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**SAFETY DATA SHEET**

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**SECTION 1 Identification of the substance/mixture and of the company/undertaking**

## 1.1 Product identifier

- Product Name: UNICOOL R-404A
- Product Part Number: 905623 (9.5 kg), 905606 (45 kg)

## 1.2 Relevant identified uses of the substance or mixture and uses advised against

- Use of the substance/mixture: Refrigerant

## 1.3 Details of the supplier of the safety data sheet

- Name of Supplier: Wilhelmsen Ships Service AS
- Address of Supplier: Willem Barentzstraat 50, 3165AB Rotterdam, The Netherlands
- Telephone: +31 4877 777 Fax: +31 4877 888
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- Head office: Wilhelmsen Ships Service AS
- Strandveien 20, N1324 Lysaker
- Norway, Tel: (47) 6349 440 35
- 
- Other suppliers SEE SECTION 16!!!
- For quotations contact your local Customer Services
- 
- Responsible Person: Product HSE Manager,
- Email: Email: WSS.GLOBAL.SDSINFO@wilhelmsen.com
- Telephone: Tel.: +31 10 4877775

## 1.4 Emergency telephone number

- \*\*\*\*ONLY TO BE USED IN CASE OF AN INCIDENT\*\*\*\*
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- International 24hrs Emergency NCEC: + 44 1865 407333
- American Chemistry Council 24hrs +1 703 527 3887
- American 24hrs Emergency CHEMTREC (800) 424 9300
- Greece: Poisoning emergency center, +30 210 7793777
- Norway: Poison information centre, +47 22591300
- Sweden: Poison information centre, +46 08 33 12 31
- China NRCC 24hrs emergency telephone number: +86-0532-8388 9090
- Wilhelmsen Ships Service, Melbourne, AUSTRALIA Emergency 24hrs: +61 3 9630 0998

**SECTION 2 Hazards identification**

## 2.1 Classification of the substance or mixture

- Dangerous Substances Directive (67/548/EEC). Classification, packaging and labelling of dangerous substances
- Council Directive 1999/45/EEC Classification, packing and labelling of dangerous preparations.
- Not Classified
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- Regulations 1272/2008/EEC. Classification, labeling and packing of dangerous substances and preparations
- Symbols: GHS04
- Signal Word: Warning
- Liq. Gas

## SECTION 2 Hazards identification (....)

- Contains gas under pressure; may explode if heated (H280).

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### 2.2 Label elements



- Signal Word: Warning
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- Contains:
  - Pentafluoroethane
  - 1,1,1,2-Tetrafluoroethane (R 134a)
  - Trifluoroethane (R143a)
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- Hazard phrases
  - Contains gas under pressure; may explode if heated (H280).
- Precautionary Phrases
  - Store in a well-ventilated place (P403).

### 2.3 Other hazards

- Not a PBT according to REACH Annex XIII
- Inhalation: In cases of severe exposure, dizziness, confusion, headache or stupor may develop, In cases of severe exposure, anaesthesia may develop, Asphyxiant

## SECTION 3 Composition/information on ingredients

### 3.1 Mixtures

- Pentafluoroethane
  - Concentration: 44%
  - CAS Number: 354-33-6
  - EC Number: 206-557-8
  - R/H Phrases: Not applicable
  - Symbols: Not applicable
  - Categories: Not applicable
- 1,1,1,2-Tetrafluoroethane (R 134a)
  - Concentration: 4%
  - CAS Number: 811-97-2
  - EC Number: 212-377-0
  - R/H Phrases: H280
  - Symbols: Not applicable
  - Categories: Liq. Gas
- Trifluoroethane (R143a)
  - Concentration: 52%
  - CAS Number: 420-46-2
  - EC Number: 206-996-5
  - R/H Phrases: R12 - H220, H280
  - Symbols: F+
  - Categories: Flam. Gas 1, Liq. Gas

