Fluoryx Labs

Safety Data Sheet

FC13-7200

Ethyl Nonafluoroisobutyl Ether

Revised 16-Mar-2023

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Ethyl nonafluoroisobutyl ether
Catalog Number	FC13-7200
CAS Number	163702-06-5
Supplier	**Fluoryx Labs** 3650 Research Way, #22 Carson City, NV 89706 USA
Emergency call (VelocityEHS):	+01-813-248-0585 (International) +1-800-255-3924 (USA)

2. HAZARDS INFORMATION

Emergency Overview

OSHA Hazards	No known OSHA hazards
GHS Classification	None
GHS Label elements, including precautionary statements	
Pictogram	None
Signal word	None
Hazard statement(s)	None
Precautionary statement(s)	P280E: Wear protective gloves

Hazards not otherwise classified (HNOC) or not covered by GHS

Inhalation of decomposition products from overheating may cause lung irritation or shortness of breath.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Synonyms	Ethyl nonafluoroisobutyl ether 1-Ethoxy-1,1,2,3,3,3-hexafluoro-2-(trifluoromethyl)propane Propane, 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoro- Ethyl perfluoroisobutyl ether Perfluoroisobutyl ethyl ether HFE-7200 Novec-7200
Chemical formula	$CH_3CH_2OCF_2CF(CF_3)_2$ $C_6H_5F_9O$

Molecular weight	264.09 g/mol
CAS number	163702-06-5
EC number	639-027-3
TSCA status	Listed

Components

Material	Classification	Concentration
Ethyl nonafluoroisobutyl ether	None	≤ 100%

4. FIRST AID MEASURES

If inhaled	No need for first aid is anticipated.
In case of skin contact	Wash off with soap and water. If you feel unwell, get medical attention.
In case of eye contact	No need for first aid is anticipated.
If swallowed	Rinse mouth. If you feel unwell, get medical attention.

5. FIREFIGHTING MEASURES

Suitable extinguishing media	Use a firefighting agent suitable for the surrounding fire.
Special protective equipment for firefighters	When firefighting conditions are severe and total thermal decomposition of the product is possible, wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, tunic and trousers (leggings), bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.
Hazardous combustion products	Exposure to extreme heat can give rise to thermal decomposition. Material displays no closed-cup flash point but may form flammable/explosive vapor air mixture. Hazardous decomposition products formed under fire conditions - carbon oxides, hydrogen fluoride.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Keep away from sparks, flames, and extreme heat. Evacuate area. Ventilate the area with fresh air. Observe precautions from other sections.
Environmental precautions	Do not let product enter drains.
Methods for cleaning up	Eliminate all potential ignition sources when cleaning up spill. Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and

follow safety precautions on the solvent label and Safety Data Sheet. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Avoid inhalation of thermal decomposition products. Avoid skin contact with hot material. For industrial/occupational use only. Not for consumer sale or use. Store work clothes separately from other clothing, food and tobacco products. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid release to the environment. No smoking: Smoking while using this product can result in contamination of the tobacco and/or smoke and lead to the formation of hazardous decomposition products. Keep away from sparks, flames, and extreme heat.

Conditions for Safe Storage

Store away from strong bases.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Occupational exposure limits

TWA 200 ppm (2160 mg/m3)
TWA: Time-Weighted-Average

Engineering controls

Provide appropriate local exhaust when product is heated. Use general dilution ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/ vapors/spray. If ventilation is not adequate, use respiratory protection equipment. Provide ventilation adequate to maintain vapor concentration below lower explosive concentration.

Personal protective equipment

Respiratory protection

During heating: Use a positive pressure supplied-air respirator if there is a potential for over exposure from an uncontrolled release, exposure levels are not known, or under any other circumstances where air-purifying respirators may not provide adequate protection.

Skin/hand protection

Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing. Gloves made from the following material(s) are recommended: Neoprene. If this product is used in a manner that presents a higher potential for exposure (e.g., spraying, high splash potential, etc.), then use of protective coveralls may be necessary. Select and use body protection to prevent contact based on the

	results of an exposure assessment. The following protective clothing material(s) are recommended: Neoprene apron. Select and use gloves according to AS/NZ 2161.
Eye protection	Not required.
Thermal hazards	Wear heat insulating gloves when handling hot material to prevent thermal burns.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Form	Liquid
Color	Colorless, clear
Safety Data	
pH	No data available
Melting Point/Freezing Point	-138 °C (approximate)
Boiling Point	76 °C
Flash Point	None
Ignition Temperature	No data available
Auto-ignition Temperature	375 °C (ASTM E659-78 Method)
Flammable Limits (LEL)	210 g/m^3 (ASTM E681-94 Method)
Flammable Limits (UEL)	1,070 g/m^3 (ASTM E681-94 Method)
Thermal Decomposition Temperature	No data available
Vapor Pressure	14,532.1 Pa @ 25 °C
Density	1.43 g/mL
Water Solubility	Very low
Partition Coefficient (*n*-octanol/water)	4.2 @ 30 °C
Relative Vapor Density (Air = 1)	9.1
Odor	Faint odor
Odor Threshold	No data available
Evaporation Rate	33 (*Ref Std:* BUOAC=1)
Refractive index	No data available
Viscosity	0.4 mm^2/sec

10. STABILITY AND REACTIVITY

Storage stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	Polymerization will not occur.
Conditions to avoid	Keep away from open flames and heated surfaces above 300 °C.
Materials to avoid	Strong bases.
Hazardous decomposition products	Hazardous decomposition products formed under fire conditions - carbon oxides, hydrogen fluoride, perfluoroisobutylene (PFIB).

