

Oxygases L.L.C.

MATERIAL SAFETY DATA SHEET

<u>Identification of Substance</u> CO2	Trade Name Carbon Dioxide Compressed Gas	Manufacturer: OXYGASES L.L.C. PO Box - 89968, Al Ghail Industrial Zone, R.A.K, U.A.E. EMERGENCY TELEPHONE NUMBER +971 7 2216029, +971 50 235 3677
--	---	--

General

Carbon dioxide (chemical formula CO₂) is a chemical compound made up of molecules that each have one carbon atom covalently double bonded to two oxygen atoms. It is found in the gas state at room temperature.

Hazard Identifications

Hazard Description:

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Classification of the substance or mixture: GASES UNDER PRESSURE - Liquefied gas Simple asphyxiant.

Signal word : Warning

Hazard statements : Contains gas under pressure; may explode if heated.

May displace oxygen and cause rapid suffocation.

May increase respiration and heart rate.



Oxygases L.L.C.

Precautionary statements:

General: Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position.

Prevention: Use and store only outdoors or in a well ventilated place.

Response: Not applicable.

Storage: Protect from sunlight. Store in a well-ventilated place.

Disposal: Not applicable.

Hazards not otherwise classified: In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation. May cause frostbite.

First Aid Measures

Eye contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion: As this product is a gas, refer to the inhalation section.

Potential acute health effects:

Eye contact: No known significant effects or critical hazards.

Inhalation: No known significant effects or critical hazards.

Skin contact: No known significant effects or critical hazards.

Frostbite: Try to warm up the frozen tissues and seek medical attention.

Ingestion: As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms: Eye contact, Inhalation, Skin contact: No specific data

Oxygases L.L.C.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments: No specific treatment.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Fire - fighting measures:

Extinguishing media:

Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media: None known

Specific hazards arising from the chemical: Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products: Decomposition products may include the following materials: carbon dioxide & carbon monoxide.

Special protective actions for fire-fighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Accidental release measures:

Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For nonemergency personnel".

Environmental precautions: Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Oxygases L.L.C.

Handling and storage:

Precautions for safe handling:

Protective measures: Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid breathing gas. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement. Avoid contact with eyes, skin and clothing. Empty containers retain product residue and can be hazardous.

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities:

Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Keep container tightly closed and sealed until ready for use.

Appropriate engineering controls: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Oxygases L.L.C.

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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. 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.

Physical and chemical properties

Physical state	Gas. [Compressed gas.]
Colour	Colourless
Odor	Odorless.
Melting point	Sublimation temperature: -79°C (-110.2 to °F)
Critical temperature	30.85°C (87.5°F)
Flash point	Product does not sustain combustion
Vapor pressure	830 (psig)
Vapor density	1.53 (Air = 1) Liquid Density@BP: Solid density = 97.5 lb/ft ³ (1562 kg/m ³)
Specific Volume (ft ³ /lb)	8.7719
Gas Density (lb/ft ³)	0.114
Partition coefficient: noctanol/water	0.83
Molecular weight	44.01 g/mole

Oxygases L.L.C.

Disposal considerations

Disposal methods: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty oxygases-owned pressure vessels should be returned to oxygases. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Transport information

CAS number/other identifiers: CAS number: 124-38-9

UN number: UN1013

UN proper shipping name: CARBON DIOXIDE (CO₂)

Transport hazard class(es): DOT 2.2 (Non-Flammable Compressed Gas)

