



Material Safety Data Sheet Carbon, Dioxide

AXCEL GASES

Creation Date: 25.02.2008

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

Product name: Carbon Dioxide
Chemical formula: CO₂
Known uses: Not known
Company: Axcel Gases
Head Office:
1K/49, NIT, Faridabad, 121001, India
Email: info@axcelgases.com
Works:
80 KM Delhi-Jaipur Highway, Distt. Rewari, 123106
Haryana, India
Email: info@axcelgases.com

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

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

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

Classification acc. 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: Contact with liquid may cause cold burns/frost bite.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/ Mixture: Substance.

Substances:

Carbon Dioxide

CAS No: 124-38-9

Index-Nr.:

EC No (from EINECS) : 204-696-9

REACH Registration number:

Listed in Annex IV/V of Regulation (EC) No 1907/2006 (REACH), exempted from registration

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



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4. FIRST AID MEASURES

Description of first aid measures:

- First Aid General Information:

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

- First Aid 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.

- First Aid Skin / Eye:

In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance. Immediately flush eyes thoroughly with water for at least 15 minutes.

- First Aid 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.

Specific hazards arising from the substance or mixture **Specific hazards:** Exposure to fire may cause containers to rupture/explode. Non Flammable.

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 for fire fighters: Normal firefighters' equipment consists of an appropriate SCBA (open-circuit positive pressure compressed air type) in combination with fire kit. Equipment and clothing to the following standards will provide a suitable level of protection for firefighters.

Guideline:

EN 469:2005: Protective clothing for firefighters. Performance requirements for protective clothing for firefighting., EN 15090 Footwear for firefighters., EN 443 Helmets for fire fighting in buildings and other structures., EN 659 Protective gloves for firefighters., EN 137 Respiratory protective devices — Self-contained open-circuit compressed air breathing apparatus with full face mask — Requirements, testing, marking.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Evacuate area. Ensure adequate air ventilation. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. EN 137 Respiratory protective devices — Self-contained open-circuit compressed air breathing apparatus with full face mask — Requirements, testing, marking.

Environmental precautions: Try to stop release.

Methods and material for containment and cleaning up: Ventilate area.

Reference to other sections: See also sections 8 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling: Suck back of water into the container must be prevented. Do not allow backfeed 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 the plant. Refer to supplier's 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 while handling product. Only experienced and properly instructed persons should handle gases under pressure. Protect containers from physical damage; do not drag, roll, slide or drop. 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 container contents. When moving containers, even for short distances, use appropriate equipment eg. trolley, hand truck, fork truck etc. 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 container valve discontinue use and contact 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 contaminates particularly oil and water. Never attempt to transfer gases from one container to another. Avoid suckback of water, acid and alkalis.



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Conditions for safe storage, including any incompatibilities:

Secure cylinders to prevent them from falling. Keep container below 50°C 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. Cylinders 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 location free from fire risk and away from sources of heat and ignition. Keep away from combustible materials. Observe "Technische Regeln Druckgase (TRG) 280 Ziffer 5"

Specific end use(s): None.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters:

Exposure limit value

Value type	value	Note
Germany - AGW	5.000 ppm	TRGS 900
TLV (ACGIH)	5.000 ppm	2011

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 leakages. 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 protection

Hand protection

Advice: Wear working gloves and safety shoes while handling containers.

Other Protection:

Wear working gloves and safety shoes while handling containers. EN ISO 20345 Personal protective equipment - Safety footwear.

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

General information Appearance/Colour: Colourless gas.

Odour: No odour warning properties.

Melting point: -56,6 °C

Boiling point: -78,5 °C

Flash point: Not applicable for gases and gas mixtures.

Flammability range: Non flammable.

Vapour Pressure 20 °C: 57,3 bar

Relative density, gas (Air=1): 1,52

Solubility in water: 2000 mg/l

Partition coefficient: n-octanol/water: 0,83 logPow

Autoignition temperature: Not applicable.

Explosive Properties:

Explosive acc. EU legislation: Not explosive.

Explosive acc. transp. reg.: Not explosive.

Oxidising Properties: Not applicable.

Molecular weight: 44 g/mol

Sublimation point: -78,5 °C

Critical temperature: 31 °C

Relative density, liquid (Water=1): 1,03

Other Information: Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.



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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 General: 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: Not applicable.

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. Contact supplier if guidance is required. Vent to atmosphere in a well ventilated place. Discharge to atmosphere in large quantities should be avoided. Consult supplier for specific recommendations. Refer to the EIGA code of practice (Doc.30 "Disposal of Gases", downloadable at <http://www.eiga.org>) for more guidance on suitable disposal methods. Gases in pressure containers excluding those, which are mentioned under 16 05 04

EWC Nr. 16 05 05

14. TRANSPORT INFORMATION

ADR/RID

Class: 2

Classification Code: 2A

UN number and proper shipping name

UN 1013 Carbon, Dioxide

UN 1013 Carbon, Dioxide

Labels: 2.2

Hazard number: 20

Packing Instruction: P200

Environmental hazards: None

Special precautions for user: None

IMDG

Class: 2.2

UN number and proper shipping name

UN 1013 Carbon, Dioxide

Labels: 2.2

Packing Instruction: 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

IATA

Class: 2.2

UN number and proper shipping name

UN 1013 Carbon, Dioxide

Labels: 2.2

Packing Instruction: P200

Environmental hazards: None

Special precautions for user: None



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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 an emergency. Before transporting product containers ensure that they are firmly secured. Ensure that the container 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 device (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

Other regulations

Council Directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work
Directive 94/9/EC on equipment and protective systems intended for use in potentially explosive atmospheres (ATEX)
Directive 89/686/EEC on personal protective equipment Council Directive 67/548/EEC on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labeling of dangerous substances Directive 1999/45/EC concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labeling of dangerous preparations Directive 97/23/EC on the approximation of the laws of the Member States concerning pressure equipment.

Water pollution class

Not polluting to waters according to VvWwS from 27.07.2005

Chemical safety assessment: A CSA does not need to be carried out for this product

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.

Advice

To prepare this document, help of various source of information available over electronic media has been taken for the sake of safety of the mankind and the environment. Whilst proper care has been taken during preparation of this document, no legal liability of any kind is accepted for any Injury or Damage resulting from the use of the product or information. We do not claim any type of ownership/correctness of this document or the information contained in it.

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