

SAFETY DATA SHEET

ExxonMobil

UNITED STATES GULF COAST- CARBON DIOXIDE (CO2)

Section 1. Identification

Product name : UNITED STATES GULF COAST- CARBON DIOXIDE (CO2)

Product description : Gas or Liquefied Gas

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

Identified uses : Process chemical, Miscellaneous industrial applications

Uses advised against : This product is not recommended for any industrial, professional or consumer use other than the identified uses above.

Supplier : ExxonMobil Low Carbon Solutions
22777 Springwoods Village Parkway
Spring, TX 77389 USA

24-Hour emergency telephone number : 1-800-424-9300 / +1 703-741-5970 / +1-703-527-3887 (CHEMTREC)

SDS Internet Address : www.sds.exxonmobil.com

Section 2. Hazards identification

OSHA/HCS status : 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 ASPHYXIANTS

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : H280 - Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary statements

Storage : P410 + P403 - Protect from sunlight. Store in a well-ventilated place.

Supplemental label elements : Keep container tightly closed. Use only with adequate ventilation. Do not enter storage areas and confined spaces unless adequately ventilated.

Hazards not otherwise classified : None known.

Note : This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

Carbon Dioxide can be supercritical under certain temperatures and pressures, causing the gas to simulate liquid-like properties.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture
Chemical name : carbon dioxide

Ingredient name	% by weight	Identifiers
Carbon dioxide, gas	≥90	CAS: 124-38-9
methane	≤3	CAS: 74-82-8

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary 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. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get medical attention if adverse health effects persist or are severe.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Do not rub affected area. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.
- Ingestion** : Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. As this product rapidly becomes a gas when released, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Liquid can cause burns similar to frostbite.
- Inhalation** : At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.
- Skin contact** : Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.
- Ingestion** : Ingestion of liquid can cause burns similar to frostbite.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
frostbite
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:
frostbite
Local necrosis as evidenced by delayed onset of pain and tissue damage a few hours after injection.
- Ingestion** : Adverse symptoms may include the following:
frostbite

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

Section 4. First aid measures

- 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.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Not ignitable. Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None

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 combustion products : None

Special protective actions for fire-fighters : Use standard firefighting procedures and consider the hazards of other involved materials. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. 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. Assure an extended cooling down period to prevent re-ignition. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. No action shall be taken involving any personal risk or without suitable training.

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. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.

Section 6. Accidental release measures

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

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. Do not touch or walk through spilled material. 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 non-emergency personnel".

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

Methods and materials for containment and cleaning up

- Small spill** : Immediately contact emergency personnel. Stop leak if without risk.

Section 6. Accidental release measures

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Avoid breathing gas. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Contact with rapidly expanding gas may cause burns or frostbite.

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. See also Section 8 for additional information on hygiene measures.

Static Accumulator : This material is a static accumulator.

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). Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Carbon dioxide, gas	<p>NIOSH REL (United States, 10/2020) TWA 10 hours: 5000 ppm. TWA 10 hours: 9000 mg/m³. STEL 15 minutes: 30000 ppm. STEL 15 minutes: 54000 mg/m³.</p> <p>CAL OSHA PEL (United States, 5/2018) STEL 15 minutes: 54000 mg/m³. STEL 15 minutes: 30000 ppm. TWA 8 hours: 9000 mg/m³. TWA 8 hours: 5000 ppm.</p> <p>OSHA PEL (United States, 5/2018) TWA 8 hours: 5000 ppm. TWA 8 hours: 9000 mg/m³.</p> <p>OSHA PEL 1989 (United States, 3/1989) TWA 8 hours: 10000 ppm. TWA 8 hours: 18000 mg/m³. STEL 15 minutes: 30000 ppm. STEL 15 minutes: 54000 mg/m³.</p> <p>ACGIH TLV (United States, 1/2024) TWA 8 hours: 5000 ppm. TWA 8 hours: 9000 mg/m³. STEL 15 minutes: 30000 ppm. STEL 15 minutes: 54000 mg/m³.</p>
methane	<p>ACGIH TLV (United States, 1/2024) Oxygen depletion [asphyxiant] , Explosive potential.</p>

Section 8. Exposure controls/personal protection

- 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.

