

SAFETY DATA SHEET

Refrigerant R32

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**1.1. Product identifier**

<i>Trade name:</i>	Refrigerant R32
<i>Other names / Synonyms:</i>	HFC-32
<i>Other means of identification:</i>	EC No.: 200-839-4 CAS No.: 75-10-5

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

<i>Relevant identified uses of the substance or mixture:</i>	Refrigerant Restricted to professional users.
<i>Uses advised against :</i>	None known.

1.3. Details of the supplier of the safety data sheet

<i>Company and address:</i>	National Refrigerants Limited 4 Watling Close Sketchley Meadows Business Park LE10 3EZ Hinckley England +44 (0)1455 630 790 www.nationalref.com
<i>Contact person:</i>	sds@nationalref.com
<i>Revision:</i>	04/09/2025
<i>SDS Version:</i>	1.0

1.4. Emergency telephone number

Healthcare professionals: Dial 0344 892 0111 to reach The National Poisons Information Service (NPIS) (24 hour service)
General public:
England - Dial 111 to reach NHS 111 (24 hour service)
Scotland - Dial 111 to reach NHS 24 (24 hour service)
Wales - Dial 111 or 0845 4647 to reach NHS Direct (24 hour service)
See section 4 "First aid measures".
Emergency Telephone: Carechem24 +44 (0)1865 407333

SECTION 2: HAZARDS IDENTIFICATION

Classified according to Regulation (EC) No. 1272/2008 (CLP) as retained and amended in UK law.

2.1. Classification of the substance or mixture

Flam. Gas 1B; H221, Flammable gas

Press. Gas (Liq.); H280, Contains gas under pressure; may explode if heated.

2.2. Label elements

Hazard pictogram(s):



Signal word:

Danger

Hazard statement(s):

Flammable gas (H221)

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

Precautionary statement(s):

General:

Not applicable.

Prevention:

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. (P210)

Response:

Leaking gas fire: Do not extinguish, unless leak can be stopped safely. (P377)

In case of leakage, eliminate all ignition sources. (P381)

Storage:

Protect from sunlight. Store in a well-ventilated place. (P410+P403)

Disposal:

Not applicable.

Hazardous substances:

Does not contain any substances required to report

Additional labelling:

2.3. Other hazards

Additional warnings:

In the event of leaks, high concentrations of gases can quickly form. They can be toxic, asphyxiating, or explosive.

This mixture/product does not contain any substances known to fulfil the criteria for PBT and vPvB classification. This product does not contain any substances considered to be endocrine disruptors in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2023/707.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Product/substance	Identifiers	% w/w	Classification	Note
Difluoromethane HFC-32	CAS No.: 75-10-5 EC No.: 200-839-4 UK-REACH:	99.5-100%	Flam. Gas 1B, H221 Press. Gas (Liq.) , H280	

Index No.:			
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3.2. Mixtures

Not applicable. This product is a substance.

See full text of H-phrases in section 16. Occupational exposure limits are listed in section 8, if these are available.

Other information

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SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General information:

In the case of accident: Contact a doctor or casualty department – take the label or this safety data sheet. Contact a doctor if in doubt about the injured person's condition or if the symptoms persist. Never give an unconscious person water or other drink.

Inhalation:

Upon breathing difficulties or irritation of the respiratory tract: Bring the person into fresh air and stay with him/her.

Skin contact:

Exposure is not likely due to the physical state of the product (gas).

Eye contact:

If in eyes: Flush eyes with water or saline water (20-30 °C) for at least 5 minutes. Remove contact lenses. Seek medical assistance and continue flushing during transport.

Ingestion:

Exposure is not likely due to the physical state of the product (gas).

Burns:

Rinse with water until pain stops then continue to rinse for 30 minutes.

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

None known.

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

Treat symptomatically.

Information to medics

Bring this safety data sheet or the label from this product.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media: Alcohol-resistant foam, carbon dioxide, powder, water mist.
Unsuitable extinguishing media: Waterjets should not be used, since they can spread the

fire.

5.2. Special hazards arising from the substance or mixture

Contains gas under pressure; may explode if heated.

Given that it does not present a risk gas supplies shall be disrupted immediately. Removal of pressurized containers or attempting to cool with water shall be entrusted the fire brigade.