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Route	Species	Value
Dermal		LD50 estimated to be 2,000 - 5,000 mg/kg
Inhalation-Vapor (4 hours)	Rat	LC50 > 989 mg/l
Ingestion	Rat	LD50 > 2,000 mg/kg

Skin Corrosion/Irritation

Species	Value
Rabbit	No significant irritation

Serious Eye Damage/Irritation

Species	Value
Rabbit	No significant irritation

Skin Sensitisation

Species	Value
Guinea pig	Not classified

Respiratory Sensitisation For the component/components, either no data are currently available or the data are not sufficient for classification.

Germ Cell Mutagenicity

Route	Value
In Vitro	Not mutagenic

Carcinogenicity For the component/components, either no data are currently available or the data are not sufficient for classification.

Reproductive Toxicity
Reproductive and/or Developmental Effects

Route	Value	Species	Test Result	Exposure Duration
Inhalation	Not classified for development	Rat	NOAEL 260mg/L	during gestation

Target Organ(s)
Specific Target Organ Toxicity - single exposure

Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
Inhalation	Cardiac sensitization	Some positive data exist, but the data are not sufficient for classification	Dog	NOAEL 204 mg/l	17 minutes
Inhalation	Respiratory irritation	Not classified	Rat	NOAEL 989 mg/L	4 hours

Specific Target Organ Toxicity - repeated exposure

Route	Target Organs(s)	Value	Species	Test Result	Exposure Duration
Inhalation	Liver / kidney and/or bladder / respiratory system / heart / endocrine system / gastrointestinal tract / bone marrow / hematopoietic system / immune system / nervous system	Not classified	Rat	NOAEL 263.4 mg/L	4 weeks

Ingestion	Blood / liver / kidney and/or bladder / respiratory system / heart / endocrine system / bone marrow / hematopoietic system / immune system / nervous system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days

Aspiration Hazard For the component/components, either no data are currently available or the data are not sufficient for classification.

Synergistic Effects No data available

Additional Information No data 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 Dispose of contents/ container in accordance with the local/regional/national/international regulations. Dispose of waste product in a permitted industrial waste facility. As a disposal alternative, incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Combustion products will include HF. Facility must be capable of handling halogenated materials. Consult with the respective regulating authorities to determine the available treatment and disposal facilities. Contact Fluoryx Labs to return unused product.

Contaminated packaging Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations.

EPA Hazardous Waste Number (RCRA) Not regulated

14. TRANSPORTATION INFORMATION

DOT (US) Not dangerous goods

IMDG Not dangerous goods

IATA Not dangerous goods

15. REGULATORY INFORMATION

Chemical Inventories

This material is in compliance with the provisions of Australia National Industrial Chemical Notification and Assessment Scheme (NICNAS). Certain restrictions may apply. Contact the selling division for additional information.

This material is in compliance with the new substance notification requirements of CEPA.

This material is in compliance with the China "Measures on Environmental Management of New Chemical Substance". Certain restrictions may apply. Contact the selling division for additional information.

This material is in compliance with the provisions of the Korean Toxic Chemical Control Law. Certain restrictions may apply. Contact the selling division for additional information.

This material is in compliance with the provisions of Japan Chemical Substance Control Law. Certain restrictions may apply. Contact the selling division for additional information.

This material is in compliance with the provisions of Philippines RA 6969 requirements. Certain restrictions may apply. Contact the selling division for additional information.

This material is in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

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	No SARA hazards.
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.

16. OTHER INFORMATION

Further information:

NFPA Hazard Classification	Health: 3 Flammability: 1 Instability: 0 Special Hazards: None
HMIS Hazard Classification	Health: 1 Flammability: 1 Physical Hazard: 0 Personal Protection: X - See PPE section.

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.

To our actual knowledge, the information contained herein is accurate as of the date of this document. However, neither Fluoryx Inc., nor any of its affiliates makes any warranty, express or implied, or accepts any liability in connection with this information or its use. This information is for use by technically skilled persons at their own discretion and risk and does not relate to the use of this product in combination with any other substance or any other process. This is not a license under any patent or other proprietary right. The user alone must finally determine suitability of any information or material for any contemplated use, the manner of use and whether any patents are infringed. This information gives typical properties only and is not to be used for specification purposes.

End of SDS