Requirements	Description
1. IDENTIFICATION AND COMPANY NAME	Product identifier: FREON (R-22 / R-134A) Refrigerant Product type : Liquefied gas Product Origin : Singapore Produced by : BNF Industries Pte Ltd. Importer/Supplier: 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  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 HAZARDOUS TO THE OZONE LAYER - Category 1 Signal word : Warning Hazard statements : Contains gas under pressure; may explode if heated. May cause frostbite. May displace oxygen and cause rapid suffocation. Harms public health and the environment by destroying ozone in the upper atmosphere. Precautionary Statements : Storage: P410 + P403 Protect from sunlight. Store in a well-ventilated place.
3. COMPOSITION / INGREDIENT IDENTIFICATION	Chemical name : Chlorodifluoromethane Other means of identification: ASPEN R-22; Methane, chlorodifluoro-; Chlorodifluoromethane-Methane, chlorodifluoro-Methane, chlorodifluoro-

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	(Refrigerant gas R22); CHLORODIFLUOROMETHANE (FC 22); HCFC-22; Algofrene 22; Freon® 22; difluorochloromethane; Fluorocarbon 22 (Freon 22); HCFC 22 CAS number : 75-45-6
4. 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. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. 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. Wash clothing before reuse. Clean shoes thoroughly before reuse. Ingestion: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if adverse health effects persist or are severe. Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. Never give anything by mouth to an unconscious person. 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. As this product rapidly becomes a gas when released, refer to the inhalation section. Protection of first-aiders: No special precautions are necessary for first aid responders. Notes to physician: Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution.
5. FIRE-FIGHTING MEASURES	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 Halogenated compounds Carbonyl halides 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

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	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. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.
6. ACCIDENTAL RELEASE MEASURES	Personal precautions, protective equipment and emergency procedures Evacuate personnel to safe areas. Avoid skin contact with leaking liquid (danger of frostbite). Ventilate the area. Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8). 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". Methods and materials for containment and cleaning up Ventilate the area. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements. Environmental precautions Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water.
7. STORAGE AND 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. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Use a backflow preventative device in piping. 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 release to the environment. Refer to special instructions/safety data sheet. Empty containers retain product residue and can be hazardous. 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. Recommended storage temperature : < 126 °F / < 52 °C Storage period : > 10 y Materials to avoid : Do not store with the following product types: Self-reactive substances and mixtures Organic peroxides Oxidizing agents

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	Flammable liquids Flammable solids Pyrophoric liquids Pyrophoric solids Self-heating substances and mixtures Substances and mixtures which in contact with water emit flammable gases Explosives Very acutely toxic substances and mixtures Acutely toxic substances and mixtures Substances and mixtures with chronic toxicity
8. EXPOSURE CONTROLS / PERSONAL PROTECTION	Chlorodifluoromethane - Exposure limits ACGIH TLV (United States, 3/2017). TWA: 3540 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. NIOSH REL (United States, 10/2016). STEL: 4375 mg/m³ 15 minutes. STEL: 1250 ppm 15 minutes. TWA: 3500 mg/m³ 10 hours. TWA: 1000 ppm 10 hours. OSHA PEL 1989 (United States, 3/1989). TWA: 3500 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. Engineering measures: Ensure adequate ventilation, especially in confined areas. Minimize workplace exposure concentrations. Individual protection measures Respiratory protection: General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection. Hand protection: Chemical-resistant, impervious gloves complying with an approved standard. If contact with the liquid is possible, Low temperature resistant gloves shall be used. 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. Eye protection : Wear the following personal protective equipment: Chemical resistant goggles must be worn. If contact is possible, safety glasses with side shields / Face-shield shall be used 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. Based on the hazard and potential for exposure, select a respirator that meets the