If the product is exposed to high temperatures, e.g. in the event of fire, dangerous decomposition compounds are produced. These are:

Halogenated compounds

Carbon oxides (CO / CO₂)

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective clothing to prevent contact. Upon direct exposure contact The National Poisons Information Service (dial 111, 24 h service) in order to obtain further advice.

Hazchem Code: 2YE

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Accidental releases always pose a serious risk of fire or explosion.

Storages not yet ignited must be cooled by water mist. Remove flammable materials if conditions allow it. Ensure sufficient ventilation.

Disconnect the gas supply provided it does not present a risk. Avoid breathing fumes. Make sure to have a self-contained breathing apparatus available and ready-to-use in the event of an emergency.

Ensure adequate ventilation, especially in confined areas.

6.2. Environmental precautions

In the event of leakage to the surroundings, contact local environmental authorities.

6.3. Methods and material for containment and cleaning up

Disconnect the gas supply. Allow liquefied gas to evaporate and dilute into safe concentration levels in the surrounding atmosphere. If necessary control the dilution of the gas with a mist of water. Ventilate rooms in order to remove the gas.

6.4. Reference to other sections

See section 13 "Disposal considerations" on handling of waste.

See section 8 "Exposure controls/personal protection" for protective measures.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Smoking, drinking and consumption of food is not allowed in the work area.

See section 8 "Exposure controls/personal protection" for information on personal protection.

7.2. Conditions for safe storage, including any incompatibilities

Vapours may propagate along the floor. Prevent the forming of flammable or explosive vapour concentrations by applying sufficient ventilation. Do not use this product in close proximity to sources of ignition.

Protect electrical equipment in accordance with current standards. To divert static electricity during transmission, containers must be grounded and connected by wire with the receiving containers. Do not use spark-forming tools.

Must be stored in a cool and well-ventilated area, away from possible sources of ignition. Pressurized gas packs (spray cans, aerosol cans) must be stored behind a wire mesh, which allows gases to escape and holds back packs flying around.

Recommended storage material: Always store in containers of the same material as the original container.

Storage conditions: < 50°C
Dry, cool and well ventilated
Protect from direct sunlight

Incompatible materials: Strong acids
Strong oxidizing agents

7.3. Specific end use(s)

This product should only be used for applications quoted in section 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Difluoromethane HFC-32

Long term exposure limit (8 hours) (ppm): 1000

The Control of Substances Hazardous to Health Regulations 2002. SI 2002/2677 The Stationery Office 2002.

EH40/2005 Workplace exposure limits (Fourth Edition 2020).

DNEL

Difluoromethane HFC-32

Duration:	Route of exposure:	DNEL:
Long term – Systemic effects - Workers	Inhalation	13936 mg/m ³

PNEC

Difluoromethane HFC-32

Route of exposure:	Duration of Exposure:	PNEC:
Freshwater		142 µg/L
Freshwater sediment		534 µg/kg

8.2. Exposure controls

Compliance with the given occupational exposure limits values should be controlled on a regular basis.

General recommendations: Observe general occupational hygiene standards.

Exposure scenarios: There are no exposure scenarios implemented for this product.

Exposure limits: Professional users are subjected to the legally set maximum concentrations for occupational exposure. See

occupational hygiene limit values above.

Appropriate technical measures:

Adequate ventilation must be ensured for all gases. Where natural ventilation is not possible (cellar rooms), artificial ventilation must be installed. It is advantageous to store it in a lattice shed outdoors, as ventilation is no longer necessary in this case.

Hygiene measures:

In between use of the product and at the end of the working day all exposed areas of the body must be washed thoroughly. Pay special attention to hands, forearms and face.

Measures to avoid environmental exposure:


No special when used as intended.

Individual protection measures, such as personal protective equipment



Generally:

Use only UKCA marked protective equipment.


