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

1.1 Product identifier

Trade name

R32

Substance name	difluoromethane
REACH registration no.	01-2119471312-47

Identification numbers

CAS no.	75-10-5
EC no.	200-839-4

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

Relevant identified uses of the substance or mixture
Refrigerant

Uses advised against
Consumer use

1.3 Details of the supplier of the safety data sheet

Address
TEGA-Technische Gase und Gasetechnik GmbH
Werner-von-Siemens-Straße 18
97076 Würzburg

Telephone no.	+49 931 2093-220
Fax no.	+49 931 2093-180
e-mail	kaeltemittel@tega.de

Advice on Safety Data Sheet
sdb_info@umco.de

1.4 Emergency telephone number

For medical advice (in German and English):
+49 (0)551 192 40 (Giftinformationszentrum Nord)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification in accordance with Regulation (EC) No 1272/2008 (CLP)
Flam. Gas 1B; H221
Press. Gas liq.; H280

Classification information
This product is assessed and classified using the methods and criteria below referred to in Article 9 of Regulation (EC) n° 1272/2008:
Physical hazards: determined through assessment data based on the methods or standards referred to in part 2 of Annex I to CLP
Health hazards and environmental hazards: determined through toxicological and ecotoxicological assessment data based on the methods or standards referred to in Part 3 and 4 of Annex I to CLP.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP Regulation)

Product identifier
75-10-5 (difluoromethane)

Hazard pictograms


GHS02


GHS04

Signal word
Danger

Hazard statement(s)

H221	Flammable gas.
H280	Contains gas under pressure; may explode if heated.

Precautionary statement(s)

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381	In case of leakage, eliminate all ignition sources.
P410+P403	Protect from sunlight. Store in a well-ventilated place.

Supplemental label elements
Contains fluorinated greenhouse gas

2.3 Other hazards
This product does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. Contact with the liquid can cause cold burns or frostbite.

PBT assessment
The product is not considered to be a PBT.

vPvB assessment
The product is not considered to be a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances
Chemical characterization

Substance name	difluoromethane
Formula	CH2F2
Molecular weight	52

Identification numbers

CAS no.	75-10-5
EC no.	200-839-4

3.2 Mixtures
Not applicable. The product is not a mixture.

SECTION 4: First aid measures

4.1 Description of first aid measures
General information
In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Remove affected person from danger area, lay him down.

After inhalation
Remove affected persons from dangerous area by observing suitable respiratory protection measures. Ensure supply of fresh air. Irregular breathing/no breathing: artificial respiration. Call a doctor immediately.

After skin contact
In case of contact with skin wash off immediately with soap and water. Rinse with much water in case of frostbites. Remove chlothes only after unfreezing. Cover wounds with sterile dressing. Call a doctor immediately.

After eye contact

Remove contact lenses. Rinse eye thoroughly under running water keeping eyelids wide open and protecting the unaffected eye (at least 10 to 15 minutes). Seek medical assistance.

After ingestion
Rinse the mouth thoroughly with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms
Shortness of breath; respiratory arrest. Frostbite; cardiac arrhytmia; heart/circulatory failure

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Extinguishing powder; Water spray jet; Foam; Carbon dioxide

Unsuitable extinguishing media
High power water jet

5.2 Special hazards arising from the substance or mixture

In the event of fire, the following can be released: Carbon monoxide and carbon dioxide; Hydrogen fluoride (HF); Carbonyl fluoride; May explode if exposed to heat. Liquefied gas: Spilled liquid can cause cold burns. This gas is heavier than air and may accumulate in low areas.

5.3 Advice for firefighters

Use self-contained breathing apparatus. Wear full protective suit. Containers close to fire should be transferred to a safe place. Cool closed containers exposed to fire with water. Pressure increase, bursting and explosion hazard during heating. Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel
Refer to protective measures listed in sections 7 and 8. Ensure adequate ventilation. Keep away from ignition sources. Do not breathe gas. Cordon and mark contaminated area. Remove persons to safety. Risk of explosion.

