Material Safety Data Sheet #: **093** Issued: 7 April, 2000

# R500

This product is a simple asphyxiant and contains R12 which is classified as hazardous according to criteria of Worksafe Australia.

Risk phrases: Dangerous for the ozone layer.

Safety phrases: Keep container tightly closed.

## COMPANY DETAILS

| | |
|---|---|
| Company: | BOC Gases Australia Limited<br>A.C.N. 000 029 729 |
| Address: | Riverside Corporate Park, 10 Julius Avenue<br>NORTH RYDE NSW 2113 |
| Telephone Number: | (02) 8874 4400 |
| Emergency Telephone Number: | 1800 653 572 |

## IDENTIFICATION

Product name: R500
Other name: Dichlorodifluoromethane (R12) and asymmetric difluoroethane (R152a) mixture
Product code: 162, 814
UN number: 2602
Dangerous Goods: 2.2
HAZCHEM code: 2RE
Poisons schedule: None allocated.
Pack size: Refer to Industrial Gases Reference Manual or BOC Gases Centres
Use: Air conditioning refrigeration systems.
Application method: Transferred as a liquid in and out of refrigeration equipment by controlled pressure decanting through flexible pipework.

**Physical Description/Properties:**
Appearance: Water white volatile liquid with a slight ethereal odour.
Boiling point (deg. C at 101.32 kPa): -33.5
Vapour pressure (kPa at 25 deg. C): 770
Relative density (0 deg. C, 101.3 kPa, Air = 1): 3.7
Flashpoint (deg C): Non-flammable.
Lower flammability limit (%): Non-flammable.
Upper flammability limit (%): Non-flammable.
Solubility in water (101.32 kPa, 20 deg. C): R12 0.028 $cm^3/cm^3$, R152a 0.054 $cm^3/cm^3$

**Other properties:**
Azeotropic mixture of liquefiable gases, critical temperature deg. C: 105.5

Critical pressure kPa: 4,430
Odour threshold: Not determined.
Material compatibility: May 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.
Cylinder colour: White or galvanised body, golden tan shoulder and valve guard.
Cylinder valve outlet: AS 2473 type 34
Approximate weight when full: Refer to Industrial Gases reference Manual for cylinder tare weight and add weight of product.

| Ingredients Chemical name: | CAS number: | Proportion (%): |
|---|---|---|
| Asymmetric difluoroethane | 65-37-6 | 25.8 |
| Dichlorodifluoromethane (R12) | 75-71-8 | 74.2 |

## HEALTH HAZARD INFORMATION

**Health Effects:** Dichlorodifluoromethane LC50 rat 800,000 30 minutes.

**Acute:** Uncontrolled release of compressed gas may cause physical injuries in addition to the following health effects:
Swallowed: Unlikely exposure route. If swallowed discomfort in the gastrointestinal tract would result 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.
Eye: May cause irritation and cold burns.
Skin: May cause irritation and cold burns.
Inhaled: R12 has Mild narcotic properties. IT induces dizziness at concentrations of 5 vol% and loss of consciousness results at 15 vol%. An asphyxiant at higher concentrations. Permanent brain damage may result even after resuscitation from exposure to 6 vol% 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 a few minutes.**

**Chronic:** No known effects, not carcinogenic, mutagenic and no specific reproductive effects.

**First Aid:** Rescue personnel must use self contained breathing apparatus when entering confined spaces and poorly ventilated areas.
Swallowed: Do not induce vomiting unless instructed to do so by Doctor.
Eye: Rinse immediately with plenty of water. If irritation persists contact doctor or poisons information centre.
Skin: Wash area with warm water. If irritation persists contact doctor or poisons information centre.
Inhaled: Remove from exposure. Check there is no obstruction to the airway if breathing is weak or has ceased and give artificial respiration, preferably using an oxygen resuscitator. Keep warm and rested. Seek medical attention. Further treatment should be symptomatic and supportive.

First Aid Facilities: Oxy-Viva™ . Self-contained breathing apparatus for rescue personnel.

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

## PRECAUTIONS FOR USE

**Exposure Standards:** R12 Worksafe exposure standard is 1,000 vppm. Worksafe exposure standard for decomposition product hydrogen fluoride is 3 vppm.

**Engineering Controls:** Securely connect decanting control equipment having suitable pressure and flow rating with connection to match cylinder valve outlet. Never allow oil or grease on cylinder valves. Cylinders should be positioned in well ventilated areas, preferably outside a building. Mechanical lifting devices and trolleys should be used to lift and move cylinders. Personal injury and mechanical damage to cylinder valve and connected equipment may result from falling cylinders: secure cylinders against falling at all times, especially when in use. Ensure cylinder valve is shut and equipment depressurised and purge with inert gas before commencing maintenance and repairs. Any source of ignition such as lighted cigarette, flame, hot spots and welding may produce toxic and corrosive decomposition products.

**Personal Protection:** Avoid contact with escaping gas and liquid. Only experienced and properly trained people should use this product. Wear safety goggles, safety shoes, use impervious nitrile gloves when moving, connecting and operating cylinders. Open cylinder valve slowly to avoid pressure shock and close when not in use.

**Flammability:** Non-flammable product.

## SAFE HANDLING INFORMATION

**Storage and Transport:** Refer to Commonwealth, State and Territory Dangerous Goods legislation for requirements which affect compressed gas storage and transport. Disconnect hoses before transporting or storing cylinders. Store: Cylinders should be stored: upright, prevented from falling, in a secure area away from flammable or combustible materials; below 45 deg C, 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. Transport: Ensure cylinder is separated from driver and that outlet of relief device is not obstructed. Shipping name: Dichlorodifluoromethane and difluoroethane azeotropic mixture Transport E.P.G. card: 2C2.

**Spills and disposal:** Always ensure cylinder pressure is below equipment pressure rating and any relief valve setting. In an emergency allow gas to escape to atmosphere, preferably in a well ventilated, remote area. Remove sources of ignition. Local ventilation may be required in confined spaces and low lying areas depending on amount of product released. Contact nearest BOC Gases centre 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, and allow gas to escape. Never attempt to repair a leaking or damaged cylinder valve. Notify the nearest BOC Gases centre that you will be returning a faulty cylinder. Residual product will be disposed of when the cylinder is returned.

**Fire/Explosion Hazard:** Temperatures in a fire may cause cylinders to rupture. Hazardous decomposition products such as hydrogen fluoride and hydrogen chloride may be formed. Call fire brigade. Cool cylinders exposed to fire by applying water from a protected location. Do not approach cylinders suspected of being hot. Remove cool cylinders from the path of the fire. Evacuate the area if unable to keep cylinders cool.

## CONTACT POINT

Technical Support: 131 262 (B/Hrs)
or 132 427 (fax)

For further information refer to "Safe under pressure" available from BOC Gases centres.