Respiratory Equipment:

Work situation	Type	Class	Colour	Standards	
	Respiratory protection is not needed in the event of adequate ventilation.				
In the event of prolonged exposure or high concentrations	Breathing apparatus with a compressor and mask-hood			EN12941, EN12942	



Skin protection:

Recommended	Type/Category	Standards	
Wear appropriate protection clothing, e.g. coveralls in polypropylene or working clothes in cotton or polyester.	-	-	
In the likelihood of direct or incidental exposure, wear whole-body protection, due to the risk of frost bites or skin burns.	-	-	

Hand protection:

Material	Glove thickness (mm)	Breakthrough time (min.)	Standards	
Heat Resistant			EN374, EN511	

Eye protection:

Type	Standards	
Safety glasses with side shields.	EN166	
In the likelihood of direct or incidental exposure, use face protection.	EN166	

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

<i>Physical state:</i>	Gas Liquefied Gas
<i>Colour:</i>	Colourless
<i>Odour / Odour threshold:</i>	Slight, ether-like (Odour threshold: No data available ppm)
<i>pH:</i>	No data available
<i>Density (g/cm³):</i>	0.0021 (25 °C)
<i>Relative density:</i>	0.96 (25 °C)
<i>Kinematic viscosity:</i>	Does not apply to gases.
<i>Particle characteristics:</i>	Particle size: Not applicable

Phase changes

<i>Melting point/Freezing point (°C):</i>	-136
<i>Softening point/range (°C):</i>	Does not apply to gases.
<i>Boiling point (°C):</i>	-51.6
<i>Vapour pressure:</i>	17010 hPa (25 °C)
<i>Relative vapour density:</i>	1.82 (Air=1.0)
<i>Decomposition temperature (°C):</i>	No data available

Data on fire and explosion hazards

<i>Flash point (°C):</i>	Not applicable
<i>Flammability (°C):</i>	The material is ignitable.
<i>Auto-ignition temperature (°C):</i>	530
<i>Lower and upper explosion limit (% v/v):</i>	13 - 33

Lower and upper explosion limit (mg/m³): Test method: ASTM E681

Solubility

Solubility in water: Soluble (1.68 g/l (25 Deg C))

n-octanol/water coefficient (LogKow): 0.714

Solubility in fat (g/L): No data available.

9.2. Other information

Sensitivity to shock: No

Evaporation rate (n-butylacetate = 100): >1 (CCL4=1.0)

Oxidizing properties: The substance or mixture is not classified as oxidising.

Other physical and chemical parameters: No data available.

SECTION 10: STABILITY AND REACTIVITY**10.1. Reactivity**

No data available.

10.2. Chemical stability

The product is stable under the conditions, noted in section 7 "Handling and storage".

10.3. Possibility of hazardous reactions

None known.

10.4. Conditions to avoid

Ignition sources: Heat, flames and sparks.

10.5. Incompatible materials

Strong oxidizing agents

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: TOXICOLOGICAL INFORMATION**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008 as retained and amended in UK law****Acute toxicity**

Product/substance: Refrigerant R32
Other information: Not classified based on available information.

Product/substance: Refrigerant R32
Route of exposure: Oral
Other information: The substance or mixture has no acute oral toxicity.

Product/substance	Refrigerant R32
Test method:	OECD 403
Species:	Rat
Route of exposure:	Inhalation
Test:	LC50 (4 hours)
Result:	>520000 ppm

Product/substance	Refrigerant R32
Species:	Dog
Route of exposure:	Inhalation
Test:	LC50 (gas)
Result:	350000 ppm
Other information:	Cardiac sensitisation

Product/substance	Refrigerant R32
Test method:	Cardiac sensitisation threshold limit (dog):
Species:	Dog
Route of exposure:	Inhalation
Test:	LC50 (gas)
Result:	>735000 mg/m ³
Other information:	Cardiac sensitisation

Product/substance	Difluoromethane HFC-32
Species:	Rat
Test:	LD50
Result:	520000 ppmV

Product/substance	Difluoromethane HFC-32
Species:	Rat
Test:	LC50 (4 hours)
Result:	>400000 ppmV

Based on available data, the classification criteria are not met.

Skin corrosion/irritation

Product/substance	Refrigerant R32
Other information:	Not classified based on available information.

Based on available data, the classification criteria are not met.

Serious eye damage/irritation

Product/substance	Refrigerant R32
Other information:	Not classified based on available information.

Based on available data, the classification criteria are not met.

Respiratory sensitisation

Product/substance	Refrigerant R32
Other information:	Not classified based on available information.

