# Difluoromethyl 2,2,3,3,3-pentafluoropropyl ether

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
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## SECTION 1 Identification

### 1.1. Product identifier

| | | |
|---|---|---|
| Product form | : | Substance |
| Substance name | : | Difluoromethyl 2,2,3,3,3-pentafluoropropyl ether |
| CAS-No. | : | 56860-81-2 |
| Product code | : | 2107-3-X2 |
| Formula | : | C4H3F7O |

### 1.2. Other means of identification

| | | |
|---|---|---|
| Other means of identification | : | MFCD00236116 |

### 1.3. Recommended use of the chemical and restrictions on use

| | | |
|---|---|---|
| Use of the substance/mixture | : | Laboratory chemicals,Manufacture of substances,Scientific research and development |

### 1.4. Supplier's details

SynQuest Laboratories, Inc.
P.O. Box 309
Alachua, FL, Alachua, 32615
United States of America
T (386) 462-0788 - F (386) 462-7097
info@synquestlabs.com - www.synquestlabs.com

### 1.5. Emergency phone number

| | | |
|---|---|---|
| Emergency number | : | (844) 523-4086 (3E Company - Account 10069) |

## SECTION 2 Hazard Identification

### 2.1. Classification of the substance or mixture

#### GHS US classification

| | | |
|---|---|---|
| Skin corrosion/irritation, Category 2 | H315 | Causes skin irritation. |
| Serious eye damage/eye irritation, Category 2A | H319 | Causes serious eye irritation. |
| Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation | H335 | May cause respiratory irritation. |

Full text of H statements : see section 16

### 2.2. Label elements

#### GHS US labeling

Hazard pictograms (GHS US) :

| | | |
|---|---|---|
| Signal word (GHS US) | : | Warning |
| Hazard statements (GHS US) | : | H315 - Causes skin irritation<br>H319 - Causes serious eye irritation<br>H335 - May cause respiratory irritation |
| Precautionary statements (GHS US) | : | P261 - Avoid breathing fumes, mist, spray, vapors.<br>P264 - Wash hands, forearms and face thoroughly after handling.<br>P271 - Use only outdoors or in a well-ventilated area. |

P280 - Wear protective gloves, protective clothing, eye protection, face protection, and hearing protection.
P302+P352 - If on skin: Wash with plenty of soap and water
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P312 - Call a POISON CENTER or doctor/physician if you feel unwell
P321 - Specific treatment (see supplemental first aid instruction on this label).
P332+P313 - If skin irritation occurs: Get medical advice or attention.
P337+P313 - If eye irritation persists: Get medical advice or attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of contents and/or container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulations.

### 2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

### 2.4. Hazards not otherwise classified

No additional information available

### 2.5. Unknown acute toxicity

No additional information available

## SECTION 3 Composition/information on ingredients

### 3.1. Substances

Substance type : Mono-constituent

| Name | Product identifier | % | GHS US classification |
|---|---|---|---|
| Difluoromethyl 2,2,3,3,3-pentafluoropropyl ether (Main constituent) | CAS-No.: 56860-81-2 | ≤ 100 | Skin Irrit. 2, H315<br>Eye Irrit. 2A, H319<br>STOT SE 3, H335 |

Full text of hazard classes and H-statements : see section 16

### 3.2. Mixtures

Not applicable

## SECTION 4 First aid measures

### 4.1. Description of necessary first-aid measures

First-aid measures general : In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Move the affected personnel away from the contaminated area.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration. Get medical advice/attention.

First-aid measures after skin contact : Wash with plenty of soap and water. Get medical advice/attention.

First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.

First-aid measures after ingestion : Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth out with water. Get medical advice/attention.

### 4.2. Most important symptoms/effects, acute and delayed

Symptoms/effects : The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

### 4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment : Treat symptomatically.

## SECTION 5: Fire-fighting measures

### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Alcohol resistant foam. Carbon dioxide. Dry powder. Water spray. Use extinguishing media appropriate for surrounding fire.

### 5.2. Specific hazards arising from the chemical

Fire hazard : Thermal decomposition generates: Carbon oxides. Hydrogen fluoride.

Explosion hazard : Risk of explosion if heated under confinement. Use water spray or fog for cooling exposed containers. May form flammable/explosive vapor-air mixture.

### 5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.

Protection during firefighting : Wear gas tight chemically protective clothing in combination with self contained breathing apparatus. For further information refer to section 8: "Exposure controls/personal protection".

## SECTION 6 Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

General measures : Evacuate unnecessary personnel. Ensure adequate air ventilation. May cause suffocation by reducing oxygen available for breathing. Do not breathe gas, fumes, vapor or spray.

