SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY

1.1 Product Identification — CARBON DIOXIDE
UN No 1013
CAS 00124-38-9
EEC 2046969

1.2 Use — Fire fighting:
Contained in fire extinguishers or
propellant cartridges or cylinders for fire extinguishers.

1.3 Supplier — International Gulf Trading Company – Fire Extinguisher Division
Building No. 272 Area 81 Street 9, New SME, New Industrial Area,
P.O.Box : 6572, Doha - Qatar
Tel: +974 44088222
Fax: +974 44088444

2. COMPOSITION

Substance/Preparation : Substance
UN Number : 1013
Components: This product is hazardous.
Chemical Formula : CO_2
Substance Name : Carbon Dioxide
Contents : 100%
CAS No. : 124-38-9
EC No. : 204-696-9
Contains no other components or impurities which will influence the classification of the product.

3. HAZARDS IDENTIFICATION

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

- **Physical hazards**: Gases under pressure-Refrigerated liquefied gas-Warning - (CLP: Press. Gas)-H281

Classification EC 67/548 or EC 1999/45 : Not classified as dangerous substance/mixture.

Hazard pictograms:

Hazard pictograms code: GHS04

- **Signal word** : Warning
- **Hazard statements**: H281-Contains refrigerated gas; may cause cryogenic burns or injury.
- **Precautionary statements**

- Prevention : P282-Wear cold insulating gloves, face shield, eye protection.

-Response : P336+P315-Thaw frosted parts with luke warm water. Do no rub affected area. Get immediate medical advice / attention.

Storage **:** P403 **-** Store in a well-ventilated place.

4. FIRST AID MEASURES

Inhalation:

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility / consciousness, dizziness, drowsiness, nausea, diminished mental alertness, impaired muscular coordination, faulty judgment, depression of all sensations, emotional instability and fatigue. Victim may not be aware of asphyxiation.

Low concentrations of CO_2 causes increased respiration and headache.

Lack of sufficient oxygen may cause serious injury or death.

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/eye contact:

Immediately flush eyes thoroughly with water for at least 15 minutes. Incase of frostbite spray with water for at least 15 minutes. Apply sterile Dressing, Obtain medical assistance.

Adverse effects not expected from this product.

Ingestion:

Not expected to present a significant ingestion hazard under anticipated conditions of normal use.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media:

All known extinguishants can be used.

Specific hazards:

Exposure to fire may cause containers to rupture/explode.

Hazardous combustion products:

None

Specific methods:

If possible, stop flow of product

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.

Move away from the container and cool with water from a protected position.

If leaking do not spray water onto container. Water surrounding area (from protected position) to contain fire.

Special protective equipment for fire fighters:

In confined space use self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:

Evacuate area.

Ensure adequate air ventilation.

Use protective clothing.

Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

Environmental Precautions:

Try to stop release.

Prevent dispersal of spilled material from entering sewers, basements, and work pits, or any where its accumulation can be dangerous.

Clean Up Methods: Ventilate area.

7. HANDLING AND STORAGE

Safe use of the product:

Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.

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.

Do not smoke while handling product.

Ensure the complete gas system was (or is regularly) checked for leaks before use.

Safe Handling of the gas receptacle:

Refer to supplier's container handling instructions.

Do not allow back feed 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.

General:

Containers, which contain or have contained flammable or explosive substances, must not be inserted with liquid carbon dioxide. Potential production of solid CO_2 particles must be ruled out. In order to rule out potential electrostatic discharge production, the system must be adequately grounded.

Handling:

Suck back of water into the container must be prevented.

Do not allow back feed 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.

Refer to supplier's container handling instructions.

Conditions for safe Storage, including any incompatibilities:

Keep away from combustible materials.

Keep container below 50℃ 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.

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Appropriate engineering Controls:

Systems under pressure should be regularity checked for leakages.

Provide adequate general and local exhaust ventilation.

Consider work permit system e.g. for maintenance activities.

Individual Protection measure / Personal protective equipment:

A risk assessment should be conducted and documented in each work area to assess the risk related to the use of the product and select the PPE that matches the relevant risk.

The following recommendations should be considered.

Wear safety glasses with side shields.

Wear leather safety gloves and safety shoes when handling cylinders.

Ensure adequate ventilation.

Protect eyes, face and skin from liquid splashes.

Safety shoes are recommended when handling cylinders.

