



Date: April 21, 2025 Rev. 2

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Unisolv-7200
Chemical Name: Ethyl nona-fluoroisobutyl ether
CAS No: 163702-06-5
Supplier Information: Unistar Chemical Inc.
425 Huehl Road, Bldg 1,
Northbrook, IL, 60062
1-847-724-8869
E-mail: info@unistarchemcal.com
Emergency Contact: (800) 424-9300 CHEMTREC

2. HAZARD IDENTIFICATION

Signal word: WARNING

Hazard classification:

Acute toxicity-oral Category 5
Acute Toxicity- Dermal Category 5

HAZARDS

H303 May be harmful if swallowed.
H313 May be harmful in contact with skin

PRECAUTIONARY STATEMENTS

P202 Do not handle until all safety precautions have been read and understood.

RESPONSE

P312 Call a POISON CENTER or doctor/physician if you feel unwell.

STORAGE

no special storage

DISPOSAL

P501 Dispose of the contents / container shall comply with applicable local, superior regional, national, and international regulations.

OTHER HAZARDS

Physical Hazards	There are no known GHS hazard classifications, please see section 9 or 10 for more information.
Health Hazards	May be harmful if swallowed. May be harmful in contact with skin.
Environmental Hazards	There are no known GHS hazard classifications, please see section 12 for more information.
Others	May form flammable/explosive vapor-air mixtures when used..

3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure Substance / mixture:	Pure Substance
Name:	Unisolv-7200
Synonymous Name:	Ethyl nona-fluoroisobutyl ether

Component	EC No.	CAS	Concentration (%)
Ethyl nona-fluoroisobutyl ether	639-027-3	163702-06-5	≥99.0%

4. FIRST AID MEASURES

Inhalation :	No need for first aid.
Skin contact:	Wash with soapy water or water. Seek medical attention if symptoms become worse.
Eye contact:	No need for first aid.
Ingestion:	Seek medical attention/consultation if feel unwell. Rinse mouth.
Notes to physician:	For physical and health hazards, respiratory protection, ventilation, and personal protective equipment, refer to other sections of this safety data sheet.
Main symptoms and effects, acute and late effects:	See section 11 Toxicological Information for more details.
Timely medical treatment and special treatment needed:	Not applicable
Recommended protection of rescuers and warnings to doctors:	For physical and health hazards, respiratory protection, ventilation, and personal protective equipment, refer to other sections of this safety data sheet.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Use suitable extinguishing agent to extinguish the fire

Special extinguishing method: Extinguish the fire from the upwind and choose the appropriate fire extinguishing method according to your surroundings.

Hazardous combustion products: Unrelated personnel should evacuate to a safe place

Special fire danger may encounter when extinguishing: Thermal decomposition might occur under high heat. There is no closed cup flash point but the vapor mixture has a combustion/explosion limit.

Hazardous Decomposition products or byproducts:

Substance

CO

CO₂

HF

Conditions

during combustion

during combustion

during combustion

Special protective equipment for firefighters:

When firefighting conditions are severe and the product may thermally decompose, wear full protective clothing, including a helmet, self-contained, positive pressure or pressure breathing apparatus, fireproof clothing and fireproof pants, arm, waist and leg straps, a face shield and a shield to protect other parts of the head that may be exposed.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions and Emergency Procedures: Keep away from sparks, sparks or heat sources. Evacuate the site. Ventilate the workplace with fresh air. Note the precautions in other sections.

Environmental precautions: Avoid release into the environment.

Methods/materials for containment:

If there is a large spill, cover the sewer inlet and build a protective dike to prevent the spill from flowing into the sewer or water body environment. Eliminate all potential ignition sources when removing spills. Collect the spill in a container. Clean up from the edge of the spill inward and cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Remember, adding absorbent material does not eliminate physical, health or environmental hazards. Collect as much of the spill as possible. In the event of a large spill, dike to contain it. Attachments or collections should be disposed of in accordance with relevant laws and regulations.