For emergency responders
No data available. Personal protective equipment (PPE) - see Section 8.

6.2 Environmental precautions

Avoid release in the environment. Suppress gases/vapours/mists with water spray jet.

6.3 Methods and material for containment and cleaning up

Ensure adequate ventilation. Dispose of absorbed material in accordance with the regulations.

6.4 Reference to other sections

Information regarding safe handling, see section 7. Information regarding personal protective measures, see section 8. Information regarding waste disposal, see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Only qualified and trained persons are authorised to handle. Provide good ventilation at the work area (local exhaust ventilation, if necessary). To be used only according to instructions for use. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose containers heat or sources of ignition. In case of accidental release: danger due to low temperature of the liquid product. The product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentration higher than the occupational exposure limits. Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use. Comply with the health and safety at work laws.

General protective and hygiene measures
Wash hands before breaks and after work. Do not inhale gases. Do not eat, drink or smoke during work time. Keep away from foodstuffs and beverages. Have emergency shower available. Provide eye wash fountain in work area.

Advice on protection against fire and explosion
Isolate from sources of heat, sparks and open flame. Vapours can form an explosive mixture with air. Take precautionary measures against electrostatic loading (earthing necessary during loading operations). Use explosion-proof equipment/fittings and non-sparking tools. Electrical equipment should be protected to the appropriate standard. Heating up leads to increase of pressure - danger of bursting.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions
Keep container tightly closed in a cool, well-ventilated place, open and handle carefully. Protect from heat and direct sunlight. Protect from atmospheric moisture and water.

Recommended storage temperature

Value	<	40	°C

Requirements for storage rooms and vessels
Containers which are opened must be carefully closed and kept upright to prevent leakage. Always keep in containers of same material as the original. Keep locked up in a safe place and only accessible to specialist personel.

Incompatible products
Substances to be avoided, see section 10.

Stoarge Class according TRGS 510

2A	Gases (except aerosol dispensers and lighters)

7.3 Specific end use(s)
No data available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

DNEL, DMEL and PNEC values

DNEL values (worker)

No	Substance name			CAS / EC no
	Route of exposure	Exposure time	Effect	Value
1	**difluoromethane**			**75-10-5** **200-839-4**
	inhalative	Long term (chronic)	systemic	7035 mg/m³

DNEL value (consumer)

No	Substance name			CAS / EC no
	Route of exposure	Exposure time	Effect	Value
1	**difluoromethane**			**75-10-5** **200-839-4**
	inhalative	Long term (chronic)	systemic	750 mg/m³

PNEC values

No	Substance name		CAS / EC no
	ecological compartment	Type	Value

1	**difluoromethane**		**75-10-5** **200-839-4**	
	water	fresh water	0,313	mg/L
	water	fresh water sediment	1,807	mg/kg dry weight

8.2 Exposure controls

Appropriate engineering controls
Ensure adequate ventilation, local exhaust at the work station if necessary.

Personal protective equipment

Respiratory protection
Self-contained breathing apparatus. In case of insufficient ventilation or long-term effect use breathing apparatus.

Eye / face protection
Tightly fitting safety glasses (EN 166).

Hand protection
Low-temperature-resistant gloves (EN 511). Sufficient protection is given wearing suitable protective gloves checked according to i.e. EN 374, in the event of risk of skin contact with the product. Before use, the protective gloves should be tested in any case for its specific work-station suitability (i.e. mechanical resistance, product compatibility and antistatic properties). Adhere to the manufacturer's instructions and information relating to the use, storage, care and replacement of protective gloves. Protective gloves shall be replaced immediately when physically damaged or worn. Design operations thus to avoid permanent use of protective gloves.
Appropriate Material Leather

Other
Chemical-resistant work clothes. Fire-resistant antistatic protective clothing. Protective shoes.

