

SIG SOUTHERN INDUSTRIAL GAS SDN BHD

SAFETY DATA SHEET

CARBON DIOXIDE

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name	Carbon dioxide
Synonyms	Carbonic Acid Gas, Carbon Anhydride
Chemical Formula	CO ₂
CAS No	124-38-9
Use of Substance	Shielding gas in gas welding/ for food & beverage application.
Manufacturer	SOUTHERN INDUSTRIAL GAS SDN. BHD. PLO 137, Kawasan Perindustrian Senai III, 81400 Senai, Johor.
Contact Number	07-598 3863
Emergency Phone Number (24 hr)	07-598 3863

2. HAZARDS IDENTIFICATION

Chemical Name	CAS No.	Classification Code	Labeling		
			H-code	Signal Word	Hazard Pictogram
Carbon dioxide	124-38-9	Press. Gas	H 280	Warning	

Classification of the substance	Press. Gas	: Gases under pressure (Liquefied gas)
Hazard Statement	H 280	: Contains gas under pressure; may explode if heated.
Precautionary Statement	P403	: Store in a well-ventilated place
Other Hazards		Contact with liquid may cause frost bite or freezing of skin.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Common Name	Ingredient	CAS Number	% volume	OSHA-PEL
Carbon dioxide	Carbon dioxide	124-38-9	99.8%	5000 ppm

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

4. FIRST AID MEASURES

Eye Contact

Rinse with water immediately. Remove contact lenses, if present and easy to do. Continue rinsing.
Flush thoroughly with water for at least 15 minutes.
Get immediate medical assistance.

Inhalation

In high concentrations may cause asphyxiation.
Symptoms may include loss of mobility / consciousness.
Victim may not be aware of asphyxiation.
Persons suffering from overexposure should be moved to fresh air.
If victim is not breathing, administer artificial respiration.
If breathing is difficult, administer oxygen. Obtain prompt medical attention.

Skin Contact

Contact with liquid may cause frost bite or freezing of skin.

Ingestion

None under normal use. Get medical attention if symptoms occur.

Most important symptoms and effects, both acute and delayed

Respiratory arrest contact with liquefied gas can cause damage (frost bite) due to rapid evaporating cooling.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media

Material will not burn.
In cases of fire in the surroundings: use appropriate extinguishing agent.

Unsuitable extinguishing media

None

Special hazards arising from the chemical

Contact with liquid may cause frost bite or freezing of skin.

Special protective equipment and precautions for fire fighters

Use standard protective equipment.
In case of fire: Stop leak if safe to do so.
Continue water spray from protected position until container stays cool.
Use extinguishants to contain the fire.
Isolate the source of the fire or let it burn out.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Evacuate area. Ensure adequate air ventilation. Eliminate ignition sources. Post warning notices (including no smoking).
Environmental precautions	Try to stop release. Prevent from entering sewers, basements and work pits, or any place where its accumulation can be dangerous.
Clean up methods	Provide adequate ventilation.

7. HANDLING AND STORAGE

Precaution for safe handling	Only properly trained or experienced persons should handle the gases under pressure. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Use no oil or grease. Open valve slowly to avoid pressure shock. Segregate from flammable gases and other flammable materials in store. Suck back of water into the container must be prevented. Do not allow back feed into the container. Contact your gas supplier if in doubt.
Condition for safe storage	Keep away from ignition sources (including static discharges). Keep container below 50°C in a well-ventilated place. Avoid asphalted locations for storage, transfer and use (ignition risk if split). Containers should not be stored in conditions likely to encourage corrosion.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Control parameters**

Exposure Limit : OSHA-PEL

Chemical Name	Eight-hour time-weighted average airborne concentration	
	ppm	mg/m ³
Carbon Dioxide	5000	9000

Appropriate engineering controls

Ensure adequate air ventilation.
Carbon dioxide monitoring is recommended if used or stored in a confined space.
System under pressure should be regularly checked for leakage.