7. HANDLING AND STORAGE

- Precautions for safe handling:**
- Do not inhale the thermal decomposition products.
 - Avoid skin contact with thermally decomposable materials.
 - For industrial or professional use only.
 - Do not use in a confined space or where there is no air flow or minimal flow, and maintain good ventilation.
 - Work clothes and other clothing, food and tobacco items shall be stored separately.
 - Avoid release to the environment.
 - Avoid contact with oxidizing agents (such as chlorine, chromic acid, etc.).
 - No Smoking: Use of this product during smoking can contaminate tobacco and/or smoke, resulting in the formation of harmful decomposition products.
 - Keep away from sparks or fire source.
- Conditions for safe storage:**
- Store away from acids.
 - Store away from strong bases.
 - Store away from oxidizing agents

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits:

Content	CAS No:	Institute	Restriction Type	Additional Notes
Ethyl nona-fluoroisobutyl ether	163702-06-5	Determined by manufacturer	TWA (calculated as total isomers):200ppm	

AIHA: American Industrial Hygiene Association

TWA: Time Weighted Average

Chinese OELs: Chinese occupational exposure limit values

CMRG: Chemical manufacturers' recommended standards HK

OELs: The Hong Kong occupational exposure limit values

STEL: short-term exposure limits

CEIL: Ceiling allowable concentration

Engineering controls:

local exhaust equipment when heated. Use general dilution ventilation and/or local exhaust ventilation equipment to keep airborne hazardous substances (dust/fume/gas/mist/vapor/spray) below the relevant exposure limits. If ventilation is inadequate, wear respiratory protection. Provide adequate ventilation to keep vapor concentrations below the lower explosive concentration limit.

Eye/face protection:	No need.
Respiratory protection:	During heating: Use positive pressure self-contained breathing apparatus if there is a possibility of exposure to uncontrollable emissions, or if the level of exposure is unknown, and in any potentially hazardous situation where air filtered respirators no longer provide adequate respiratory protection.
Hand and skin protection:	Based on the results of the exposure assessment, select and use gloves and/or protective clothing that are approved by the relevant local standards to prevent skin contact. Selection should be based on use factors such as exposure level, concentration of the substance or mixture, frequency and duration, physical challenges such as extreme temperatures, and other conditions of use. Consult the glove and/or protective clothing manufacturer to select the appropriate match. The following materials are recommended for use with gloves: Neoprene
Body protection:	If the product is to be used in a high exposure manner (e.g., spraying, potentially high splash), wear full body protection. Select and use body protection to prevent exposure based on the results of the exposure assessment. The following protective clothing is recommended: Apron - Neoprene. Wear protective work clothes. Wear protective boots if necessary
Thermal hazards:	Wear insulated gloves when handling hot materials to avoid thermal burns.

9. PHYSICAL AND CHEMICAL PROPERTIES (NOT A SPECIFICATION)

Physical state	Liquid
Appearance/odor	Transparent colorless liquid with faint odor
PH value	Not applicable
Pour point (°C)	-150°C
Boiling point (°C)	75°C
Relative vapor density (kg/m ³)	9.1 [Reference standard: air = 1]
Relative density (g/ml)	1.43g/ml [Reference standard: water = 1]
Vapor pressure (kPa, 25°C)	18.4
Critical pressure (MPa)	No information available
Evaporation rate	33 [Reference standard: Butyl acetate = 1]
Flash point (°C)	No flash point
n- octanol / water partitioncoefficient	4.2 [Details: @30 °C].
Surface tension dyn/cm	13.6
Heat of vaporation (kJ/kg)	119
Kinematic viscosity (cSt)	0.46
Solubility of fluid in water (ppm)	<5
Combustion limit range (lowerlimit)	210 g/m ³ (test method: ASTM E681-94)
Combustion limit range (upper limit)	1070 g/m ³ (test method: ASTM E681-94)
Self-ignition temperature	375 (test method: ASTM E659-78)
KB value (kb)	10
GWP(year ITH)	48

10. STABILITY AND REACTIVITY

Reactivity:	Under normal conditions of use, the substance is not reactive.
Stability:	Stable.
Hazardous reaction risk:	No hazardous polymerization.
Conditions to be avoided:	Sparks or flames.
Incompatible substances:	Strong acid, strong base, and strong oxidizer.

