

## SAFETY DATA SHEET

**1 Identification of the substance or preparation and of the company/undertaking**

## 1.1 Product identifier

Product Name: REFRIGERANT R-402A  
Datasheet Number: R-402A-r 1. 0. 0  
Head Office:: Wilhelmsen Ships Service AS  
Address: Strandveien 20, N1324 Lysaker, Norway, Tel: +47 67 58 45 50

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

## Refrigerant

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

Name of Supplier: Wilhelmsen Ships Service AS  
Address of Supplier: Willem Barentszstraat 50  
3165AB Rotterdam  
The Netherlands  
Telephone: +31 10 4877 777  
Fax: +31 10 4877 888  
Responsible Person: Patrick Rijsdijk, Product HSE Manager, Tel.: +31 6 349 440 35  
Email: patrick.rijsdijk@wilhelmsen.com

## 1.4 Emergency telephone number

**\*\*ONL TO BE USED IN CASE OF AN INCIDENT\*\***

NCEC: +44 1865 407333, CHEMTREC (800) 424 9300  
American Chemistry Council +1 703 527 3887,  
Greece +30 210 7793777  
Australia: +61 3 9630 0998

**2 Hazards identification**

## 2.1 Classification of the substance or mixture

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

## 2.2 Label elements



Dangerous for the Environment

- Pressurized container
- Contains: Pentafluoroethane (R125), Chlorodifluoromethane (R-22), 1 Chloro-1,2,2,2-tetrafluoro-propane

## Risk Phrases

- Dangerous for the ozone layer (R59)

## **2 Hazards identification (....)**

### **Safety Phrases**

- Refer to manufacturer/supplier for information on recovery/recycling (S59)

### **2.3 Other hazards**

- Odour: Sweet ether-like odour
- Appearance: Liquefied pressure gas
- Contact with eyes: May cause irritation
- Contact with skin: May cause frost-bite
- Inhalation: Asphyxiant, In cases of severe exposure, dizziness, confusion, headache or stupor may develop, In cases of severe exposure, anaesthesia may develop
- Ingestion: Not regarded as a potential route of exposure.

## **3 Composition/information on ingredients**

### **3.1 Mixtures**

Chemical Name	Concentration	CAS Number	EC Number	R/H Phrases*	Symbols
Pentafluoroethane (R125)	60%	354-33-6	206-557-8	-	-
Chlorodifluoromethane (R-22)	38%	75-45-6	200-871-9	R59	N
1 Chloro-1,2,2,2-tetrafluoro-Propane	2%	74-98-6 74-98-6 74-98-6	200-827-9	R12	F+

\*See Section 16

## **4 First aid measures**

### **4.1 Description of first aid measures**

- IF ON SKIN: Immerse in cool water/wrap in wet bandages.
- In case of contact with liquid, thaw frosted parts with water. Do not attempt to remove clothing which has stuck to the skin
- Obtain immediate medical attention
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- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- If substance has got into eyes, immediately wash out with plenty of water for at least 15 minutes
- Obtain immediate medical attention
- 
- IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- In poorly ventilated areas or confined spaces, use an airline respirator or self-contained breathing apparatus
- Apply artificial respiration only if patient is not breathing
- When in doubt or symptoms persist, seek medical attention

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

- Possible frost-bite of affected areas
- In cases of severe exposure, respiratory failure may develop

## **4 First aid measures (....)**

- In cases of severe exposure, dizziness, confusion, headache or stupor may develop
- In cases of severe exposure, anaesthesia may develop

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

Do not give adrenalin or equivalent medicines.

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## **5 Fire-fighting measures**

### 5.1 Extinguishing media

- 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
- Smoke from fires is corrosive. Take precautions to protect personnel from exposure

### 5.3 Advice for firefighters

- Keep container(s) exposed to fire cool, by spraying with water
  - Smoke from fires is corrosive. Take precautions to protect personnel from exposure
  - Inform Fire Brigade of potential danger of exploding and rocketing cylinders
- 

## **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

- Dangerous for the ozone layer (R59)
- Avoid release to the environment. Refer to special instructions/Safety data sheets (S61)

### 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

- None
- 

## **7 Handling and storage**

### 7.1 Precautions for safe handling

- Restricted to professional users
- Ensure adequate ventilation
- Avoid breathing dust/fume/gas/mist/vapours/spray.
- Do not get in eyes, on skin, or on clothing.

