

SAFETY DATA SHEET

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

1.1 Product identifier

Product Name: REFRIGERANT R-744
Datasheet Number: R-744-r 1.0.0
Head Office:: Wilhelmsen Ships Service AS
Address: Strandveien 20, N1324 Lysaker, Norway, Tel: +47 67 584550

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



- Signal Word: Warning
- Symbols: GHS04
- Pressurized container
- Contains: Carbon Dioxide

2 Hazards identification (....)

Hazard phrases

- Contains gas under pressure; may explode if heated.

Precautionary Phrases

- Store in a well-ventilated place.

Risk Phrases

- Not applicable

Safety Phrases

- Not applicable

2.3 Other hazards

- Odour: Odourless
- Appearance: Gas, colourless
- Contact with eyes: May cause irritation
- Contact with skin: Possible frost-bite of affected areas
- Inhalation: Asphyxiant
- 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
Carbon dioxide	100	124-38-9	204-696-9	-	-
CLP Classification: Liq gas				H280	GHS04

*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.
- 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
- Irrigate eyes thoroughly whilst lifting eyelids
-
- 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.
- Wear Breathing Apparatus
- Apply artificial respiration only if patient is not breathing

4.2 Most important symptoms and effects, both acute and delayed

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

4 First aid measures (....)

- In cases of severe exposure, respiratory failure may develop

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

- Pressurized container
- 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
 - Inform Fire Brigade of potential danger of exploding and rocketing cylinders
 - Wear Breathing Apparatus
-

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

- 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)

8 Exposure controls/personal protection

8 Exposure controls/personal protection (....)

8.1 Control parameters

- Carbon dioxide
TLV (TWA) 5000 ppm (Carbondioxide)
OES / STEL (TLV) 30000 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

9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Odour: Odourless
- Appearance: Liquefied pressure gas
- pH - not applicable
- Boiling point -78 °C at 760 mm /Hg
- Vapour pressure 5700 kPa @ 25 °C
- Vapour density (air = 1) 1.52
- Melting point -57 °C at 760 mm /Hg
- Water solubility 2 g/l
- Not flammable
- Auto-ignition point # deg C at 760 mm Hg

9.2 Other information

- No information available

10 Stability and reactivity

10.1 Reactivity

- This article is considered stable under normal conditions

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

10 Stability and reactivity (....)

10.5 Incompatible materials

10.6 Hazardous Decomposition Products

- No hazardous decomposition products known
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11 Toxicological information

11.1 Information on toxicological effects

- No effects in humans

Inhalation

- Asphyxiant

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

12.3 Bioaccumulation Potential

12.4 Mobility in soil

- This substance is volatile

12.5 Results of PBT and vPvB assessment

12.6 Other Adverse Effects

- This product is controlled under the "Montreal Protocol" (1992 revision).
 - Global Warming Potential: 1 (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
-

13 Disposal considerations

13.1 Waste treatment methods

- Do not discharge into drains or the environment, dispose to an authorised waste collection point
-

13 Disposal considerations (....)

- Disposal should be in accordance with manufacturer's instructions
-

14 Transport information

Non-Flammable Compressed Gas

14.1 UN Number

- UN1013

14.2 UN Proper Shipping Name

- CARBON DIOXIDE

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**Road/Rail (ADR/RID)**

Proper Shipping Name:	CARBON DIOXIDE		
ADR UN No.:	UN1013	ADR Hazard Class:	2.2
ADR Packing Group:	n/a	ADR subrisk:	n/a
ADR Flashpoint:	n/a		

Sea (IMDG)

Proper Shipping Name:	CARBON DIOXIDE		
IMDG UN No.:	UN1013	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:	CARBON DIOXIDE		
ICAO Un No.:	UN1013	ICAO Hazard Class.:	2.2
ICAO Packing Group.:	n/a	ICAO subrisk:	n/a
ICAO Flashpoint:	n/a		

14 Transport information (....)

DOT / CFR (US Department of Transportation)

DOT Proper Shipping Name:	CARBON DIOXIDE		
Hazardous Material:	CARBON DIOXIDE		
Hazard Class:	2.2	Identification Number:	UN1013
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:- H280: Contains gas under pressure; may explode if heated..

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

OTHER CONTACT INFORMATION MAJOR CHEMICAL OFFICES

For addresses of other Wilhelmsen Ships Service offices, please refer to www.wilhelmsen.com/shipsservice

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

16 Other information (....)

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

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

