

**HFC-32 refrigerant**

Version 3.0

Revision Date 05/11/2016

Ref. 130000016047

This SDS adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : HFC-32 refrigerant
Tradename/Synonym : Difluoromethane
R-32
FC-32

Product Use : Propellant, Refrigerant, For professional users only.

Restrictions on use : Do not use product for anything outside of the above specified uses
Manufacturer/Supplier : The Chemours Company FC, LLC
1007 Market Street
Wilmington, DE 19899
United States of America

Product Information : 1-844-773-CHEM (outside the U.S. 1-302-773-1000)
Medical Emergency : 1-866-595-1473 (outside the U.S. 1-302-773-2000)
Transport Emergency : CHEMTREC: +1-800-424-9300 (outside the U.S. +1-703-527-3887)

SECTION 2. HAZARDS IDENTIFICATION

Product hazard category
Flammable gases Category 1
Gases under pressure Liquefied gas

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Label content

Pictogram

:



Signal word

: Danger

Hazardous warnings

: Extremely flammable gas.
Contains gas under pressure; may explode if heated.Hazardous prevention
measures: Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
Eliminate all ignition sources if safe to do so.
Protect from sunlight. Store in a well-ventilated place.**Other hazards**

Misuse or intentional inhalation abuse may lead to death without warning., Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing., Rapid evaporation of the liquid may cause frostbite.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
Difluoromethane (HFC-32)	75-10-5	100 %



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SECTION 4. FIRST AID MEASURES

- General advice : Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.
- Inhalation : Remove from exposure, lie down. Move to fresh air. Keep patient warm and at rest. Artificial respiration and/or oxygen may be necessary. Consult a physician.
- Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes. Take off all contaminated clothing immediately. Consult a physician. Wash contaminated clothing before re-use. Treat for frostbite if necessary by gently warming affected area.
- Eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Consult a physician if necessary.
- Ingestion : Is not considered a potential route of exposure.
- Most important symptoms/effects, acute and delayed : Anaesthetic effects Light-headedness irregular heartbeat with a strange sensation in the chest, heart thumping, apprehension, feeling of fainting, dizziness or weakness
- Protection of first-aiders : If potential for exposure exists refer to Section 8 for specific personal protective equipment.
- Notes to physician : Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Water spray, water fog, Dry chemical, Alcohol-resistant foam, Carbon dioxide (CO₂)

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- Unsuitable extinguishing media : No applicable data available.
- Specific hazards : Flammable. Cylinders are equipped with pressure and temperature relief devices, but may still rupture under fire conditions.
- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment. Wear neoprene gloves during cleaning up work after a fire.
- Further information : Cool containers/tanks with water spray. If gas exiting container ignites, Stop flow of gas. Do not put out the fire unless leak can be stopped immediately. Self-contained breathing apparatus (SCBA) is required if containers rupture and contents are released under fire conditions.

SECTION 6. ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

- Safeguards (Personnel) : Evacuate personnel to safe areas. Ventilate the area. Refer to protective measures listed in sections 7 and 8.
- Environmental precautions : Should not be released into the environment. In accordance with local and national regulations.
- Spill Cleanup : Evaporates.
- Accidental Release Measures : Self-contained breathing apparatus (SCBA) is required if a large release occurs. If a spill occurs, immediately close valves and remove all ignition sources.

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SECTION 7. HANDLING AND STORAGE

- Handling (Personnel) : Avoid breathing vapours or mist. Avoid contact with skin, eyes and clothing. Provide sufficient air exchange and/or exhaust in work rooms. For personal protection see section 8.
Handle in accordance with good industrial hygiene and safety practice.
- Handling (Physical Aspects) : Vapours are heavier than air and may spread along floors. Vapours may form explosive mixtures with air. The product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard. No sparking tools should be used. Take measures to prevent the build up of electrostatic charge. Keep away from heat and sources of ignition.
- Dust explosion class : Not applicable
- Storage : Valve protection caps and valve outlet threaded plugs must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure (<3000 psig) piping or systems. Never attempt to lift cylinder by its cap. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Cylinders should be stored upright and firmly secured to prevent falling or being knocked over.
Separate full containers from empty containers. Keep at temperature not exceeding 52°C. Do not store near combustible materials. Avoid area where salt or other corrosive materials are present.
The product has an indefinite shelf life when stored properly.
- Storage period : > 10 yr
- Storage temperature : < 52 °C (< 126 °F)

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Engineering controls : Ensure adequate ventilation, especially in confined areas. Ground all equipment and cylinders before use. Use explosion-proof electrical equipment rated Class I, Group D in Division 1 locations. In Division 2 locations, all

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spark-producing electrical equipment must be explosion-proof and rated Class I, Group D.

Non-sparking motors need not be explosion-proof.

Personal protective equipment

Respiratory protection : For rescue and maintenance work in storage tanks use self-contained breathing apparatus. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Hand protection : Additional protection: Impervious gloves

Eye protection : Wear safety glasses with side shields. Additionally wear a face shield where the possibility exists for face contact due to splashing, spraying or airborne contact with this material.

Skin and body protection : Fire protective clothing (NOMEX) with antistatic control should be worn when handling this product.
Wear protective clothing which covers any other exposed areas of the arms, legs, and torso.