Based on available data, the classification criteria are not met.

Skin sensitisation

Product/substance	Refrigerant R32
Other information:	Not classified based on available information.

Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Product/substance Refrigerant R32
Other information: Not classified based on available information.

Based on available data, the classification criteria are not met.

Carcinogenicity

Product/substance Refrigerant R32
Other information: Not classified based on available information.

Based on available data, the classification criteria are not met.

Reproductive toxicity

Product/substance Refrigerant R32
Other information: Not classified based on available information.

Based on available data, the classification criteria are not met.

STOT-single exposure

Product/substance Refrigerant R32
Other information: Not classified based on available information.

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Product/substance Refrigerant R32
Other information: Not classified based on available information.

Based on available data, the classification criteria are not met.

Aspiration hazard

Product/substance Refrigerant R32
Other information: Not classified based on available information.

Based on available data, the classification criteria are not met.

11.2. Information on other hazards**Long term effects**

None known.

Endocrine disrupting properties

Product/substance Refrigerant R32
Other information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57f.

This mixture/product does not contain any substances known to have hormone-disrupting properties in relation to health.

Other information

None known.

SECTION 12: ECOLOGICAL INFORMATION**12.1. Toxicity**

Product/substance Refrigerant R32

Test method:	ECOSAR (Ecological Structure Activity Relationships)
Species:	Fish
Duration:	96 hours
Test:	LC50
Result:	1507 mg/L

Product/substance	Refrigerant R32
Test method:	ECOSAR (Ecological Structure Activity Relationships)
Species:	Daphnia, Daphnia pulex
Duration:	48 hours
Test:	EC50
Result:	652 mg/L

Product/substance	Refrigerant R32
Test method:	ECOSAR (Ecological Structure Activity Relationships)
Species:	Algae, Chlorophyta
Duration:	96 hours
Test:	EC50
Result:	142 mg/L

Product/substance	Difluoromethane HFC-32
Species:	Algae
Duration:	96 hours
Test:	ErC50
Result:	142 mg/L

Product/substance	Difluoromethane HFC-32
Species:	Daphnia, Daphnia magna
Duration:	48 hours
Test:	EC50
Result:	652 mg/L

Product/substance	Difluoromethane HFC-32
Species:	Fish
Duration:	96 hours
Test:	LC50
Result:	1.507 mg/L

Based on available data, the classification criteria are not met.

12.2. Persistence and degradability

Product/substance	Refrigerant R32
Conclusion:	-
Test:	OECD 301 D
Other information:	Not readily biodegradable

12.3. Bioaccumulative potential

Product/substance	Refrigerant R32
Conclusion:	-
Other information:	Bioaccumulation is unlikely

Product/substance	Difluoromethane HFC-32
Conclusion:	Bioaccumulation is not expected

12.4. Mobility in soil

Difluoromethane HFC-32
LogKoc = 1.52, High mobility potential.

12.5. Results of PBT and vPvB assessment

This mixture/product does not contain any substances known to fulfil the criteria for PBT and vPvB classification.

12.6. Endocrine disrupting properties

Product/substance Refrigerant R32

Other information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57f.

Product/substance Difluoromethane HFC-32

Other information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57f.

This mixture/product does not contain any substances considered to have endocrine-disrupting properties in relation to the environment.

12.7. Other adverse effects

-

Contains fluorinated greenhouse gases covered by the Kyoto Protocol.
GWP: 675 (CO2=1)

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product is covered by the regulations on hazardous waste. (*)

HP 3 - Flammable

Regulation (EU) No 1357/2014 of 18 December 2014 on waste as retained and amended in UK law.

EWC code

14 06 01* Chlorofluorocarbons, HCFC, HFC




Specific labelling

Contaminated packing

Return to supplier.