Environmental exposure controls
Avoid release into sewage and environment.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

State of aggregation
gas

Form
liquified gas

Colour
colourless

Odour
odourless

pH value	
Not applicable	
reason for missing pH	substance/mixture is a gas
Source	supplier

Boiling point / boiling range		
Value	-51,6	°C
Reference pressure	1013	hPa
Source	supplier	

Melting point/freezing point		
Value	-136	°C
Source	supplier	

Decomposition temperature
No data available

Flash point
No data available

Ignition temperature			
Value		530	°C
Reference pressure		1018	hPa
Source	supplier		

Auto-ignition temperature		
Value	530	°C

Explosive properties
May form explosive gas-air mixtures.

Flammability	
flammable	
Source	supplier

Lower explosion limit		
Value	13	% vol
Source	supplier	

Upper explosion limit		
Value	29,9	% vol
Source	supplier	

Vapour pressure		
Value	1701	kPa
Reference temperature	25	°C
Source	supplier	

Relative vapour density
No data available

Relative density
No data available

Density		
Value	0,959	g/cm³
Reference temperature	25	°C

Solubility in water		
Value	1680	mg/L
Reference temperature	25	°C
Source	supplier	

Solubility
No data available

Partition coefficient n-octanol/water (log value)			
No	**Substance name**	**CAS no.**	**EC no.**
1	**difluoromethane**	**75-10-5**	**200-839-4**
log Pow		0,21	
Reference temperature		25	°C
with reference to	pH 6,1		
Method	OECD 107		
Source	ECHA		

Kinematic viscosity
No data available

Particle characteristics	
Not applicable	
Source	supplier

9.2 Other information

Other information
No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity
Dangerous reactions are not expected if the product is handled according to its intended use.

10.2 Chemical stability
Stable under recommended storage and handling conditions (See section 7).

10.3 Possibility of hazardous reactions
Strong oxidising agents, alkali and alkaline earth metals can cause fires or explosions. Due to the high vapour pressure, there is a risk of the vessels bursting if the temperature rises. Posibility of explosion when heated in confinement.

10.4 Conditions to avoid
Protect from heat and direct sunlight. Keep away sources of ignition. Protect from humid air and water.

10.5 Incompatible materials
Oxidizing agents; Alkali metal; Earth alkali metals; Metal as powder

10.6 Hazardous decomposition products
None if stored, handled and transported properly. In case of fire: see section 5.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute oral toxicity
No data available

Acute dermal toxicity
No data available

Acute inhalational toxicity				
No	**Substance name**	**CAS no.**		**EC no.**
1	**difluoromethane**	**75-10-5**		**200-839-4**
LC50	>	520000	ppmV	
Duration of exposure		4	h	
State of aggregation	Gas			
Species	rat			
Method	OECD 403			
Source	ECHA			
Evaluation/classification	Based on available data, the classification criteria are not met.			

Skin corrosion/irritation
No data available

Serious eye damage/irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity			
No	**Substance name**	**CAS no.**	**EC no.**
1	**difluoromethane**	**75-10-5**	**200-839-4**
Type of examination	in vitro gene mutation study in bacteria		
Species	Salmonella typhimurium: TA 1535, TA 1537, TA 98, TA 100; Escherichia coli WP2 uvrA		

Method	OECD 471
Source	ECHA
Evaluation/classification	Based on available data, the classification criteria are not met.
Type of examination	In vitro Mammalian Chromosomal Aberration Test
Species	Human Lymphocyte
Method	OECD 473
Source	ECHA
Evaluation/classification	Based on available data, the classification criteria are not met.
Route of exposure	inhalational
Duration of exposure	6 h
Type of examination	In vivo mammalian somatic cell study: cytogenicity / erythrocyte micronucleus
Species	mouse
Method	OECD 474
Source	ECHA
Evaluation/classification	Based on available data, the classification criteria are not met.