#### For non-emergency personnel

Emergency procedures : Only qualified personnel equipped with suitable protective equipment may intervene.

#### For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

Emergency procedures : Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level.

Environmental precautions : This material is considered to be a “Forever chemical”. Prevent any possible release to the environment. Notify authorities if product enters sewers or public waters. Contain any spills with dikes or absorbents to prevent migration and entry into drains, sewers, waterways, or soil. Do not use where release to drains (sewer) and/or surface water cannot be prevented.

### 6.2. Methods and materials for containment and cleaning up

For containment : Stop leak if safe to do so. Dike for recovery or absorb with appropriate material.

Methods for cleaning up : Take up large spills with pump or vacuum and finish with dry chemical absorbent. Use explosion-proof equipment. Take up small spills with dry chemical absorbent. Sweep or shovel spills into appropriate container for disposal. Ventilate area.

Other information : For disposal of solid materials or residues refer to section 13 : "Disposal considerations".

For further information refer to section 8: "Exposure controls/personal protection"

## SECTION 7 Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Do not handle until all safety precautions have been read and understood. Ensure good ventilation of the work station. Do not breathe fumes, mist, spray, vapors. Wear personal protective equipment. Avoid contact with skin and eyes.

Hygiene measures : Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

### 7.2. Conditions for safe storage, including incompatibilities

Technical measures : Comply with applicable regulations.

Storage conditions : Keep container closed when not in use.

Storage area : Store ONLY in areas where release to drains (sewer) and/or surface water can be prevented. This material is considered to be a “Forever chemical”. Any possible release to the environment must be prevented. Notify authorities if product enters sewers or public waters.

Incompatible materials : Refer to Section 10 on Incompatible Materials.

Storage temperature : 2 – 8 °C

## SECTION 8 Exposure controls/personal protection

### 8.1. Control parameters

No additional information available

### 8.2. Appropiate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

### 8.3. Individual protection measures, such as personal protective equipment

| **Hand protection:** |
|---|
| protective gloves. 29 CFR 1910.138: Hand Protection |
| **Eye protection:** |
| Chemical goggles or safety glasses. Face shield. 29 CFR 1910.133: Eye and Face Protection |
| **Skin and body protection:** |
| Wear suitable protective clothing |
| **Respiratory protection:** |
| In case of inadequate ventilation wear respiratory protection. 29 CFR 1910.134: Respiratory Protection |

**Personal protective equipment symbol(s):**

**Other information:**

Safety shoes. 29 CFR 1910.136: Foot Protection.

## SECTION 9 Physical and chemical properties

### 9.1. Basic physical and chemical properties

| | | |
|---|---|---|
| Physical state | : | Liquid |
| Color | : | No data available |
| Odor | : | No data available |
| Odor threshold | : | No data available |
| pH | : | No data available |
| Melting point | : | No data available |
| Freezing point | : | No data available |
| Boiling point | : | 46 °C |
| Flash point | : | No data available |
| Flammability (solid, gas) | : | No data available |
| Vapor pressure | : | No data available |
| Relative vapor density at 20 °C | : | No data available |
| Relative density | : | No data available |
| Density | : | 1.46 g/ml |
| Molecular mass | : | 200.0548 g/mol |
| Solubility | : | No data available |
| Partition coefficient n-octanol/water (Log Pow) | : | No data available |
| Auto-ignition temperature | : | No data available |
| Decomposition temperature | : | No data available |
| Viscosity, kinematic | : | No data available |
| Explosion limits | : | No data available |
| Particle characteristics | : | No data available |

### 9.2. Data relevant with regard to physical hazard classes (supplemental)

| | | |
|---|---|---|
| Refractive index | : | 1.272 |

## SECTION 10 Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

The product is stable at normal handling and storage conditions.

### 10.3. Possibility of hazardous reactions

No additional information available

### 10.4. Conditions to avoid

Keep away from heat, sparks and flame.

### 10.5. Incompatible materials

Lewis-acid. Strong acids. Strong bases. Strong oxidizing agents.

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. Hazardous decomposition products in case of fire, see Section 5.