Exposure Guidelines**Exposure Limit Values**

Difluoromethane (HFC-32)

No applicable data available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**Appearance**

Physical state : gaseous
Form : compressed liquefied gas
Color : colourless

Odor : slight, ether-like

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Odor threshold	: No applicable data available.
pH	: neutral
Melting point/range	: No applicable data available.
Boiling point/boiling range	: Boiling point -51.7 °C (-61.1 °F)
Flash point	: no data available
Evaporation rate	: > 1 (CCL4=1.0)
Flammability (solid, gas)	: No applicable data available.
Upper explosion limit	: 31 vol%
Lower explosion limit	: 14 vol%
Vapor pressure	: 16,896 hPa at 25 °C (77 °F)
Vapor density	: 1.82 at 25 °C (77 °F) (Air = 1.0)
Density	: 0.961 g/cm ³ at 25 °C (77 °F) (as liquid)
Specific gravity (Relative density)	: 0.96 at 25 °C (77 °F)
Water solubility	: 4.4 g/l at 25 °C (77 °F)
Solubility(ies)	: No applicable data available.
Partition coefficient: n-octanol/water	: No applicable data available.
Auto-ignition temperature	: No applicable data available.

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Ignition temperature	:	648 °C
Decomposition temperature	:	No applicable data available.
Viscosity, kinematic	:	No applicable data available.
Viscosity, dynamic	:	No applicable data available.
% Volatile	:	100 %

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Extremely flammable gas.
Chemical stability	:	The product is chemically stable.
Possibility of hazardous reactions	:	Polymerization will not occur.
Conditions to avoid	:	Avoid open flames and high temperatures.
Incompatible materials	:	Alkali metals Alkaline earth metals, Powdered metals, Powdered metal salts
Hazardous decomposition products	:	Decomposition products are hazardous., This material can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming hydrofluoric acid and possibly carbonyl fluoride.

SECTION 11. TOXICOLOGICAL INFORMATION

Difluoromethane (HFC-32)

Inhalation 4 h LC50	:	> 520000 ppm , Rat
Inhalation Low Observed Adverse Effect Concentration (LOAEC)	:	> 350000 ppm , Dog Cardiac sensitization
Inhalation No Observed Adverse Effect Concentration	:	350000 ppm , Dog Cardiac sensitization
Skin irritation	:	No skin irritation, Not tested on animals

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- Not expected to cause skin irritation based on expert review of the properties of the substance.
- Eye irritation : No eye irritation, Not tested on animals
Not expected to cause eye irritation based on expert review of the properties of the substance.
- Skin sensitization : Does not cause skin sensitisation., Not tested on animals
Not expected to cause sensitization based on expert review of the properties of the substance.
- There are no reports of human respiratory sensitization.
- Repeated dose toxicity : Inhalation
Rat
-
No toxicologically significant effects were found.
- Mutagenicity : Animal testing did not show any mutagenic effects.
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
- Reproductive toxicity : No toxicity to reproduction
Animal testing showed no reproductive toxicity.
Information given is based on data obtained from similar substances.
- Teratogenicity : Animal testing showed no developmental toxicity.
- Further information : Cardiac sensitisation threshold limit : > 735000 mg/m3

Carcinogenicity

The carcinogenicity classifications for this product and/or its ingredients have been determined according to HazCom 2012, Appendix A.6. The classifications may differ from those listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or those found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition).

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

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SECTION 12. ECOLOGICAL INFORMATION

Aquatic Toxicity

Difluoromethane (HFC-32)

96 h LC50	:	Fish 1,507 mg/l
96 h EC50	:	Algae 142 mg/l
48 h EC50	:	Daphnia (water flea) 652 mg/l
30 d	:	NOEC Fish (unspecified species) 65.8 mg/l

Environmental Fate

Difluoromethane (HFC-32)

Biodegradability	:	5 % OECD Test Guideline 301D Not readily biodegradable.
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SECTION 13. DISPOSAL CONSIDERATIONS

Waste disposal methods - Product : Can be used after re-conditioning. Reclaim by distillation, incinerate, or remove to permitted waste facility. Comply with applicable Federal, State/Provincial and Local Regulations. May be a RCRA Hazardous waste due to the ignitability characteristic.

Contaminated packaging : Empty pressure vessels should be returned to the supplier.

SECTION 14. TRANSPORT INFORMATION

DOT	UN number	:	3252
	Proper shipping name	:	Difluoromethane
	Class	:	2.1
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IATA_C	Labelling No.	: 2.1
	UN number	: 3252
	Proper shipping name	: Difluoromethane
IMDG	Class	: 2.1
	Labelling No.	: 2.1
	UN number	: 3252
	Proper shipping name	: DIFLUOROMETHANE
	Class	: 2.1
	Labelling No.	: 2.1

SECTION 15. REGULATORY INFORMATION

SARA 313 Regulated Chemical(s)	: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
PA Right to Know Regulated Chemical(s)	: Substances on the Pennsylvania Hazardous Substances List present at a concentration of 1% or more (0.01% for Special Hazardous Substances): Difluoromethane
NJ Right to Know Regulated Chemical(s)	: Substances on the New Jersey Workplace Hazardous Substance List present at a concentration of 1% or more (0.1% for substances identified as carcinogens, mutagens or teratogens): Difluoromethane
California Prop. 65	: Chemicals known to the State of California to cause cancer, birth defects or any other harm: none known

SECTION 16. OTHER INFORMATION

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