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

- Keep in a cool, dry, well ventilated place
  - Do not store above 45 °C
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## 7 Handling and storage (....)

### 7.3 Specific end use(s)

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## 8 Exposure controls/personal protection

### 8.1 Control parameters

- Pentafluoroethane (R125)  
TLV (TWA) 1000 ppm
- Chlorodifluoromethane (R-22)  
TLV (TWA) 1000 ppm
- 1 Chloro-1,2,2,2-tetrafluoro-Propane  
No exposure limits have been set for this substance

### 8.2 Exposure controls

- Ensure adequate ventilation

#### 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.



Boots



Gloves



No Flames



No Smoking

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## 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 -49 °C at 760 mm /Hg
- Vapour pressure 880 kPa @ 25 °C
- Vapour density (air = 1) 4.58
- Freezing point < -100 °C at 760 mm/Hg
- Insoluble in water
- Density 1160 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

- None
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## 10 Stability and reactivity

### 10.1 Reactivity

- This article is considered stable under normal conditions

## **10 Stability and reactivity (....)**

### 10.2 Chemical stability

- This article is 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

- Avoid overheating
- Keep away from naked flames, incandescent or hot surfaces

### 10.5 Incompatible materials

- Avoid contact with magnesium and alloys containing more than 2% magnesium.

### 10.6 Hazardous Decomposition Products

- Decomposition products may include halogen compounds
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## **11 Toxicological information**

### 11.1 Information on toxicological effects

- No experimental data available

#### Inhalation

- In cases of severe exposure, anaesthesia may develop
- May disturb the respiration, heart and nervous system

#### Contact with skin

- May cause frost-bite

#### Contact with eyes

- May cause frost-bite

#### Ingestion

- Not regarded as a potential route of exposure.

#### Carcinogenicity

- No evidence of carcinogenic effects
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## **12 Ecological information**

### 12.1 Toxicity

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

### 12.2 Persistence and degradability

- Not readily biodegradable

### 12.3 Bioaccumulation Potential

- Bioaccumulation is insignificant

### 12.4 Mobility in soil

- This substance is volatile
  - Insoluble in water
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## **12 Ecological information (....)**

### 12.5 Results of PBT and vPvB assessment

### 12.6 Other Adverse Effects

- Dangerous for the ozone layer (R59)
- This product is controlled under the "Montreal Protocol" (1992 revision).
- Global Warming Potential: 2700 (CO<sub>2</sub> = 1; 100 years)
- Ozone Depletion Potential: 0.013
- 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
- ARI = American Refrigeration Institute

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## **13 Disposal considerations**

### 13.1 Waste treatment methods

- Do not discharge into drains or the environment, dispose to an authorised waste collection point
- Refer to manufacturer/supplier for information on recovery/recycling (S59)
- Disposal should be in accordance with local, state or national legislation

#### Classification

- This material and/or its container must be disposed of as hazardous waste

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## **14 Transport information**



Non-Flammable Compressed Gas

### 14.1 UN Number

- UN1078

### 14.2 UN Proper Shipping Name

- REFRIGERANT GAS, N.O.S. (PENTAFLUOROETHANE, CHLORODIFLUOROMETHANE, PROPANE mixture)

### 14.3 Transport hazard class(es)

- 2.2

### 14.4 Packing group

- n/a

### 14.5 Environmental hazards

- On available data, substance is not harmful to the environment

### 14.6 Special precautions for user

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

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

- Not applicable

#### Other information

**14 Transport information (....)**

## Road/Rail (ADR/RID)

Proper Shipping Name:	REFRIGERANT GAS, N.O.S. (PENTAFLUOROETHANE, CHLORODIFLUOROMETHANE, PROPANE mixture)		
ADR UN No.:	UN1078	ADR Hazard Class:	2.2
ADR Packing Group:	n/a	ADR subrisk:	n/a
ADR Flashpoint:	n/a		