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	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. Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Skin should be washed after contact. Wash contaminated clothing before re-use.
9. PHYSICAL AND CHEMICAL PROPERTIES	Appearance : Liquefied gas Color : colorless Odor : odorless, slight, sweet Odor Threshold : No data available pH : No data available Melting point/freezing point : -256 °F / -160 °C Initial boiling point and boiling range : -41.4 °F / -40.8 °C (1,013 hPa) Flash point : Not applicable Evaporation rate : > 1 (CCL4=1.0) Flammability (solid, gas) : Will not burn Self-ignition: The substance or mixture is not classified as pyrophoric. Upper explosion limit / Upper flammability limit: Upper flammability limit Method: ASTM E681 - None. Lower explosion limit / Lower flammability limit: Lower flammability limit Method: ASTM E681 - None. Vapor pressure : 9,135 hPa (68 °F / 20 °C) Relative vapor density : 3 Relative density : 1.19 (77 °F / 25 °C) Density : 1.191 g/cm³ (77 °F / 25 °C) (as liquid) Solubility(ies) Water solubility : 2.6 g/l (77 °F / 25 °C) Partition coefficient: n-octanol/water : log Pow: 0.053 (77 °F / 25 °C) Auto-ignition temperature : 1170 - 1175 °F / 632 - 635 °C Decomposition temperature : 1170 °F / 632 °C Viscosity, dynamic : 0.22 mPa.s (50 °F / 10 °C) Viscosity, kinematic : Not applicable Explosive properties : Not explosive Oxidizing properties: The substance or mixture is not classified as oxidizing. Particle size : Not applicable
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. Can react with strong oxidizing agents. Conditions to avoid: his substance can also become combustible in an oxygen enriched environment (oxygen concentrations greater than that in air). Whether a mixture containing this substance and air, or this substance in an oxygen enriched atmosphere become combustible depends on the inter-relationship of 1) the temperature 2) the pressure, and 3) the proportion of oxygen in the mixture. In general, this substance should not be allowed to exist with air above atmospheric pressure or at high temperatures; or in an oxygen enriched environment. For example this substance should NOT be mixed with air under pressure for leak testing or other purposes. Heat, flames and sparks. Incompatible materials : Oxidizing agents Hazardous decomposition products: No hazardous decomposition products are known.

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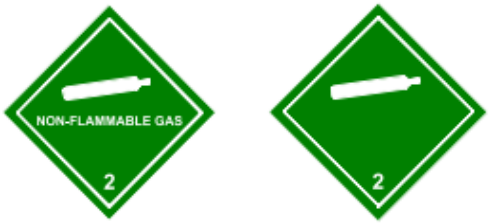
11. TOXICOLOGICAL INFORMATION	Information on likely routes of exposure Inhalation Skin contact Eye contact Acute toxicity: Not classified based on available information. Irritation/Corrosion: Not available Sensitization: Not available Mutagenicity : Not available Carcinogenicity: Not available IARC : No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. OSHA : No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens. NTP : No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP Reproductive toxicity: Not available Teratogenicity : Not available Specific target organ toxicity (single exposure): Not available Specific target organ toxicity (repeated exposure) : Not available Aspiration hazard: Not available
12.ECOLOGICAL INFORMATION	Toxicity to fish: LC50 (Danio rerio (zebra fish)): 777 mg/l . Exposure time: 96 h Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 433 mg/l, Exposure time: 48 h (Method: OECD Test Guideline 202) Toxicity to algae/aquatic plants : EC50 (algae): 377.6 mg/l , Exposure time: 72 h, Method: ECOSAR (Ecological Structure Activity Relationships) Persistence and degradability : Not available Bio-accumulative potential : 1.11 to 1.16 (LogPow) Soil/water partition coefficient (KOC): Not available. Ozone-Depletion Potential : 0.055
13. DISPOSAL CONSIDERATIONS	Waste from residues: Dispose of in accordance with local regulations. Contaminated packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal. Empty pressure vessels should be returned to the supplier. If not otherwise specified: Dispose of as unused product. 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.
14. TRANSPORT INFORMATION	UN number : UN 1018 UN proper shipping name : CHLORODIFLUOROMETHANE OR REFRIGERANT GAS R 22 Transport hazard class(es) : 2.2  "Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product." DOT Classification Limited quantity: Yes. Quantity limitation Passenger aircraft/rail: 75 kg.

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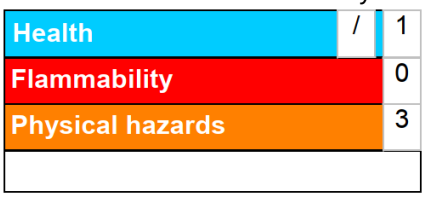
	Cargo aircraft: 150 kg. Special provisions: T50 TDG Classification Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2). Explosive Limit and Limited Quantity Index 0.125 Passenger Carrying Road or Rail Index 75 IATA Quantity limitation Passenger and Cargo Aircraft: 75 kg. Cargo Aircraft Only: 150 kg.
15. REGULATORY INFORMATION	U.S. Federal regulations: TSCA 8(a) CDR Exempt/Partial exemption: Not determined Chemical Weapon Convention List Schedules I, II & III Chemicals : Not listed Montreal Protocol (Annexes A, B, C, E) : Annex C, Group I Stockholm Convention on Persistent Organic Pollutants : Not listed Rotterdam Convention on Prior Informed Consent (PIC) : Not listed UNECE Aarhus Protocol on POPs and Heavy Metals : Not listed
16. OTHER INFORMATION	Hazardous Material Information System (U.S.A.)  National Fire Protection Association (U.S.A.) 

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