains no other components or impurities which will influence the classification of the product.
* 1: Listed in Annex IV / V REACH, exempted from registration.
* 2: Registration deadline not expired.
* 3: Registration not required: Substance manufactured or imported < 1t/y
Full text of R-phrases see chapter 16. Full text of H-statements see chapter 16

SECTION 4. First aid measures

4.1. Description of first aid measures

- **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.

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 CO2 cause increased respiration and headache.

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

: None.

SECTION 5. Fire-fighting measures

5.1. Extinguishing media

Extinguishing media

- **Suitable extinguishing media** : All known extinguishants can be used.

5.2. Special hazards arising from the substance or mixture

Specific hazards : Exposure to fire may cause containers to rupture/explode.

Hazardous combustion products : None.

SECTION 5. Fire-fighting measures (continued)

5.3. Advice for fire-fighters

Specific methods : Coordinate fire measure to the surrounding fire. Cool endangered containers with water spray jet from a protected position. Do not empty contaminated fire water into drains.
If possible, stop flow of product.

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

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

: Try to stop release.
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.

6.2. Environmental precautions

: Try to stop release.

6.3. Methods and material for containment and cleaning up

: Ventilate area.

6.4. Reference to other sections

: See also sections 8 and 13.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Safe use of the product : Only experienced and properly instructed persons should handle gases under pressure.
The product must be handled in accordance with good industrial hygiene and safety procedures.
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
Do not smoke while handling product.
Ensure the complete gas system was (or is regularily) checked for leaks before use.
Avoid suck back of water, acid and alkalis.

Safe handling of the gas receptacle : Refer to supplier's container handling instructions.
Do not allow backfeed into the container.
Protect cylinders from physical damage; do not drag, roll, slide or drop.
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.
If user experiences any difficulty operating cylinder valve discontinue use and contact supplier.
Never attempt to repair or modify container valves or safety relief devices.
Damaged valves should be reported immediately to the supplier.
Keep container valve outlets clean and free from contaminates particularly oil and water.
Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment.
Close container valve after each use and when empty, even if still connected to equipment.
Never attempt to transfer gases from one cylinder/container to another.
Never use direct flame or electrical heating devices to raise the pressure of a container.
Do not remove or deface labels provided by the supplier for the identification of the cylinder contents.

7.2. Conditions for safe storage, including any incompatibilities

SECTION 7. Handling and storage (continued)

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

7.3. Specific end use(s)

: None.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits

Carbon dioxide : NGV - [ppm] : 5000

DNEL: Derived no effect level : None available.

PNEC: Predicted no effect concentration : None available.

8.2. Exposure controls

8.2.1. Appropriate engineering controls : Oxygen detectors should be used when asphixiating gases may be released.
Consider work permit system e.g. for maintenance activities.
Systems under pressure shoud be regularily checked for leakages.
Ensure exposure is below occupational exposure limits (where available).
Provide adequate general and local exhaust ventilation.

8.2.2. Individual protection measures, e.g. personal protective equipment : A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk.
The following recommendations should be considered.
Wear leather safety gloves and safety shoes when handling cylinders.
Wear safety glasses with side shields or goggles when transfilling or breaking transfer connections

8.2.3. Environmental exposure controls : None necessary.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

- Physical state at 20℃ / 101.3kPa : Gas.

- Colour : Colourless.

Odour : No odour warning properties.

Odour threshold : Odour threshold is subjective and inadequate to warn for overexposure.

Melting point [℃] : -56.6

Boiling point [℃] : -78.5 (s)

Flash point [℃] : Not applicable for gases and gas-mixtures.

Evaporation rate (ether=1) : Not applicable for gases and gas-mixtures.

Flammability range [vol% in air] : Non flammable.

Vapour pressure [20℃] : 57.3 bar

Relative density, gas (air=1) : 1.52

Relative density, liquid (water=1) : 0.82

Solubility in water [mg/l] : 2000 Completely soluble.

Partition coefficient n-octanol/water : 0.83

Auto-ignition temperature [℃] : Not applicable.

