This document supersedes the MSDS revision 02 dated 17th June, 2021

Requirements	Description
1. IDENTIFICATION AND COMPANY NAME	Product details: CARBON DIOXIDE, REFRIGERATED LIQUID Supplier Name: National Industrial Gas Plants Address: Salwa Industrial Area Street 45, Gate 75 - Doha Qatar P.O. Box: 1391 Telephone: : Head Office + 974 4468-9083, Sales: 4442-8844, Plant: 4450-00-08 Fax : Head Office +974 4458-3333, Sales: 4450-00-33, Plant: 4460-35-32 E-mail: nigp@qatar.net.qa , sales45@nigpqatar.com Emergency HOT LINE Tel.: + 974-7776-6277 Web Site: https://www.almanaholding.com.qa
2. HAZARD IDENTIFICATION	Hazard pictograms:  GHS04 – gases under pressure Signal word : Warning Hazard statements: H281-Contains refrigerated gas; may cause cryogenic burns or injury. 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 67/548or EC 1999/45: Not classified as dangerous substance/mixture. Precautionary statements - Prevention: P282-Wear cold insulating gloves, face shield, eye protection. -Response: P336+P315-Thaw frosted parts with lukewarm water. Do no rub affected area. Get immediate medical advice/attention. • Storage: P403 - Store in a well-ventilated place.
3. COMPOSITION / INGREDIENT IDENTIFICATION	Substance/Preparation : Substance UN Number : 2187 Chemical Formula : CO_2 Substance Name : Carbon Dioxide (Refrigerated) 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.
4. FIRST AID MEASURES	Inhalation : In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Low concentrations

Requirements	Description
	of CO2 cause increased respiration and headache. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped. -Eye/Skin Contact • Immediately flush eyes thoroughly with water for at least 15 minutes. In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance. • Adverse effects not expected from this product. - Ingestion : Ingestion is not considered a potential route of exposure.
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 end angered containers with water spray jet from a protected position. Do not empty contaminated fire water in to 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: • Try to stop release. • 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 from entering sewers, basements and work pits, or any place where its accumulation can be dangerous. Clean Up Methods: • Ventilate area.
7. STORAGE AND HANDLING	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

Requirements	Description
	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 inerted with liquid carbon dioxide. Potential production of solid CO2 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 ignition.
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. Personal Protection / Protective equipment: • A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to 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. Other Environmental exposure controls: • Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

Requirements	Description
9. PHYSICAL AND CHEMICAL PROPERTIES	Information on basic physical and chemical properties Appearance Physical state at 20℃ /101.3kPa : Liquefied gas. Colour : Colourless liquid. Odour : No odour warning properties. Odour threshold : Odour threshold is subjective and in adequate to warn for over exposure. pH : Not applicable for gas-mixtures. Molar mass [g/mol] : Not applicable for gas and gas-mixtures. Melting point [℃] : -56.6 Boiling point [℃] : -78.5(s) Critical Temperature [℃] : 30 Flash point [℃] : Not applicable for gas-mixtures. Evaporation rate (ether=1) : Not applicable for gas-mixtures. Flammability rang [2vol% / in air] : Non flammable Vapour pressure [20℃] : 57.3 bar Relative density, liquid (water=1) : 1.03 Relative density, gas (air=1) : 1.52 Solubility in water [mg/l] : 2000 Partition coefficient n-octanol/water : Not applicable for gas-mixtures. Viscosity at 20℃ [mPa.s] : Not applicable Explosive Properties : Not applicable Molecular Weight : 44 Dew Point ^{O}F : - 60 Other information Other data: Gas/vapour 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 spillage scan cause embrittlement of structural materials. Chemical stability: • Stable under normal conditions. Conditions to avoid: • Prevent entrapment of liquid in closed systems. • Liquid spillages can cause embrittlement of structural materials. 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.

Requirements	Description
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, down loadable 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: 2187 HS Code : 28112190 Labeling  : 2.2 : Non Flammable, non toxic gas. <u>Land transport</u> UN proper shipping name: CARBON DIOXIDE, REFRIGERATION LIQUID Transportation hazard class(es): 2 Classification code : 3 A Packing Instruction(s) : P203 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 <u>Sea transport</u> Proper shipping name : CARBON DIOXIDE, REFRIGERATION LIQUID Hazard class(es) : 2.2 Emergency Schedule (EmS) - Fire : F-C Emergency Schedule (EmS) - Spillage : S-V Packing Instruction(s) : P203 <u>Air transport</u> Proper shipping name : CARBON DIOXIDE, REFRIGERATION LIQUID Hazard class(es) : 2.2 Passenger and Cargo Aircraft : Allowed <u>Special precautions for user</u> • 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. Other transport information: Compliance with applicable regulations.

Requirements	Description
15. REGULATORY INFORMATION	<u>Safety, health and environmental regulations/legislation specific for the substance or mixture</u> • EU Legislation / Seveso directive 96/82/EC : Not covered • National legislation: Ensure all national/local regulations are observed. • Restrictions on use : None • Chemical safety Assessment: A CSA does not need to be carried out for this product. Risk Phrases : May cause frostbite. : Asphyxiant in high concentrations. Safety Phrases: Keep container in well-ventilated place. : Use suitable protective equipment.
16. OTHER INFORMATION	Indication of changes / Training Advice • Revised safety data sheet in accordance with commission regulation (EU) No.453/2010. • Asphyxiant in high concentrations. • Keep container in a well-ventilated place. • Do not breathe the gas. • May cause frostbite. • The hazard of asphyxiation is often overlooked 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 gas under pressure: may explode if heated. 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.

.....End of document