Reproduction toxicity			
No	**Substance name**	**CAS no.**	**EC no.**
1	**difluoromethane**	**75-10-5**	**200-839-4**

Route of exposure	inhalational
NOAEL	50000 ppm
Type of examination	Prenatal Developmental Toxicity Study
Species	rabbit
Method	OECD 414
Source	ECHA
Evaluation/classification	Based on available data, the classification criteria are not met.

Carcinogenicity			
No	**Substance name**	**CAS no.**	**EC no.**
1	**difluoromethane**	**75-10-5**	**200-839-4**

Source	ECHA
Evaluation/classification	Based on available data, the classification criteria are not met.

STOT - single exposure
No data available

STOT - repeated exposure			
No	**Substance name**	**CAS no.**	**EC no.**
1	**difluoromethane**	**75-10-5**	**200-839-4**

Route of exposure	inhalational
NOAEL	49100 ppm
Duration of exposure	13 week/s
Species	rat
Method	OECD 413
Source	ECHA
Evaluation/classification	Based on available data, the classification criteria are not met.

Aspiration hazard
No data available

11.2 Information on other hazards

Endocrine disrupting properties
No data available

Other information
No data available.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish (acute)			
No	**Substance name**	**CAS no.**	**EC no.**
1	**difluoromethane**	**75-10-5**	**200-839-4**

LC50		1731	mg/l
Duration of exposure		96	h
Species	fish		
Method	QSAR		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

Toxicity to fish (chronic)
No data available

Toxicity to Daphnia (acute)			
No	**Substance name**	**CAS no.**	**EC no.**
1	**difluoromethane**	**75-10-5**	**200-839-4**

EC50		833	mg/l
Duration of exposure		48	h
Species	Daphnia		
Method	QSAR		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

Toxicity to Daphnia (chronic)
No data available

Toxicity to algae (acute)			
No	**Substance name**	**CAS no.**	**EC no.**
1	**difluoromethane**	**75-10-5**	**200-839-4**

EC50		313	mg/l
Duration of exposure		72	h
Species	Algae		
Method	QSAR		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

Toxicity to algae (chronic)
No data available

Bacteria toxicity
No data available

12.2 Persistence and degradability

Biodegradability			
No	**Substance name**	**CAS no.**	**EC no.**
1	**difluoromethane**	**75-10-5**	**200-839-4**

Type	aerobic biodegradation		
Value		5	%
Duration		28	d
Method	OECD 301 D		
Source	ECHA		
Evaluation	not readily biodegradable		

12.3 Bioaccumulative potential

Partition coefficient n-octanol/water (log value)			
No	**Substance name**	**CAS no.**	**EC no.**
1	**difluoromethane**	**75-10-5**	**200-839-4**

log Pow		0,21	
Reference temperature		25	°C
with reference to	pH 6,1		
Method	OECD 107		

Source	ECHA

12.4 Mobility in soil

Results of PMT and vPvM assessment	
PMT assessment	The substance is not PMT.
vPvM assessment	The substance is not vPvM.
Source	ECHA

No	Substance name	CAS no.	EC no.
1	difluoromethane	75-10-5	200-839-4

12.5 Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	
Product Name	
R32	
PBT assessment	The product is not considered to be a PBT.
vPvB assessment	The product is not considered to be a vPvB.
Source	supplier

No	Substance name	CAS no.	EC no.
1	difluoromethane	75-10-5	200-839-4

PBT assessment	The substance is not PBT.
vPvB assessment	The substance is not vPvB.
Source	ECHA

12.6 Endocrine disrupting properties

No data available.

12.7 Other adverse effects

Other adverse effects
Global Warming Potential: 675 May contribute to the greenhouse effect in larger quantities in the case of a gas emanation.

12.8 Other information

Other information
Do not discharge into drains or waters and do not dispose of in public landfills.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Allocation of a waste code number, according to the European Waste Catalogue, should be carried out in agreement with the regional waste disposal company.
dispose of in accordance with local regulation.

