

BOC Limited
ABN 95 000 029 729
10 Julius Avenue
NORTH RYDE NSW 2113
Tel + 61 131 262
Fax + 61 132 427

Product Name **R22**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier Name BOC LIMITED (AUSTRALIA)
Address 10 Julius Avenue, North Ryde NSW, 2113, AUSTRALIA
Telephone +61 131 262, (02) 8874 4400
Fax +61 132 427 (24 hours)
Emergency 1800 653 572 (A/H) (Australia only)
Synonyms CHLORODIFLUOROMETHANE, PRODUCT CODES: 158, 813, REFRIGERANT GAS HCFC22.
Uses AIR CONDITIONING, REFRIGERATION.

2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO NOHSC CRITERIA
CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

Risk And Safety Phrases Risk and Safety Phrases are standardised phrases allocated to Hazardous Substances. Risk phrases convey a general description of the physicochemical, environmental and health hazards of a substance. Safety phrases provide information on safe storage, handling, disposal, personal protection and first aid.

RISK PHRASES
R59 Dangerous for the ozone layer.

SAFETY PHRASES
S7 Keep container tightly closed.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	Formula	Conc.	CAS No.
CHLORODIFLUOROMETHANE (HCFC-22)	C-H-Cl-F2	>99.9%	75-45-6

4. FIRST AID MEASURES

Eye Treatment for cold burns: Immediately flush with tepid water or with sterile saline solution. Hold eyelids apart and irrigate for 15 minutes. Seek medical attention.

Inhalation Remove from area of exposure immediately. If assisting a victim avoid becoming a casualty, wear an Air-line respirator or Self Contained Breathing Apparatus (SCBA). Be aware of possible explosive atmospheres. If victim is not breathing apply artificial respiration and seek urgent medical attention. Give oxygen if available. Keep warm and rested.

Skin Cold burns: Remove contaminated clothing and gently flush affected areas with warm water (30 C) for 15 minutes. Apply sterile dressing and treat as for a thermal burn. For large burns, immerse in warm water for 15 minutes. DO NOT apply any form of direct heat. Seek immediate medical attention.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor. If swallowed, do not induce vomiting. Ingestion is considered unlikely due to product form.

Colour Rating
AMBER

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4. FIRST AID MEASURES cont.

Advice To Doctor Use of adrenaline and other catecholamines may be contraindicated due to possible cardiac sensitisation. Treatment for asphyxia.

5. FIRE FIGHTING MEASURES

Flammability Non flammable. May evolve toxic gases (eg. chlorides, fluorides, carbon oxides, hydrogen chloride/fluoride, phosgene) when heated to decomposition.

Fire and Explosion Non flammable. Temperatures in a fire may cause cylinders to rupture. Call fire brigade. Cool cylinders exposed to fire by applying water from a protected location. Do not approach cylinders suspected of being hot.

Extinguishing Non flammable. Use water fog to cool containers from protected area.

Hazchem Code 2RE

6. ACCIDENTAL RELEASE MEASURES

Spillage Always ensure cylinder pressure is below equipment pressure rating and any relief valve setting. Remove sources of ignition. Contact manufacturer for guidance. Leak checking may be done by pressure drop test or by using soapy water on outlets and outlets. Shut cylinder valve to stop gas leaks from equipment if possible and safe to do so. If cylinder or cylinder valve is leaking then shut the cylinder valve, depressurise the equipment, disconnect cylinder from equipment and move the cylinder to a well ventilated area, preferably outdoors. Never attempt to repair a leaking or damaged cylinder valve.

7. HANDLING AND STORAGE

Handling Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas (eg. if container is damaged).

Storage Do not store near sources of ignition or incompatible materials. Cylinders should be stored below 45 C in a secure area and upright to prevent cylinders from falling. Cylinders should also be stored in a dry, well ventilated area constructed of non-combustible material with firm level floor (preferably concrete), away from areas of heavy traffic and emergency exits.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation Use with adequate natural ventilation. Open windows and doors where possible. In poorly ventilated areas, mechanical extraction ventilation is recommended. Maintain vapour levels below the recommended exposure standard.

Exposure Standards CHLORODIFLUOROMETHANE (HCFC-22) (75-45-6)
ES-TWA : 1000 ppm (3540 mg/m³)
WES-TWA : 1000 ppm (3540 mg/m³)

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION cont.

PPE Wear coveralls, safety glasses, safety boots and leather gloves. Where an inhalation risk exists, wear an Air-line respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: CLEAR COLOURLESS LIQUID
Odour: SLIGHT ETHEREAL ODOUR
pH: NOT AVAILABLE
Vapour Pressure: 1040 kPa @ 25 C
Vapour Density: NOT AVAILABLE
Boiling Point: -40.7 C
Melting Point: NOT AVAILABLE
Evaporation Rate: NOT AVAILABLE
Solubility (water): 0.3 cm3/cm3
Specific Gravity: NOT AVAILABLE
% Volatiles: NOT AVAILABLE
Flammability: NON FLAMMABLE
Flash Point: NOT RELEVANT
Upper Explosion Limit: NOT RELEVANT
Lower Explosion Limit: NOT RELEVANT
Autoignition Temperature: NOT AVAILABLE
Density: 3.1 (Air = 1)
Critical Temperature: 96 C
Critical Pressure: 4978 kPa

10. STABILITY AND REACTIVITY

Reactivity Incompatible with oxidising agents (eg. hypochlorite), alkalis/ alkali earth metals and finely divided metal powders (eg. aluminium, barium, lithium). May also react violently with sodium, potassium, barium and other alkali or alkaline earth metals and finely divided metals. Compounding ingredients in natural rubber can be extracted during rapid liquid withdrawal and will swell.