SECTION 9. Physical and chemical properties (continued)

9.2. Other information

Other data	:	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.
Molar mass [g/mol]	:	44
Critical temperature [℃]	:	30

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 normal conditions.

10.3. Possibility of hazardous reactions

: None.

10.4. Conditions to avoid

: None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

: None.
For additional information on compatibility refer to ISO 11114

10.6. Hazardous decomposition products

: None.

SECTION 11. Toxicological information

11.1. Information on toxicological effects

Acute toxicity	:	In high concentrations cause rapid circulatory insufficiency even at normal levels of oxygen concentration. Symptoms are headache, nausea and vomiting, which may lead to unconsciousness and death
Skin corrosion/irritation	:	No known effects from this product.
Serious eye damage/irritation	:	No known effects from this product.
Respiratory or skin sensitisation	:	No known effects from this product.
Reproductive toxicity	:	No known effects from this product.
STOT-single exposure	:	No known effects from this product.
STOT-repeated exposure	:	No known effects from this product.
Aspiration hazard	:	Not applicable for gases and gas-mixtures.

SECTION 12. Ecological information

12.1. Toxicity

: No known ecological damage caused by this product.

12.2. Persistence - degradability

: No data available.

12.3. Bioaccumulative potential

: No data available.

12.4. Mobility in soil

: No data available.

SECTION 12. Ecological information (continued)

12.5. Results of PBT and vPvB assessment

: Not classified as PBT or vPvB.

12.6. Other adverse effects

Effect on ozone layer : None.

Effect on the global warming : When discharged in large quantities may contribute to the greenhouse effect.
Contains Fluorinated greenhouse gases covered by the Kyoto protocol.

Global warming potential [CO2=1] : 1

SECTION 13. Disposal considerations

13.1. Waste treatment methods

: Do not discharge into any place where its accumulation could be dangerous.
May be vented to atmosphere in a well ventilated place.
Discharge to atmosphere in large quantities should be avoided.

13.2. Additional information

: None.

SECTION 14. Transport information

UN number : 1013

Labelling ADR, IMDG, IATA

: 2.2 : Non flammable, non toxic gas.

Land transport (ADR/RID)

H.I. nr : 20

UN proper shipping name : CARBON DIOXIDE

Transport hazard class(es) : 2

Classification code : 2 A

Packing Instruction(s) : P200

Tunnel Restriction : C/E Tank carriage: Passage forbidden through tunnels of category C, D and E; Other carriage: Passage forbidden through tunnels of category E

Environmental hazards : None.

Sea transport (IMDG)

Proper shipping name : CARBON DIOXIDE

Class : 2.2

Emergency Schedule (EmS) - Fire : F-C

Emergency Schedule (EmS) - Spillage : S-V

Packing instruction : P200

Air transport (ICAO-TI / IATA-DGR)

Proper shipping name (IATA) : CARBON DIOXIDE

Class : 2.2

Passenger and Cargo Aircraft : Allowed.

Packing instruction - Passenger and Cargo Aircraft : 200

SECTION 14. Transport information (continued)

Packing instruction - Cargo Aircraft only : 200

Special precautions for user

: 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 an emergency.
Before transporting product containers :
- Ensure that containers are firmly secured.
- Ensure cylinder valve is closed and not leaking.
- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
- Ensure valve protection device (where provided) is correctly fitted.
- Ensure there is adequate ventilation.

SECTION 15. Regulatory information

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

EU legislation

Restrictions on use : None.

Seveso directive 96/82/EC : Not covered.

: Ensure all national/local regulations are observed.

15.2. Chemical Safety Assessment

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

SECTION 16. Other information

Indication of changes : Revised safety data sheet in accordance with commisssion regulation (EU) No 453/2010

Training advice : The hazard of asphyxiation is often overlooked and must be stressed during operator training.

List of full text of H-statements in section 3. : H280 - Contains gas under pressure; may explode if heated.

Note : This Safety Data Sheet has been established in accordance with the applicable European Union legislation.

DISCLAIMER OF LIABILITY : Details given in this document are believed to be 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. Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

End of document