## Sea (IMDG)

Proper Shipping Name:	REFRIGERANT GAS, N.O.S. (PENTAFLUOROETHANE, CHLORODIFLUOROMETHANE, PROPANE mixture)		
IMDG UN No.:	UN1078	IMDG Hazard Class.:	2.2
IMDG Pack Group.:	n/a	IMDG EmS:	F-C, S-V
IMDG subrisk:	n/a	IMDG Flashpoint:	n/a

## Air (ICAO/IATA)

Proper Shipping Name:	REFRIGERANT GAS, N.O.S. (PENTAFLUOROETHANE, CHLORODIFLUOROMETHANE, PROPANE mixture)		
ICAO Un No.:	UN1078	ICAO Hazard Class.:	2.2
ICAO Packing Group.:	n/a	ICAO subrisk:	n/a
ICAO Flashpoint:	n/a		

## DOT / CFR (US Department of Transportation)

DOT Proper Shipping Name:	REFRIGERANT GAS, N.O.S. (PENTAFLUOROETHANE, CHLORODIFLUOROMETHANE, PROPANE mixture)		
Hazardous Material:	PENTAFLUOROETHANE, CHLORODIFLUOROMETHANE, PROPANE		
Hazard Class:	2.2	Identification Number:	UN1078
Product RQ (lbs):	n/a	DOT subrisk:	n/a
DOT Flashpoint:	n/a		

**15 Regulatory information**

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

- This Safety Data Sheet has been prepared in accordance with article 31 and annex II in REACH and Directive 453/2010/EU.

## 15.2 Chemical Safety Assessment

None

**16 Other information**

Text of R and S phrase codes used in this safety data sheet:- R12: Extremely Flammable; R59: Dangerous for the ozone layer.

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

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

## **16 Other information (....)**

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

### **OTHER CONTACT INFORMATION MAJOR CHEMICAL OFFICES**

For addresses of other Wilhelmsen Ships Service offices, please refer to [www.wilhelmsen.com/shipsservice](http://www.wilhelmsen.com/shipsservice)

Wilhelmsen Ships Service Level 1, 39 Park Street South Melbourne, Vic 3205 Australian Tel: +61 3 9630 0900  
Emergency 24hrs: +61 3 9630 0998

Wilhelmsen Ships Service INC 210 Edgewater Street US-10305 Staten Island New York United States Telephone  
daytime: (+1) 718 815 1310 Fax: (+1) 718 233 3268

Wilhelmsen Ships Service INC 2200 W. Pacific Coast Highway US-90810 Long Beach California, United States  
Tel (+1) 562 624 8888 Fax (+1) 562 624 1011

Wilhelmsen Ships Service INC 701 Ashland Ave. Ashland Center Two, Bay 12 US- 19032 Folcroft Pennsylvania  
United States Tel (+1) 610 586 7801 Fax (+1) 215 701 0646

Wilhelmsen Ships Service INC. 9400 New Century Drive US-77507 Pasadena Texas United States Telephone  
daytime: (+1) 281 867 2000 Fax: (+1) 281 867 2800

Wilhelmsen Ships Service Ltd. Unit 3A NewtonsCourt Crossways DA2 6QL Dartford, Kent United Kingdom Tel  
(+44) 1322 282 412 Fax (+44) 1322 284 774

Wilhelmsen Ships Service Ltda Rua Bispo Lacerda nos.61/67 Del Catilho BR 21051120 Rio de Janeiro Brazil Tel  
(+55) 21 25 82 8000 Fax (+55) 21 25 82 8001

Wilhelmsen Ships Service (S) Pte Ltd 186 Pandan Loop Singapore 128376 Tel (+65) 6395 4545

Wilhelmsen Ships Service Co., Ltd 12-31 Torihama-cho Kanazawa-ku Yokohama-shi JP-236 0002, Japan Tel  
(+81) 45 775 0012 Fax (+81) 45 775 0070

Wilhelmsen Ships Service Hellas SA 100, D. Moutsopoulou & Serifou str GR-185 41 Piraeus Greece Tel (+ 30)  
210 4239100 Fax (+ 30) 210 4212480

WMS AS U.A.E. Fl 24 Executive Heights, Tecom C Sheikh Zayed Road (East) Dubai United Arab Emirates Tel  
(+971) 4 382 3888