Environmental exposure controls:

Refer to local regulations for restriction of emissions to the atmosphere. See section13 for specific methods for waste gas treatment.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance

Physical state at 20℃ /101.3kPa : Liquefied gas.
Colour : Colourless
Odour : No odour warning properties.
Odour threshold : Odour threshold is subjective and inadequate to warn for over exposure.

pH value : Not applicable for gas-mixtures.
Molar mass [g/mol] : Not applicable for gases and gas-mixtures.
Melting point [℃] : -56.6
Boiling point [℃] : -78.5 (s)
Critical temperature[℃] : 30 (87.9°F)
Flash point [℃] : Not applicable for gas-mixtures. **Evaporation rate (ether=1)** : Not applicable for gas-mixtures. **Flammability range [vol% inair]** : Non flammable
Vapour pressure [20℃] : 57.3 bar
Relative density, gas (air=1) : 1.52
Relative density, liquid (water=1) : 1.03
Solubility in water[mg/l] : 2000
Partition co efficient n-octanol / water : Not applicable for gas-mixtures.
Viscosity at 20℃ [mPa.s] : Not applicable. **Explosive Properties** : Not applicable. **Molecular weight** : 44
Dew Point [℉] : - 60
Specific Volume of gas : 0.5457 m^3/kg @ 70°F (21 ^{O}C)

Other information

Other data: Gas/vapor heavier than air. May accumulate in confined Spaces, particularly at or below ground level.

10. STABILITY AND REACTIVITY

Stability and Reactivity :

No reactivity hazard other than the effects described in sub-sections below.
Stable under normal conditions.
Liquid spillages can cause embrittlement of structural materials.

Chemical stability:

Stable under normal conditions.

Conditions to avoid:

None

Hazardous decomposition products :

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. TOXICOLOGICAL INFORMATION

Toxicity information: 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 Sensitization:** No known effects from this product.
Acute toxicity : No known toxicological effects from this product.
Rat inhalation LC50 (ppm/4h) : No data available.
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

12. ECOLOGICAL INFORMATION

Toxicity : No data available
Ecological Effects Information Can cause frost damage to vegetation.
When discharged in large quantities may contribute to the greenhouse effect.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

May be vented to atmosphere in a well ventilated place.

Do not discharge into any place where its accumulation could be dangerous.

Refer to the code of practice of EIGA (Doc. 30/10 "Disposal of Gases, downloadable at http://www.eiga.org) for more guidance on suitable disposal methods.

Contact supplier if guidance is required.

General

Do not discharge into any place where its accumulation could be dangerous.

Discharge to atmosphere in large quantities should be avoided.

Contact supplier if guidance is required.

14. TRANSPORT INFORMATION

UN number: 1013
HS Code : 28112190
Labeling

: 2.2 : Non Flammable, nontoxic gas.

Land transport

UN proper shipping name : CARBON DIOXIDE
Transportation 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 category E.
HAZCHEM – Emergency Action Code: 2T
2 = Fine water spray.
T = Recommended personal protective equipment: Full fire kit and breathing apparatus.
Appropriate measures : dilute

Sea transport

Proper shipping name : CARBON DIOXIDE
Hazard class(es) : 2.2
Emergency Schedule (EmS) - Fire : F-C **Emergency Schedule (EmS) - Spillage :** S-V **Packing Instruction(s) :** P200

Air transport

Proper shipping name : CARBON DIOXIDE
Hazard class(es) : 2.2
Passenger and Cargo Aircraft : Allowed

Special precautions for user / 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 there is adequate ventilation.
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.
Compliance with applicable regulations.

In case of spillage and/or leakage

Clean up even minor leaks or spills if possible without unnecessary risk.

Emergency Action in case of accident

Stop the engine
No naked lights. No smoking.
Mark roads and warns road users.
Keep public away from danger area.
NOTIFY POLICE AND FIRE BRIDGE IMMEDIATELY.

15. REGULATORY INFORMATION

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

EU Legislation / Seveso directive 96/82/EC : Not covered
National legislation: Ensure all national/local regulations are observed.
Chemical safety Assessment: A CSA does not need to be carried out for this product.

Classification:

Not listed as an extremely hazardous substance.
Not listed as a toxic chemical.
Not listed as a regulated substance.

16. OTHER INFORMATION

Indication of changes / Training Advice

Revised safety data sheet in accordance with commission regulation (EU) No453/2010.
Asphyxiate in high concentrations.
Keep container in a well-ventilated place.
Do not breathe the gas.
May cause frostbite.
The hazard of asphyxiation is often over looked and must be stressed during operator training.
Ensure all national/local regulations are observed.
Receptacle under pressure.

List of full text of H-statements in section 3.

H281-Contains refrigerated gas; may cause cryogenic burns or injury.

Further information

Classification in accordance with calculation methods of regulation (EC) 1272/2008CLP / (EC) 1999/45DPD.

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.