Individual protection measures

- 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.
- 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. Face shield.
- Skin protection**
- 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. If contact with the liquid is possible, insulated gloves suitable for low temperatures should be worn. 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. Recommended: self-contained breathing apparatus (SCBA)

Section 9. Physical and chemical properties and safety characteristics

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

- Physical state** : Gas. [Compressed gas.]
- Color** : Colorless
- Odor** : Odorless
- Odor threshold** : Not applicable.
- pH** : Not applicable.
- Melting point/freezing point** : Sublimes
- Boiling point or initial boiling point and boiling range** : -78.5°C (-109.3°F)
- Flash point** : Closed cup: Not applicable.
- Evaporation rate** : Not applicable.
- Flammability** : Not Ignitable

Section 9. Physical and chemical properties and safety characteristics

Lower and upper explosion limit/flammability limit	: Not available.
Vapor pressure	: Not applicable.
Relative vapor density	: 1.53 [Air = 1]
Relative density	: Not applicable.
Solubility in water	: Slight
Partition coefficient: n-octanol/water	: 1.3
Auto-ignition temperature	: Not applicable.
Decomposition temperature	: Not available.
Viscosity	: Not applicable.
<u>Particle characteristics</u>	
Median particle size	: Not applicable.

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Excessive heat.
Incompatible materials	: Active Metals, Alkalies
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Conclusion/Summary

Inhalation	: Minimally Toxic. No end point data for material. Based on assessment of the components.
Dermal	: Minimally Toxic. No end point data for material.
Oral	: Minimally Toxic. No end point data for material.

Irritation/Corrosion

Conclusion/Summary

Skin	: Negligible irritation to skin at ambient temperatures. No end point data for material. Based on assessment of the components.
Eyes	: May cause mild, short-lasting discomfort to eyes. No end point data for material. Based on assessment of the components.
Respiratory	: Negligible hazard at ambient/normal handling temperatures. No end point data for material.

Respiratory or skin sensitization

Conclusion/Summary

Skin	: Not expected to be a skin sensitizer. No end point data for material. Based on assessment of the components.
Respiratory	: Not expected to be a respiratory sensitizer. No end point data for material.

Mutagenicity

Section 11. Toxicological information

Conclusion/Summary : Not expected to be a germ cell mutagen. No end point data for material. Based on assessment of the components.

Carcinogenicity

Conclusion/Summary : Not expected to cause cancer. No end point data for material.

Reproductive toxicity

Conclusion/Summary : Not expected to be a reproductive toxicant. No end point data for material. Based on assessment of the components.

Specific target organ toxicity (single exposure)

Conclusion/Summary : Not expected to cause organ damage from a single exposure. No end point data for material.

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Target organs
carbon dioxide	Not applicable.	-

Conclusion/Summary : Not expected to cause organ damage from prolonged or repeated exposure. No end point data for material. Based on assessment of the components.

Aspiration hazard

Conclusion/Summary : Not expected to be an aspiration hazard. Based on physico-chemical properties of the material. Data available.

Other information

Product : Simple asphyxiant: Acts by displacing oxygen in the lungs thereby diminishing the supply of oxygen available to the blood and tissues. Symptoms include shortness of breath, rapid heart rate, incoordination, lethargy, headaches, nausea, vomiting, and disorientation. Continued lack of oxygen may result in convulsions, loss of consciousness and death. Since exercise increases the tissue need for oxygen, symptoms will occur more quickly during exertion in an oxygen-deficient environment. Oxygen in enclosed spaces should be maintained at 21 percent by volume.

Section 12. Ecological information

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

Toxicity

Conclusion/Summary

Acute toxicity : Not expected to be harmful to aquatic organisms.

Chronic toxicity : Not expected to demonstrate chronic toxicity to aquatic organisms.

Persistence and degradability

Not determined.

Bioaccumulative potential

Not determined.

Mobility in soil

Mobility

: Material -- Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids.

Other ecological information

Other adverse effects

: No known significant effects or critical hazards.

Section 13. 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

Section 14. Transport information

	DOT Classification	TDG Classification	IMDG	IATA
UN number	UN1013	UN1013	UN1013	UN1013
UN proper shipping name	Carbon dioxide	CARBON DIOXIDE	CARBON DIOXIDE	Carbon dioxide
Transport hazard class(es)	2.2	2.2	2.2	2.2
Label(s) / Marks				
Packing group	-	-	-	-
Environmental hazards	No.	No.	No.	No.