Personal protection equipment

Wear goggles for eye protection.
 Contact lens should not be worn when working.
 Wear suitable hand, body and head protection.
 Wear safety shoe when handling containers.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colorless, liquefied gas
Odour	Odourless
Odour threshold	No information available
pH	3.2 - 3.7, the pH of saturated CO ₂ solutions varies from 3.7 at 101kPa (1 atm) to 3.2 at 2370kPa (23.4atm).
Melting point / Freezing point	-56.6 °C
Boiling point	-78.5 °C
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability	Non flammable
Upper/lower explosive limit	Not applicable
Vapour pressure	45.1 bar (10 °C)
Vapour density (Air =1)	1.522
Relative density	1.522
Solubility	2000 mg/L
Partition coefficient	0.83
Auto ignition temperature	Not applicable
Decomposition temperature	Not known
Viscosity	No data available.

10. STABILITY AND REACTIVITY

Reactivity	No reactivity hazard other than the effects described in sub-section below
Chemical Stability	Stable under normal conditions of use and storage.
Possibility of hazardous reactions	None.
Condition to avoid	Contact with liquid may cause frost bite or freezing of skin.
Incompatible materials	No reaction with any common materials in dry or wet conditions
Hazardous decomposition products	None under normal conditions of use and storage.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity	Oral: LD ₅₀ > No information available. Dermal: LD ₅₀ > No information available. Inhalation: LC ₅₀ > No information available. Inhalation: No information available
Skin corrosion / irritation	Based on available data, the classification criteria are not met.
Serious eye damage/ irritation	Based on available data, the classification criteria are not met.
Respiratory or skin sensitisation	Based on available data, the classification criteria are not met.
Germ cell mutagenicity	Based on available data, the classification criteria are not met.
Carcinogenicity product	Based on available data, the classification criteria are not met.
Reproductive toxicity product	Based on available data, the classification criteria are not met.
Specific target organ toxicity – single exposure product.	Based on available data, the classification criteria are not met.
Specific target organ toxicity – repeated exposure product	Based on available data, the classification criteria are not met.
Aspiration hazard product	Not applicable to gases and gas mixtures.

12. ECOLOGICAL INFORMATION

Ecotoxicity effect	
Acute toxicity product	No ecological damage caused by this product
Additional ecological information	No ecological damage caused by this product
Persistence and degradability	Not applicable to gases and gas mixtures.
Bioaccumulative potential	The product is expected to biodegrade and is not expected to persist for long periods in an aquatic environment.
Mobility in soil	Unlikely to cause ground or water pollution due to its high volatility.
Other adverse effects	No other adverse effects are identified
Global Warming Potential	Contains greenhouse gases. When discharge in large quantities may contribute to greenhouse effect. Global warming potential : 1

13. DISPOSAL CONSIDERATIONS

Waste from residue / unused product	Do not discharge into any place where its accumulation could be dangerous. Vent to atmosphere in a well-ventilated place.
Contaminated packaging	Do not reuse empty containers. Empty remaining contents. Dispose of container and unused contents in accordance with local and national regulation. Return cylinder to supplier

14. TRANSPORT INFORMATION

UN Number	UN 1013
UN proper shipping name	CARBON DIOXIDE
Transport hazard class(es)	2
Packing group	-
Environmental hazards	Not applicable
Special precautions for user	-
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable
Information	Ensure the driver is understand well on the potential hazards of the load and knows what to do in the event of an accident or an emergency. Secured the product containers before transporting it. Ensure that the cylinder valve is closed and not leaking. Container valve guards or caps should be in place. Ensure adequate air ventilation.

15. REGULATORY INFORMATION

Contact local government authority.

16. OTHER INFORMATION

Date of Preparation / Revision of SDS	24-September-2014 / Rev. 02	
Legend to the abbreviations ad acronyms used		
Classification of the substance	Press. Gas	: Gases under pressure (Liquefied gas)
Hazard Statement	H 280	: Contains gas under pressure; may explode if heated.
Precautionary Statement	P403	: Store in a well-ventilated place

Revision Date: 24th September 2014

Abbreviations

LC ₅₀	:	median lethal concentration
LD ₅₀	:	median lethal dose
PEL	:	Permissible exposure limits

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