

FC13-449mec-f

1,1,2,3,3,3-Hexafluoropropyl 2,2,2-Trifluoroethyl Ether

Revised 12-July-2017

1. PRODUCT AND COMPANY IDENTIFICATION

Material Identification

Catalog number: FC13-449mec-f
 Chemical name: 1,1,2,3,3,3-Hexafluoropropyl 2,2,2-trifluoroethyl ether

Use of the Substance

Laboratory chemicals
 Manufacture of substances
 Scientific research and development

Company Identification

Distributor: **Fluoryx Labs**
 3650 Research Way, #22
 Carson City, NV 89706
 USA

Emergency call (Chem-Tel): +01-813-248-0585 (International)
 +1-800-255-3924 (USA)

2. HAZARDS IDENTIFICATION

Emergency Overview:

GHS Classification Skin Irritant 2
 Eye Irritant 2A
 STOT SE 3

GHS Label elements, including precautionary statements

Pictogram
Signal word



Warning

Hazard statement(s)

H315 Causes skin irritation
 H319 Causes serious eye irritation
 H335 May cause respiratory irritation

Precautionary statement(s)

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

P312	eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P321	Call a POISON CENTER or doctor/physician if you feel unwell
P332+P313	Specific treatment (see supplemental first aid instructions on this label)
P337+P313	If skin irritation occurs: Get medical advice/attention
P362+P364	If eye irritation persists: Get medical advice/attention
P403+P233	Take off contaminated clothing and wash it before reuse Store in a well-ventilated place. Keep container tightly closed

3. COMPOSITION AND INFORMATION ON COMPONENTS

Synonyms	HFE-449mec-f; 1,1,1,2,3,3-Hexafluoro-3-(2,2,2-trifluoroethoxy)propane; 1,1,1,2,3,3-hexafluoro-3-(2,2,2-trifluoroethoxy)-
Chemical Formula:	CF ₃ CFHCF ₂ OCH ₂ CF ₃ C ₅ H ₃ F ₉ O
Molecular Weight	250.06 g/mol

Material	CAS #	%	Classification (GHS-US)
1,1,2,3,3,3-Hexafluoropropyl 2,2,2-trifluoroethyl ether	993-95-3	≤100%	Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT SE 3, H335

Full text of abbreviations: see section 16

4. FIRST AID MEASURES

If Inhaled	If breathed in, move person into fresh air. If not breathing, give artificial respiration.
In Case of Skin Contact	Wash off with soap and plenty of water.
In Case of Eye Contact	Rinse thoroughly with plenty of water for at least 15 minutes as a precaution.
If Swallowed	Never give anything by mouth to an unconscious person. Rinse mouth with water.

5. FIRE FIGHTING MEASURES

Extinguishing Media:	For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.
Special protective equipment for firefighters:	Wear self-contained breathing apparatus and protective clothing.
Hazardous Combustion Products:	Carbon oxides, hydrogen fluoride, toxic gases or particles may be formed during combustion. These products may cause severe eye, nose, throat, and lung irritation or toxic effects.
Fire Fighting Instructions:	Evacuate personnel to a safe area. Wear self-contained breathing apparatus. Avoid breathing decomposition products.

Further Information: Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Avoid breathing vapors, mist or gas. Ensure adequate ventilation. nEvacuate personnel to safe areas. Vapors can accumulate in low areas.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
Methods for cleaning up	Absorb into dry earth, sand, or other suitable absorbant material. Transfer to a closable, labeled salvage container for disposal by an appropriate method.

7. HANDLING AND STORAGE

Precautions for safe handling	Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.
Conditions for safe storage	Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

Impervious clothing, the type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	Liquid, clear
Color	Colorless

Safety Data

pH	No data available
Melting Point/Freezing Point	No data available
Boiling Point	72 °C @ 766 mm Hg
Flash Point	None
Ignition Temperature	No data available
Auto-ignition Temperature	No data available
Lower Explosion Limit	No data available
Upper Explosion Limit	No data available
Thermal Decomposition Temperature	No data available
Vapor Pressure	31.5 kPa at 37.8 °C
Density	1.518 g/mL @ 25 °C
Water Solubility	Negligible
Partition Coefficient (<i>n</i> -octanol/water)	No data available
Relative Vapor Density (Air = 1)	> 1
Odor	No data available
Odor Threshold	No data available
Evaporation Rate	No data available
Refractive index	1.2795 @ 25 °C
Viscosity	1.05 cP @ 25 °C

10. STABILITY AND REACTIVITY

Chemical Stability:	Stable at normal temperatures and storage conditions.
Possibility of Hazardous Reactions:	No data available
Conditions to Avoid:	Flames and extremes of temperature.
Materials to Avoid:	Strong oxidizing agents. Strong acids and bases.
Hazardous Decomposition Products:	May evolve carbon dioxide, carbon monoxide, hydrogen fluoride, and fluorophosgene.
Hazardous Polymerization:	Will not occur.
Other Information:	The vapor is heavier than air and disperses at ground level and displaces oxygen.

11. TOXICOLOGICAL INFORMATION

Acute toxicity	
Oral LD50	No data available
Inhalation LC50	No data available
Dermal LD50	No data available
Other information on acute toxicity	No data available
Skin corrosion/irritation	No data available
Serious eye damage/eye irritation	No data available

Respiratory or skin sensitization	No data available
Germ cell mutagenicity	No data available
Carcinogenicity	
IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity	No data available
Teratogenicity	No data available
Specific target organ toxicity - single exposure (Globally Harmonized System)	Inhalation - May cause respiratory irritation.
Specific target organ toxicity - repeated exposure (Globally Harmonized System)	No data available
Aspiration hazard	No data available
Potential health effects	
Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	May be harmful if swallowed.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.
Signs and Symptoms of Exposure	To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Synergistic effects	No data available
Additional Information	
RTECS	Not available

12. ECOLOGICAL INFORMATION

Toxicity	No data available
Persistence and Degradability	No data available
Bioaccumulative Potential	No data available
Mobility in Soil	No data available
PBT and vPvB Assessment	No data available
Other Adverse Effects	No data available

13. DISPOSAL CONSIDERATIONS

Product This material may be burned in a chemical incinerator equipped with an afterburner and HF scrubber. Offer non-recyclable solutions to a licensed disposal company. Offer unused product to Fluoryx. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated Packaging Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US) Not dangerous goods

IMDG Not dangerous goods

IATA Not dangerous goods

15. REGULATORY INFORMATION

OSHA Hazards None

SARA 302 Components No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components 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.

SARA 311/312 Hazards Fire Hazard

Massachusetts Right To Know Components No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components No components are subject to the Pennsylvania Right to Know Act.

New Jersey Right To Know Components No components are subject to the New Jersey Right to Know Act.

California Prop. 65 Components This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

**National Regulations (US)
TSCA Inventory 8(b):** Not listed.

Canadian DSL Not listed.

16. OTHER INFORMATION

Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3

HMIS Classification

Health hazard : 1
 Flammability : 0
 Physical hazards : 0

NFPA Rating

Health hazard : 1
 Fire : 0
 Reactivity hazard : 0

Other information: For R&D use only. Not for drug, household, or other uses. The previous information is based upon our

current knowledge and experience of our product and is not exhaustive. It applies to the product as defined by the specifications. In case of combinations or mixtures, one must confirm that no new hazards are likely to exist. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and integrity of the work environment. Unless noted to the contrary, the technical information applies only to pure product.

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End of SDS