Packaging
Compressed gas packaging under pressure. Do not open by force. Do not heat above 50°C. Dispose of compressed gas packagings only if completely discharged. Do not burn empty compressed gas packagings. Do not pierce, cut or weld uncleaned containers.

SECTION 14: Transport information

14.1 UN number or ID number

ADR/RID/ADN	UN3252
IMDG	UN3252
ICAO-TI / IATA	UN3252

14.2 UN proper shipping name

ADR/RID/ADN	DIFLUOROMETHANE (REFRIGERANT GAS R 32)
IMDG	DIFLUOROMETHANE (REFRIGERANT GAS R 32)
ICAO-TI / IATA	Difluoromethane

14.3 Transport hazard class(es)

ADR/RID/ADN - Class	2
Label	2.1 RID: (+13)
Classification code	2F
Tunnel restriction code	B/D
Hazard identification no.	23
IMDG - Class	2.1
Label	2.1
ICAO-TI / IATA - Class	2.1
Label	2.1

14.4 Packing group

ADR/RID/ADN	-
IMDG	-
ICAO-TI / IATA	-

14.5 Environmental hazards

EmS F-D, S-U

14.6 Special precautions for user

To be transported always in closed, upright and safe containers. Make sure that persons handling these containers are aware of the rules of conduct in case of incident or spillage.

14.7 Maritime transport in bulk according to IMO instruments

Not relevant

SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No 1907/2006 (REACH) Annex XIV (List of substances subject to authorisation)
In accordance with the REACH regulation (EC) 1907/2006, the product does not contain any substances that are considered as subject to listing in annex XIV, inventory of substances requiring authorisation.

REACH candidate list of substances of very high concern (SVHC) for authorisation
In accordance with article 57 and article 59 of the Reach regulation (EC) 1907/2006, this substance is not considered as subject to listing in annex XIV, inventory of substances requiring authorisation ("Authorization list").

Regulation (EC) No 1907/2006 (REACH) Annex XVII: RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, MIXTURES AND ARTICLES
The substance is not subject to the provisions of annex XVII (restriction entries) of the Reach regulation (EC) 1907/2006.

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances
This substance is not subject to Part 1 or 2 of Annex I

Other regulations
REGULATION (EU) No 2024/573 on fluorinated greenhouse gases Adhere to the national sanitary and occupational safety regulations when using this product.

National regulations

Water Hazard Class (Germany)

Class	1
Identification number	4068
Source	Classification according to AwSV (Regulation on facilities for handling substances that are hazardous to water).

Other regulations

Take into account: TRGS 510 "Storage of hazardous substances in non-stationary containers"

15.2 Chemical safety assessment

A chemical safety assessment has been carried out for this substance.

SECTION 16: Other information

Sources of key data used to compile the data sheet:
Regulation (EC) No 1907/2006 (REACH), 1272/2008 (CLP) as amended in each case.
Directives 2000/39/EC, 2006/15/EC, 2009/161/EU, (EU) 2017/164.
National Threshold Limit Values of the corresponding countries as amended in each case.
Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.
The data sources used to determine physical, toxic and ecotoxic data, are indicated directly in the corresponding section.

Classification information
This product is assessed and classified using the methods and criteria below referred to in Article 9 of Regulation (EC) n° 1272/2008:
Physical hazards: determined through assessment data based on the methods or standards referred to in part 2 of Annex I to CLP
Health hazards and environmental hazards: determined through toxicological and ecotoxicological assessment data based on the methods or standards referred to in Part 3 and 4 of Annex I to CLP.

Creation of the safety data sheet
UMCO GmbH

This information is based on our present knowledge and experience.
The safety data sheet describes products with a view to safety requirements.
It does not however, constitute a guarantee for any specific product properties and shall not establish a legally valid contractual relationship.

Alterations/supplements:
Alterations to the previous edition are marked in the left-hand margin.

This document is an English translation of the legally compliant safety data sheet of the region Germany. This document, including UFI and emergency telephone number, may only be used for placing on the market in the region Germany.

Prod-ID 755473