Decomposition Products chlorides, fluorides, carbon oxides, hydrogen chloride/fluoride, phosgene) when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

Health Hazard Summary Asphyxiant. Symptoms of exposure are directly related to displacement of oxygen from air. As the amount of oxygen inhaled is reduced from 21-14% volume, the pulse rate will accelerate and the rate and volume of breathing will increase. The ability to maintain attention and think clearly is diminished, muscular co-ordination is somewhat disturbed. As oxygen decreases from 14-10% volume, judgement becomes faulty, severe injuries may cause no pain. Muscular effort lead to rapid fatigue. Further reduction to 6% may cause nausea and vomiting. Ability to move may be lost. Permanent brain damage may result even after resuscitation from exposure to this low level of oxygen. Below 6% breathing is in gasps and convulsions may occur. Inhalation of a mixture containing no oxygen may result

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11. TOXICOLOGICAL INFORMATION cont.

in unconsciousness from the first breath and death will follow in minutes.

Eye Irritating vapour. Low temperature evaporating liquid can cause cold burns.

Inhalation Irritant - asphyxiant. Effects are proportional to oxygen displacement.

Skin Irritating vapour. Low temperature evaporating liquid can cause cold burns.

Ingestion Due to product form, ingestion is considered highly unlikely. However, if swallowed it would result in discomfort in the gastrointestinal tract from rapid evaporation of liquid and consequent evolution of gas. Some of the effects of inhalation would be expected. Necrosis from freezing of tissue could occur.

Toxicity Data CHLORODIFLUOROMETHANE (HCFC-22) (75-45-6)

LC50 (Inhalation) : 35 pph/15 minutes (rat)

Carcinogenicity : Unclassifiable carcinogenicity in humans (IARC Group 3)

12. ECOLOGICAL INFORMATION

Environment OZONE DEPLETING SUBSTANCE: Hydrogenated chlorofluorocarbon compounds (HCFC's) do not persist in the stratosphere to the same degree as chlorofluorocarbons (CFC's). Although ozone depleting, they have a lower ozone depleting effect than CFC's. Release of HCFCs into the environment should be minimised and where possible, recycling of HCFCs is recommended.
Dangerous for the ozone layer.

13. DISPOSAL CONSIDERATIONS

Waste Disposal It is an offence under Federal law to knowingly exhaust this product to atmosphere whether by intent or negligence. Recover and recycle using appropriate techniques and equipment. Notify the manufacturer that you will be returning a faulty cylinder. Residual product will be disposed of when the cylinder is returned.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

Transport Ensure cylinder is separated from driver and that outlet of relief device is not obstructed. Refer to Commonwealth, State and Territory Dangerous Goods Legislation which contain requirements which affect gas storage and transport. Keep locked up and out of reach of children.

UN Number 1018

Shipping Name CHLORODIFLUOROMETHANE (REFRIGERANT GAS R 22)

DG Class 2.2

Subsidiary None Allocated

Risk(s)

Packing Group None Allocated

Hazchem Code 2RE

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15. REGULATORY INFORMATION

AICS All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

Poison Schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

16. OTHER INFORMATION

Additional Information APPLICATION METHOD: Transferred as a liquid into and out of refrigeration equipment by controlled pressure decanting through flexible pipework.

COLOUR RATING SYSTEM: Chem Alert reports are assigned a colour rating of Green, Amber or Red for the purpose of providing users with a quick and easy means of determining the hazardous nature of a product. Safe handling recommendations are provided in all Chem Alert reports so as to clearly identify how users can control the hazards and thereby reduce the risk (or likelihood) of adverse effects. As a general guideline a Green colour rating indicates a low hazard, an Amber colour rating indicates a moderate hazard and a Red colour rating indicates a high hazard.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:

The recommendation for protective equipment contained within this Chem Alert report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:

It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a Chem Alert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

ABBREVIATIONS:

mg/m³ - Milligrams per cubic metre

ppm - Parts Per Million

TWA/ES - Time Weighted Average or Exposure Standard.

pH - relates to hydrogen ion concentration - this value will relate to a scale of 0 - 14, where 0 is highly acidic and 14 is highly alkaline.

CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds.

M - moles per litre, a unit of concentration.

IARC - International Agency for Research on Cancer.

Report Reviewed 3rd August 2005

Date Printed 3rd August 2005

Report Status Chem Alert reports are compiled as an independent source of information by RMT's scientific department. The information is based on the latest chemical and toxicological research, and in compliance with relevant standards, guidance notes and legislation (where applicable). The Chem Alert report is not intended as a replacement to the manufacturer's original MSDS that is provided to Chem Alert subscribers for convenience. In many instances, Chem Alert reports are compiled on behalf of manufacturers, in which case they serve as the "Manufacturer's MSDS" and

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MATERIAL SAFETY DATA SHEET

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16. OTHER INFORMATION cont.

are clearly identified as such on the relevant reports.

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**Colour
Rating
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