
 SAFETY DATA SHEET

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

1.1 Product identifier

Product Name: UNICOOL R-407C
 Datasheet Number: R-407C-r 1. 0. 0
 Product Part Number: 905624 (11 kg), 905607 (52 kg)
 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 Rijdsijk, Product HSE Manager, Tel.: +31 6 349 440 35
 Email: patrick.rijdsijk@wilhelmsen.com

1.4 Emergency telephone number

ONLY 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

2 Hazards identification

2.1 Classification of the substance or mixture

- The product is not classified as hazardous according to directive 1999/45/EEC

2.2 Label elements

- None
- May cause frost-bite

Risk Phrases

- Not applicable

Safety Phrases

- Not applicable

2.3 Other hazards

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

3 Composition/information on ingredients

Chemical Name	Concentration	CAS Number	EC Number	R/H Phrases	Symbols
Difluoromethane (R-32)	23	75-10-5	200-839-4	F+	12
Pentafluoroethane (R125)	25	354-33-6	206-557-8	-	-

3 Composition/information on ingredients (....)

1,1,1,2-Tetrafluoroethane (R-134a)	52	811-97-2	212-377-0	-	-
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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
- Seek immediate medical attention
- IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
- Never give anything by mouth to an unconscious person
- Never make an unconscious person vomit or drink fluids
- Seek immediate medical attention
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Seek 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.
- When in doubt or symptoms persist, seek medical attention

4.2 Most important symptoms and effects, both acute and delayed

- Possible redness and irritation of affected areas
- Possible frost-bite of affected areas

4.3 Indication of immediate medical attention and special treatment needed

Do not give adrenalin or equivalent medicines.

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

- Smoke from fires is corrosive. Take precautions to protect personnel from exposure
- Inform Fire Brigade of potential danger of exploding and rocketing cylinders

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
 - Wear chemical protection suit and positive-pressure breathing apparatus
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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

- 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

7 Handling and storage

7.1 Precautions for safe handling

- Use only in well ventilated areas (S51)
- Restricted to professional users
- Do not smoke
- Do not breathe vapour (S23)

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)

8 Exposure controls/personal protection

8.1 Control parameters

- Difluoromethane (R-32)
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

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

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 -44.8 °C at 760 mm /Hg
- Vapour pressure 781 kPa @ 25 °C
- Vapour density (air = 1) 3.0
- Melting point < -100 °C at 760 mm /Hg
- Insoluble in water
- Density 1160 kg/m³ at 20 °C
- Not flammable
- Unstable above 250 deg C, Auto-ignition point >700 deg C at 760 mm Hg

9.2 Other information

10 Stability and reactivity

10.1 Reactivity

- This article is considered stable under normal conditions

10.2 Chemical stability

- Considered stable under normal conditions
 - Unstable above 250 deg C
-

10 Stability and reactivity (....)

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

- Not applicable

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

- Most components in this product are not readily biodegradable.

12.3 Bioaccumulation Potential

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: 1525 (CO₂ = 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
 - 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)
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13 Disposal considerations (....)

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

- UN3340

14.2 UN Proper Shipping Name

- REFRIGERANT GAS R-407C

14.3 Transport hazard class(es)

-

14.4 Packing group

-

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

Road/Rail (ADR/RID)

Proper Shipping Name:	REFRIGERANT GAS R-407C		
ADR UN No.:	UN3340	ADR Hazard Class:	2.2
ADR Packing Group:	-	ADR subrisk:	-
ADR Flashpoint:	-		

Sea (IMDG)

Proper Shipping Name:	REFRIGERANT GAS R-407C		
IMDG UN No.:	UN3340	IMDG Hazard Class.:	2.2
IMDG Pack Group.:	-	IMDG EmS:	F-C, S-V
IMDG subrisk:	-	IMDG Flashpoint:	-

Air (ICAO/IATA)

Proper Shipping Name:	REFRIGERANT GAS R-407C		
ICAO Un No.:	UN3340	ICAO Hazard Class.:	2.2
ICAO Packing Group.:	-	ICAO subrisk:	-
ICAO Flashpoint:	-		

DOT / CFR (US Department of Transportation)

DOT Proper Shipping Name:	REFRIGERANT GAS R-407C		
Hazardous Material:	Difluoromethane, pentafluoroethane, 1,1,1,2-tetrafluoroethane		
Hazard Class:	2.2	Identification Number:	UN3340
Product RQ (lbs):	-	DOT subrisk:	-
DOT Flashpoint:	-		

15 Regulatory information

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.
- This Safety Data Sheet is provided in compliance with The Dangerous Substances Directive (67/548/EEC)
- This Safety Data Sheet is provided in compliance with The Dangerous Preparations Directive (88/379/EEC)

15.2 Chemical Safety Assessment

NONE

16 Other information

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

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