

**PRODUCT NAME R22**

**1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER**

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**Web Site** http://www.coregas.com/  
**Synonym(s)** 10831013 - MSDS NUMBER  
**Use(s)** INDUSTRIAL APPLICATIONS • REFRIGERANT GAS  
**MSDS Date** 14 July 2008

**2. HAZARDS IDENTIFICATION**

**NOT CLASSIFIED AS HAZARDOUS ACCORDING TO NOHSC CRITERIA**

**CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE**

<b>UN No.</b>	1018	<b>DG Class</b>	2.2	<b>Subsidiary Risk(s)</b>	None Allocated
<b>Pkg Group</b>	None Allocated	<b>Hazchem Code</b>	2RE	<b>EPG</b>	2C2

**3. COMPOSITION / INFORMATION ON INGREDIENTS**

Ingredient	Formula	CAS No.	Content
CHLORODIFLUOROMETHANE (HCFC-22)	C-H-Cl-F2	75-45-6	100%

**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** If inhaled, remove from contaminated area. To protect rescuer, use an Air-line respirator or Self Contained Breathing Apparatus (SCBA). Apply artificial respiration if not breathing. Give oxygen if available.

**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 Poison Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting. Ingestion is considered unlikely due to product form.

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

## 5. FIRE FIGHTING MEASURES

<b>Flammability</b>	Non flammable. May evolve toxic gases (eg: chlorides, fluorides, carbon oxides, hydrogen chloride/fluoride, phosgene) when heated to decomposition.
<b>Fire and Explosion</b>	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.
<b>Extinguishing</b>	Non flammable. Use water fog to cool containers from protected area.
<b>Hazchem Code</b>	2RE

## 6. ACCIDENTAL RELEASE MEASURES

<b>Spillage</b>	Always ensure cylinder pressure is below equipment pressure rating and any relief valve setting. 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.
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## 7. STORAGE AND HANDLING

<b>Storage</b>	Do not store near sources of ignition or incompatible materials. Cylinders should be stored below 45°C in a secure area, upright and restrained 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.
<b>Handling</b>	Before use carefully read the product label. 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.

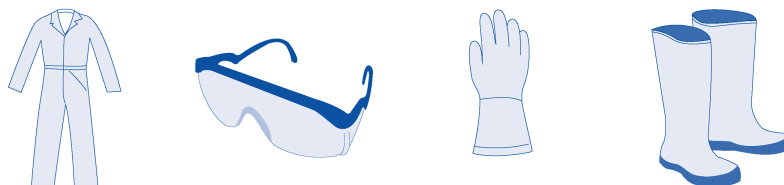
## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Stds	Ingredient	Reference	TWA		STEL	
			ppm	mg/m3	ppm	mg/m3
	Chlorodifluoromethane	NOHSC (AUS)	1000.0	3540.0	--	--

**Biological Limits** No biological limit allocated.

**Engineering Controls** 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.

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



## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance</b>	COLOURLESS GAS	<b>Solubility (water)</b>	INSOLUBLE
<b>Odour</b>	SLIGHT ODOUR	<b>Specific Gravity</b>	NOT AVAILABLE
<b>pH</b>	NOT AVAILABLE	<b>% Volatiles</b>	NOT AVAILABLE
<b>Vapour Pressure</b>	NOT AVAILABLE	<b>Flammability</b>	NON FLAMMABLE
<b>Vapour Density</b>	NOT AVAILABLE	<b>Flash Point</b>	NOT RELEVANT
<b>Boiling Point</b>	-40.7°C	<b>Upper Explosion Limit</b>	NOT RELEVANT
<b>Melting Point</b>	NOT AVAILABLE	<b>Lower Explosion Limit</b>	NOT RELEVANT
<b>Evaporation Rate</b>	NOT AVAILABLE	<b>Autoignition Temperature</b>	NOT AVAILABLE

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## 10. STABILITY AND REACTIVITY

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**Chemical Stability** Stable under recommended conditions of storage.

**Conditions to Avoid** Avoid heat, sparks, open flames and other ignition sources.

**Material to Avoid** 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** May evolve toxic gases (eg: chlorides, fluorides, carbon oxides, hydrogen chloride/fluoride, phosgene) when heated to decomposition.

**Hazardous Reactions** Polymerization will not occur.

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## 11. TOXICOLOGICAL INFORMATION

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

**Eye** Irritant 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** Ingestion is considered unlikely due to product form. However, ingestion may result in discomfort of the gastrointestinal tract from rapid evaporation of liquid and consequent evolution of gas. Some of the effects of inhalation would be expected.

**Toxicity Data** CHLORODIFLUOROMETHANE (HCFC-22) (75-45-6)  
Carcinogenicity: Unclassifiable carcinogenicity in humans (IARC Group 3)  
LC50 (Inhalation): 35 pph/15 minutes (rat)

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## 12. ECOLOGICAL INFORMATION

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**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.

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## 13. DISPOSAL CONSIDERATIONS

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**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.

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## 14. TRANSPORT INFORMATION

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**Transport** Ensure cylinder is separated from driver and that outlet of relief device is not obstructed.



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<b>Shipping Name</b>	CHLORODIFLUOROMETHANE (REFRIGERANT GAS R 22)				
<b>UN No.</b>	1018	<b>DG Class</b>	2.2	<b>Subsidiary Risk(s)</b>	None Allocated
<b>Pkg Group</b>	None Allocated	<b>Hazchem Code</b>	2RE	<b>EPG</b>	2C2

**IATA**

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**IMDG**

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**15. REGULATORY INFORMATION**

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**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).

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

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**16. OTHER INFORMATION**

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

**ABBREVIATIONS:**

ADB - Air-Dry Basis.

BEI - Biological Exposure Indice(s)

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

CNS - Central Nervous System.

EINECS - European INventory of Existing Commercial chemical Substances.

IARC - International Agency for Research on Cancer.

M - moles per litre, a unit of concentration.

mg/m<sup>3</sup> - Milligrams per cubic metre.

NOS - Not Otherwise Specified.

NTP - National Toxicology Program.

OSHA - Occupational Safety and Health Administration.

pH - relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).

ppm - Parts Per Million.

RTECS - Registry of Toxic Effects of Chemical Substances.

TWA/ES - Time Weighted Average or Exposure Standard.

**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.

**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.

**Report Status** This document has been compiled by RMT on behalf of the manufacturer of the product and serves as the manufacturer's Material Safety Data Sheet ('MSDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer.

**PRODUCT NAME R22**

While RMT has taken all due care to include accurate and up-to-date information in this MSDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this MSDS.

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**MSDS Date:** 14 July 2008

**End of Report**