Additional information

DOT Classification

: **Limited quantity** Yes.
Packaging instruction Exceptions: 306. Non-bulk: 302, 304. Bulk: 302, 314, 315.
Quantity limitation Passenger aircraft/rail: 75 kg. Cargo aircraft: 150 kg.

TDG Classification

: Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).
Explosive Limit and Limited Quantity Index 0.125
Passenger Carrying Road or Rail Index 75
Special provisions 148

IMDG

: **Emergency schedules** F-C, S-V
Special provisions 378

IATA

: **Quantity limitation** Passenger and Cargo Aircraft: 75 kg. Packaging instructions: 200. Cargo Aircraft Only: 150 kg. Packaging instructions: 200. Limited Quantities - Passenger Aircraft: Forbidden. Packaging instructions: Forbidden.
Special provisions A202

Special precautions for user

: **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments

: Not applicable.

Section 15. Regulatory information

- U.S. Federal regulations** : TSCA 5(a)2 final significant new use rules: mercury
 TSCA 8(a) PAIR: pentane
 TSCA 8(a) CDR Exempt/Partial exemption: Not determined
 Clean Water Act (CWA) 307: hydrogen cyanide; mercury
 Clean Water Act (CWA) 311: nitrogen dioxide; hydrogen sulfide; ammonia, anhydrous; hydrogen cyanide
 Clean Air Act (CAA) 112 regulated flammable substances: methane

TSCA 12(b) - Chemical export notification

Not applicable.

Clean Air Act Section 112 : Listed

(b) Hazardous Air Pollutants (HAPs)

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
nitrogen dioxide	<0.1	Yes.	100	-	10	-
sulfur dioxide	<0.1	Yes.	500	-	500	-
hydrogen sulfide	<0.1	Yes.	500	-	100	-
ammonia, anhydrous	<0.1	Yes.	500	-	100	-
hydrogen cyanide	<0.1	Yes.	100	17.4	10	1.7

SARA 304 RQ : 1010101 lbs / 458585.9 kg

SARA 311/312

Classification : GASES UNDER PRESSURE - Liquefied gas
SIMPLE ASPHYXIANTS

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	mercury	7439-97-6	<0.1
Supplier notification	mercury	7439-97-6	<0.1

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : The following components are listed: CARBON DIOXIDE; METHANE

New York : None of the components are listed.

New Jersey : The following components are listed: CARBON DIOXIDE; METHANE

Pennsylvania : The following components are listed: CARBON DIOXIDE; METHANE

Illinois : None of the components are listed.

California Prop. 65

 **WARNING:** Reproductive Harm - www.P65Warnings.ca.gov.

Section 15. Regulatory information

Inventory list

Australia inventory (AIC)	: All components are listed or exempted.
Canada inventory (DSL-NDSL)	: All components are listed or exempted.
China inventory (IECSC)	: All components are listed or exempted.
Japan inventory (CSCL)	: All components are listed or exempted.
Japan inventory (Industrial Safety and Health Act)	: All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC)	: All components are listed or exempted.
Philippines inventory (PICCS)	: All components are listed or exempted.
Korea inventory (KECI)	: All components are listed or exempted.
Taiwan Chemical Substances Inventory (TCSI)	: All components are listed or exempted.
United States inventory (TSCA 8b)	: All components are active or exempted.

Section 16. Other information

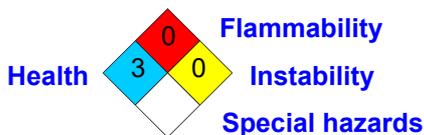
Hazardous Material Information System (U.S.A.)

Health	/	1
Flammability		0
Physical hazards		3

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)



Procedure used to derive the classification

Classification	Justification
GASES UNDER PRESSURE - Liquefied gas SIMPLE ASPHYXIANTS	On basis of test data Expert judgment

History

Date of issue/Date of revision	: 2 May 2025
Date of previous issue	: 21 March 2025
Version	: 2

Section 16. Other information

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SGG = Segregation Group
UN = United Nations

References : Not available.

✔ Indicates information that has changed from previously issued version.

Product code : P000003475

Notice to reader

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