## SECTION 4 First aid measures

### 4.1 Description of first aid measures

- In case of contact with liquid, thaw frosted parts with water. Do not attempt to remove clothing which has stuck to the skin
- Burns must be treated by a physician.
- If substance has got into eyes, immediately wash out with plenty of water for several minutes
- Never give anything by mouth to an unconscious person
- Apply artificial respiration only if patient is not breathing
- If breathing is difficult, oxygen should be given by a trained person
- If heartbeat is absent, give external cardiac compression
- Rescuers should take suitable precautions to avoid becoming casualties themselves
- Rescuers should put on approved respiratory protection before entering the area to render first aid

### 4.2 Most important symptoms and effects, both acute and delayed

- In cases of severe exposure, dizziness, confusion, headache or stupor may develop
- In cases of severe exposure, anaesthesia may develop
- Aspiration hazard
- Possible frost-bite of affected areas

### 4.3 Indication of any immediate medical attention and special treatment needed

- No information available
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## SECTION 5 Fire-fighting measures

### 5.1 Extinguishing media

- Keep container(s) exposed to fire cool, by spraying with water
- Not flammable. In case of fire use extinguishing media appropriate to surrounding conditions

### 5.2 Special hazards arising from the substance or mixture

- Inform Fire Brigade of potential danger of exploding and rocketing cylinders
- Pressurized container
- Hydrogen fluoride
- Carbon oxides may be formed

### 5.3 Advice for firefighters

- Wear chemical protection suit and positive-pressure breathing apparatus
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## SECTION 6 Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

- Shut off source of leak if safe to do so
- In poorly ventilated areas or confined spaces, use an airline respirator or self-contained breathing apparatus

### 6.2 Environmental Precautions

- Stop leak if safe to do so (P376).
- Do not allow to enter public sewers and watercourses

### 6.3 Methods and material for containment and cleaning up

- Shut off source of leak if safe to do so
- Allow product to evaporate
- Ventilate area

### 6.4 Reference to other sections

- See Section 13
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## SECTION 7 Handling and storage

### 7.1 Precautions for safe handling

- Restricted to professional users
- Wear protective clothing as per section 8
- Ensure adequate ventilation

### 7.2 Conditions for safe storage, including any incompatibilities

- Keep in a cool, dry, well ventilated place
- Do not store above 45 °C

### 7.3 Specific end use(s)

- Contact supplier for further information
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## SECTION 8 Exposure controls/personal protection

### 8.1 Control parameters

- 1,1,1-Trifluoroethane (R-143a)  
TLV (TWA) 1000 ppm
- Pentafluoroethane (R125)  
TLV (TWA) 1000 ppm
- 1,1,1,2-Tetrafluoroethane  
(R-134a)  
TLV (TWA) 1000 ppm

### 8.2 Exposure controls

- The undiluted product must not be used in a confined space without good ventilation

### 8.3 Occupational exposure controls



- In poorly ventilated areas or confined spaces, use an airline respirator or self-contained breathing apparatus
  - Wear safety boots when handling cylinders.
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## SECTION 9 Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- Odour: Sweet ether-like odour
- Appearance: Liquefied pressure gas
- pH - not applicable
- Boiling point -46.6 °C to 760 °C
- Vapour pressure 690 kPa @ 25 °C
- Vapour density (air = 1) 3.42
- Melting point < -100 °C to 760 °C
- Insoluble in water
- Density 1060 kg/m<sup>3</sup> at 20 °C
- Not flammable
- Unstable above 250 deg C
- Auto-ignition point >700 deg C at 760 mm Hg

### 9.2 Other information

- No information available
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**SECTION 10 Stability and reactivity**

## 10.1 Reactivity

- No hazardous reactions known if used for its intended purpose

## 10.2 Chemical stability

- Considered stable under normal conditions

## 10.3 Possibility of hazardous reactions

- No hazardous reactions known if used for its intended purpose

## 10.4 Conditions to avoid

- No special precautions are required for this product

## 10.5 Incompatible materials

- None

## 10.6 Hazardous Decomposition Products

- Hydrogen fluoride
  - Carbon oxides may be formed
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**SECTION 11 Toxicological information**

## 11.1 Information on toxicological effects

- No experimental data available
- Asphyxiant

## 11.2 Contact with eyes

- May cause frost-bite

## 11.3 Contact with skin

- May cause frost-bite

## 11.4 Ingestion

- Not regarded as a potential route of exposure.

