

SECTION 1: Identification

1.1. Identification

| | |
|-------------------------------|---|
| Product form | : Substance |
| Substance name | : 1,1,1,3,3,3-Hexafluoro-2-(difluoromethoxy)propane |
| CAS-No. | : 26103-08-2 |
| Product code | : 2107-3-16 |
| Formula | : C ₄ H ₂ F ₈ O |
| Other means of identification | : MFCD00236121 |

1.2. Recommended use and restrictions on use

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

1.3. Supplier

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

1.4. Emergency telephone number

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

SECTION 2: Hazard(s) 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, Narcosis | H336 | May cause drowsiness or dizziness |
| 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. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US)



Signal word (GHS US)

: Warning

Hazard statements (GHS US)

: H315 - Causes skin irritation
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H336 - May cause drowsiness or dizziness

1,1,1,3,3,3-Hexafluoro-2-(difluoromethoxy)propane

Safety Data Sheet

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

Precautionary statements (GHS US) : P261 - Avoid breathing fumes, mist, spray, vapors.
P264 - Wash skin thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves/protective clothing/eye protection/face 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 instructions on this label)
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P337+P313 - If eye irritation persists: Get medical advice/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/container to an approved waste disposal plant

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type : Mono-constituent

| Name | Product identifier | % | GHS US classification |
|---|---------------------|-------|--|
| 1,1,1,3,3,3-Hexafluoro-2-(difluoromethoxy)propane (Main constituent) | CAS-No.: 26103-08-2 | ≤ 100 | Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H336 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 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.

1,1,1,3,3,3-Hexafluoro-2-(difluoromethoxy)propane

Safety Data Sheet

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

4.2. Most important symptoms and 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.
- Symptoms/effects after inhalation : May cause drowsiness or dizziness.

4.3. Immediate medical attention and special treatment, if necessary

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.

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.

6.1.1. For non-emergency personnel

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

6.1.2. 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.

6.2. Environmental precautions

Avoid release to the environment. Notify authorities if product enters sewers or public waters.

6.3. Methods and material 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".

6.4. Reference to other sections

No additional information available

1,1,1,3,3,3-Hexafluoro-2-(difluoromethoxy)propane

Safety Data Sheet

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

SECTION 7: Handling and storage

7.1. Precautions for safe handling

| | |
|-----------------------------------|---|
| Additional hazards when processed | : Refrigerate before opening. Pressure may build during storage. |
| 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 any incompatibilities

| | |
|------------------------|--|
| Technical measures | : Comply with applicable regulations. |
| Storage conditions | : Keep container closed when not in use. |
| Incompatible materials | : Refer to Section 10 on Incompatible Materials. |
| Storage temperature | : 2 – 8 °C |
| Storage area | : Store in dry, well-ventilated area. |

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Appropriate 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. Systems under pressure should be regularly checked for leakage. Oxygen detectors should be used when asphyxiating gases may be released. |
|----------------------------------|--|

8.3. Individual protection measures/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.

1,1,1,3,3,3-Hexafluoro-2-(difluoromethoxy)propane

Safety Data Sheet

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

SECTION 9: Physical and chemical properties

9.1. Information on 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 | : 42 – 43 °C |
| Flash point | : No data available |
| Relative evaporation rate (butyl acetate=1) | : 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 |
| Molecular mass | : 218.046 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 |
| Viscosity, dynamic | : No data available |
| Explosion limits | : No data available |
| Explosive properties | : No data available |
| Oxidizing properties | : No data available |

9.2. Other information

| | |
|------------------|--------------------|
| Refractive index | : 1.2603 (@ 20 °C) |
|------------------|--------------------|

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

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.

1,1,1,3,3,3-Hexafluoro-2-(difluoromethoxy)propane

Safety Data Sheet

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

SECTION 11: Toxicological information

11.1. Information on toxicological effects

| | |
|-----------------------------------|--|
| Acute toxicity (oral) | : Not classified |
| Acute toxicity (dermal) | : Not classified |
| Acute toxicity (inhalation) | : Not classified |
| Skin corrosion/irritation | : Causes skin irritation. |
| Serious eye damage/irritation | : Causes serious eye irritation. |
| Respiratory or skin sensitization | : Not classified |
| Germ cell mutagenicity | : Not classified |
| Carcinogenicity | : Not classified |
| Reproductive toxicity | : Not classified |
| STOT-single exposure | : May cause drowsiness or dizziness. May cause respiratory irritation. |
| STOT-repeated exposure | : Not classified |
| Aspiration hazard | : Not classified |
| Viscosity, kinematic | : 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. |
| Symptoms/effects after inhalation | : May cause drowsiness or dizziness. |

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

1,1,1,3,3,3-Hexafluoro-2-(difluoromethoxy)propane (26103-08-2)

| | |
|-------------------------------|--------------------|
| Persistence and degradability | Rapidly degradable |
|-------------------------------|--------------------|

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

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

1,1,1,3,3,3-Hexafluoro-2-(difluoromethoxy)propane

Safety Data Sheet

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

SECTION 14: Transport information

14.1. UN number

| | |
|---------------|------------------|
| DOT NA No | : 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. Special precautions for user

DOT

Not applicable

TDG

Not applicable

IMDG

Not applicable

IATA

Not applicable

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

1,1,1,3,3,3-Hexafluoro-2-(difluoromethoxy)propane

Safety Data Sheet

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

SECTION 15: Regulatory information

15.1. US 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:

| | | |
|---|--------------------|------|
| 1,1,1,3,3,3-Hexafluoro-2-(difluoromethoxy)propane | CAS-No. 26103-08-2 | 100% |
|---|--------------------|------|

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. US 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

| Full text of H-phrases | |
|------------------------|-----------------------------------|
| H315 | Causes skin irritation |
| H319 | Causes serious eye irritation |
| H335 | May cause respiratory irritation |
| H336 | May cause drowsiness or dizziness |

NFPA health hazard

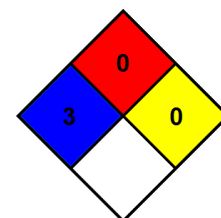
: 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

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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