SECTION 14: TRANSPORT INFORMATION

	14.1 UN / ID	14.2 UN proper shipping name	14.3 Hazard class(es)	14.4 PG*	14.5 Env**	Other informat ion:
ADR	UN3252	DIFLUOROMETHANE (REFRIGERANT GAS R 32)	Transport hazard class: 2 Label: 2.1 Classification code: 2F	-	No	Limited quantitie s: 0 Tunnel restrictio

	14.1 UN / ID	14.2 UN proper shipping name	14.3 Hazard class(es)	14.4 PG*	14.5 Env**	Other informat ion:
						n code: (B/D) See below for additiona l informati on.
IMDG	UN3252	DIFLUOROMETHANE (REFRIGERANT GAS R 32)	Transport hazard class: 2 Label: 2.1 Classification code: 2F 	-	No	Limited quantitie s: 0 EmS: F-D S-U See below for additiona l informati on.
IATA	UN3252	DIFLUOROMETHANE (REFRIGERANT GAS R 32)	Transport hazard class: 2 Label: 2.1 Classification code: 2F 	-	No	See below for additiona l informati on.

* Packing group

** Environmental hazards

Additional information

This product is within scope of the regulations of transport of dangerous goods.

ADR / See Table A, section 3.2.1 for any information on special provisions, requirements, or warnings in connection with transport. See section 5.4.3, for instructions in writing regarding mitigation of damages in relation to incidents or accidents during transport.

IMDG / See section 3.2.1, for any information on special provisions, requirements, or warnings in connection with transport.

IATA / See Table 4.2 for any information on special provisions, requirements, or warnings in connection with transport.

Hazchem Code: 2YE

14.6. Special precautions for user

Not applicable.

14.7. Maritime transport in bulk according to IMO instruments

No data available.

SECTION 15: REGULATORY INFORMATION

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

<i>Restrictions for application:</i>	Restricted to professional users. People under the age of 18 shall not be exposed to this product.
<i>Demands for specific education:</i>	No specific requirements.
<i>Control of Major Accident Hazards (COMAH) - Categories / dangerous substances:</i>	Liquefied flammable gases - Qualifying quantity (lower-tier): 50 tonnes / (upper-tier): 200 tonnes
<i>UK-REACH, Annex XVII:</i>	Difluoromethane HFC-32 is subject to UK-REACH restrictions (entry 40).
<i>Additional information:</i>	Not applicable.
<i>Sources:</i>	Control of Major Accident Hazards (COMAH) Regulations 2015. Regulation (EU) No 1357/2014 of 18 December 2014 on waste as retained and amended in UK law. The Fluorinated Greenhouse Gases (Amendment) Regulations 2023 Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP) as retained and amended in UK law. Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as retained and amended in UK law.

15.2. Chemical safety assessment

No

SECTION 16: OTHER INFORMATION**Full text of H-phrases as mentioned in section 3**

H221, Flammable gas

H280, Contains gas under pressure; may explode if heated.

Abbreviations and acronyms

ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway

ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road

ATE = Acute Toxicity Estimate

BCF = Bioconcentration Factor

CAS = Chemical Abstracts Service

CE = Conformité Européenne (European conformity)

CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]

CSA = Chemical Safety Assessment

CSR = Chemical Safety Report

DMEL = Derived Minimal Effect Level

DNEL = Derived No Effect Level

EINECS = European Inventory of Existing Commercial chemical Substances
ES = Exposure Scenario
EUH statement = CLP-specific Hazard statement
EuPCS = European Product Categorisation System
EWC = European Waste Catalogue
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
GWP = Global warming potential
IARC = International Agency for Research on Cancer (IARC)
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
OECD = Organisation for Economic Co-operation and Development
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
RRN = REACH Registration Number
SCL = A specific concentration limit
SVHC = Substances of Very High Concern
STOT-RE = Specific Target Organ Toxicity - Repeated Exposure
STOT-SE = Specific Target Organ Toxicity - Single Exposure
TWA = Time weighted average
UN = United Nations
UVBC = Unknown or variable composition, complex reaction products or of biological materials
VOC = Volatile Organic Compound
vPvB = Very Persistent and Very Bioaccumulative

Additional information

The classification of the mixture in regard to physical hazards has been based on experimental data.

The safety data sheet is validated by

National Refrigerants Ltd

Other

A change (in proportion to the last essential change (first cipher in SDS version, see section 1)) is marked with a triangle.

The information in this safety data sheet applies only to this specific product (mentioned in section 1) and is not necessarily correct for use with other chemicals/products.

It is recommended to hand over this safety data sheet to the actual user of the product.

Information in this safety data sheet cannot be used as a product specification.

Country-language: GB-en