## SECTION 11 Toxicological information

### 11.1. Likely routes of exposure

| | | |
|---|---|---|
| Acute toxicity (oral) | : | No data available |
| Acute toxicity (dermal) | : | No data available |
| Acute toxicity (inhalation) | : | No data available |
| Skin corrosion/irritation | : | Causes skin irritation. |
| Serious eye damage/irritation | : | Causes serious eye irritation. |
| Respiratory or skin sensitization | : | No data available |
| Germ cell mutagenicity | : | No data available |
| Carcinogenicity | : | No data available |
| Reproductive toxicity | : | No data available |
| STOT-single exposure | : | May cause respiratory irritation. |
| STOT-repeated exposure | : | No data available |
| Aspiration hazard | : | No data available |
| Symptoms/effects | : | The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11. |

## SECTION 12 Ecological information

### 12.1. Ecotoxicity

| | | |
|---|---|---|
| Hazardous to the aquatic environment, short–term (acute) | : | No data available |
| Hazardous to the aquatic environment, long–term (chronic) | : | No data available |

### 12.2. Persistence and degradability

| Difluoromethyl 2,2,3,3,3-pentafluoropropyl ether (56860-81-2) | |
|---|---|
| Persistence and degradability | Persistent, bioaccumulative. |

### 12.3. Bioaccumulative potential

| Difluoromethyl 2,2,3,3,3-pentafluoropropyl ether (56860-81-2) | |
|---|---|
| Bioaccumulative potential | Perfluorinated alkanes (PFAs, “forever chemicals”) are long lasting, widely used chemicals that break down slowly over time. The potential hazards of PFAs are under investigation and have not been established. |

### 12.4. Mobility in soil

No additional information available

### 12.5. Other adverse effects

| | | |
|---|---|---|
| Ozone | : | No data available |
| Fluorinated greenhouse gases | : | No |

## SECTION 13 Disposal considerations

| | | |
|---|---|---|
| Waste treatment methods | : | Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber. |

| | | |
|---|---|---|
| Sewage disposal recommendations | : | See the EPA's Interim Guidance on PFAS Destruction and Disposal. |
| Product/Packaging disposal recommendations | : | Dispose of contents/container in accordance with licensed collector's sorting instructions. |
| Additional information | : | Recycle the material as far as possible. |
| Ecological information | : | This material is considered to be a "Forever chemical". Prevent any possible release to the environment. Do not discharge into drains. Take all necessary measures to prevent accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems, or emergency response. |

## SECTION 14 Transport information

### 14.1. UN number

| | | |
|---|---|---|
| UN-No.(DOT) | : | Not applicable |
| UN-No. (TDG) | : | Not applicable |
| UN-No. (IMDG) | : | Not applicable |
| UN-No. (IATA) | : | Not applicable |

### 14.2. UN Proper Shipping Name

| | | |
|---|---|---|
| Proper Shipping Name (DOT) | : | Not applicable |
| Proper Shipping Name (TDG) | : | Not applicable |
| Proper Shipping Name (IMDG) | : | Not applicable |
| Proper Shipping Name (IATA) | : | Not applicable |

### 14.3. Transport hazard class(es)

**DOT**
Transport hazard class(es) (DOT) : Not applicable

**TDG**
Transport hazard class(es) (TDG) : Not applicable

**IMDG**
Transport hazard class(es) (IMDG) : Not applicable

**IATA**
Transport hazard class(es) (IATA) : Not applicable

### 14.4. Packing group

| | | |
|---|---|---|
| Packing group (DOT) | : | Not applicable |
| Packing group (TDG) | : | Not applicable |
| Packing group (IMDG) | : | Not applicable |
| Packing group (IATA) | : | Not applicable |

### 14.5. Environmental hazards

Other information : No supplementary information available.

### 14.6. Transport in bulk

Not applicable

### 14.7. Special precautions for user

**DOT**
Not applicable

**TDG**
Not applicable

### IMDG
Not applicable

### IATA
Not applicable

## SECTION 15 Regulatory information

### 15.1. Federal regulations

| All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory, except for: | | |
|---|---|---|
| Difluoromethyl 2,2,3,3,3-pentafluoropropyl ether | CAS-No. 56860-81-2 | 100% |

### 15.2. International regulations

#### CANADA
No additional information available

#### EU-Regulations
No additional information available

#### National regulations
No additional information available

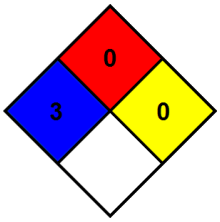
### 15.3. State regulations
California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

## SECTION 16 Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Revision date : 6/2/2026
Issue date : 3/7/2018

| Full text of hazard classes and H-statements | |
|---|---|
| H315 | Causes skin irritation |
| H319 | Causes serious eye irritation |
| H335 | May cause respiratory irritation |

NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.
NFPA fire hazard : 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.
NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.




Hazard Rating
Health : 2 Moderate Hazard - Temporary or minor injury may occur
Flammability : 0 Minimal Hazard - Materials that will not burn
Physical : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Safety Data Sheet (SDS), USA

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