## 11.5 Inhalation

- In cases of severe exposure, anaesthesia may develop
  - May disturb the respiration, heart and nervous system
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**SECTION 12 Ecological information**

## 12.1 Toxicity

- On available data, substance is not harmful to aquatic life

## 12.2 Persistence and degradability

- Volatile portion is significant

## 12.3 Bioaccumulation Potential

- Bioaccumulation of the components in this product is insignificant.

## 12.4 Mobility in soil

- This substance is volatile
- Insoluble in water

## 12.5 Results of PBT and vPvB assessment

## 12.6 Other Adverse Effects

- Global Warming Potential: 3260 (CO<sub>2</sub> = 1; 100 years)
  - Ozone Depletion Potential: 0
  - GWP and ODP values according to IPCC/ASHRAE/ARI.
  - IPCC = Intergovernmental Panel on Climate Control
  - ASHRAE = American Society of Heating, Refrigeration and Air-Conditioning Engineers
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**SECTION 12 Ecological information (....)**

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- ARI = American Refrigeration Institute
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**SECTION 13 Disposal considerations**

## 13.1 Waste treatment methods

- Disposal should be in accordance with manufacturer's instructions

## 13.2 Classification

- Not applicable
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**SECTION 14 Transport information**

## 14.1 UN

- UN No.: UN3337
- Proper Shipping Name: REFRIGERANT GAS R 404A
- Hazard Class: 2.2
- Packing Group: Not applicable

## 14.2 Environmental hazards

- Not applicable

## 14.3 Special precautions for user

- Gas cylinders must be equipped with valve protection caps during transport.

## 14.4 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code

- Not applicable

## 14.5 Road/Rail (ADR/RID)

- ADR UN No.: UN3337
- Proper Shipping Name: REFRIGERANT GAS R 404A
- ADR Hazard Class: 2.2
- ADR Packing Group: Not applicable

## 14.6 Sea (IMDG)

- IMDG UN No.: UN3337
- Proper Shipping Name: REFRIGERANT GAS R 404A
- IMDG Hazard Class: 2.2
- IMDG Pack Group.: Not applicable
- IMDG EmS: F-C, S-V

## 14.7 Air (ICAO/IATA)

- ICAO UN No.: UN3337
- Proper Shipping Name: REFRIGERANT GAS R 404A
- ICAO Hazard Class: 2.2
- ICAO Packing Group: Not applicable

## 14.8 DOT / CFR (US Department of Transportation)

- Identification Number: UN3337
- DOT Proper Shipping Name: REFRIGERANT GAS R 404A
- DOT Labels: 2.2
- Product RQ (lbs): Not applicable

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**SECTION 15 Regulatory information**

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

- Council Directive 1999/45/EEC Classification, packing and labelling of dangerous preparations.
- Dangerous Substances Directive (67/548/EEC). Classification, packaging and labelling of dangerous substances
- Regulations 1272/2008/EEC. Classification, labeling and packing of dangerous substances and preparations
- This Safety Data Sheet is provided in compliance with the EC Directive 1907/2006-453/2010

15.2 Chemical Safety Assessment

- None
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**SECTION 16 Other information**

Text not given with phrase codes where they are used elsewhere in this safety data sheet:- H220: Extremely flammable gas. H280: Contains gas under pressure; may explode if heated. R12: Extremely Flammable.

The information provided about the product on this Safety Data Sheet has been compiled from knowledge of the individual constituents

The data given here only applies when product used for proper application(s). The product is not sold as suitable for other applications - usage in such may cause risks not mentioned in this sheet. Do not use for other application(s) without seeking advice from manufacturer

The data given here is based on current knowledge and experience. This Safety Data Sheet describes the product in terms of safety requirements and does not signify any warranty with regard to the product's properties

The most up-to-date version of this MSDS can be found on [www.wilhelmsen.com/shipsservice](http://www.wilhelmsen.com/shipsservice)

**OTHER CONTACT INFORMATION MAJOR CHEMICAL OFFICES**

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