Hazardous decomposition products

Substance

CO
 CO₂
 HF
 Perfluoroisobutene (PFIB)
 Toxic vapor, gas, dust

Occurring Conditions

When temperature reaches an extremely high level
 When temperature reaches an extremely high level
 When temperature reaches an extremely high level
 When temperature reaches an extremely high level
 When temperature reaches an extremely high level

Toxic decomposition products, including hydrogen fluoride and perfluorinated isobutene, can be generated when products are exposed to intense heat due to misuse or equipment failure.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Name	Route	Species	Value
Ethyl nona-fluoroisobutyl ether	Dermal		LD50 estimated at > 2,000-5,000 mg/kg
Ethyl nona-fluoroisobutyl ether	Inhalation -vapor (4hr)	Rats	LC50 > 989 mg/l
Ethyl nona-fluoroisobutyl ether	Ingestion	Rats	LD50 estimated at > 2,000 mg/kg

Skin and Eye corrosion/irritation

Name	Species	Value
Ethyl nona-fluoroisobutyl ether	Rabbits	No significant irritation

Skin Sensitization

Name	Species	Value
Ethyl nona-fluoroisobutyl ether	Guinea pigs	No Classification

Respiratory sensitization

For this product component, there are no known reference data or the current data is insufficient for classification.

Germ cell mutagenicity

Name	Route	Value
Ethyl nona-fluoroisobutyl ether	In vitro	No mutagenicity

Carcinogenicity

For this product component, there are no known reference data or the current data is insufficient for classification.

Reproductive toxicity

Name	Route	Value	Species	Test results	Exposure time
Ethyl nona-fluoroisobutyl ether	Inhalation	No developmental effect classification	Rats	No side effect dose level (NOAEL) 260 mg/l	During Pregnancy

Specific target organ toxicity (single exposure)

Name	Route	Target Organs	Value	Species	Test Results	Exposure time
Ethyl nona-fluoroisobutyl ether	Inhalation	Cardiac sensitivity	Data is not sufficient for classification.	Dogs	Dose level without side effects (NOAEL) 204mg/l	17 minutes
Ethyl nona-fluoroisobutyl ether	Inhalation	Neurological System	No classification	Rats	No side effect dose level (NOAEL) 989 mg/l	4hr

Specific target organ toxicity (repeated exposure)

Name	Route	Target organs	Value	Species	Test Results	Exposure time
Ethyl nona-fluoroisobutyl ether	Inhalation	Liver, kidney and/or bladder, respiratory system, heart, endocrine system, gastrointestinal tract, bone marrow, hematopoietic system, immune system, nervous system	No classification	Rats	(NOAEL) 263.4 mg/l	4 weeks
Ethyl nona-fluoroisobutyl ether	Ingestion	Blood, liver, kidney and/or bladder, heart, endocrine system, bonemarrow, hematopoietic system, immune system, nervous system, respiratory system	No classification	Rats	(NOAEL) 1000mg/kg /day	28 days

12. ECOLOGICAL INFORMATION

Acute aquatic hazard: No acute toxicity to aquatic organisms according to GHS classification.

Chronic aquatic hazard: No chronic toxicity to aquatic organisms according to GHS classification.

Material	CAS No.	Organism	Type	Exposure	Test focus	Test
Ethyl nona-fluoroisobutyl ether	163702-06-5	Green algae	Estimated value	72hr	No toxicity observed in aqueous solution	>100mg/l
Ethyl nona-fluoroisobutyl ether	163702-06-5	Water algae	Estimated value	48hr	No toxicity observed in aqueous solution	>100mg/l
Ethyl nona-fluoroisobutyl ether	163702-06-5	Blackhead Dull Fish	Estimated value	96hr	No toxicity observed in aqueous solution	>100mg/l
Ethyl nona-fluoroisobutyl ether	163702-06-5	Green algae	Estimated value	72hr	Impact concentration of 10%	2.37mg/l

Persistence and degradability

No information available.

Mobility in soil

No information available.

Potential bioaccumulation

Name	CAS No.	Test type	Duration	Research type	Test result	Draft treaty
Ethyl nona-fluoroisobutyl ether	163702-06-5	No data or not enough data to classify	N/A	N/A	N/A	N/A

13. DISPOSAL CONSIDERATIONS

Dispose of waste in a licensed industrial waste disposal facility. Incineration in a licensed waste incineration facility as one of the disposal methods of choice. Proper destruction may use additional fuel in the incineration process. Combustion products include hydrohalic acids (HCl/HF/HBr). Equipment must be able to handle halogenated materials. Empty drums/drum/containers used for the transport and handling of hazardous chemicals (chemical substances/mixtures/preparations classified as hazardous under applicable regulations) should be stored, handled and disposed of as hazardous waste unless otherwise defined by the relevant regulations applicable to the waste. Consult each competent authority to determine available treatment and disposal facilities.

14. TRANSPORT INFORMATION

Local regulation:

Transport Hazard Class: Non-restricted goods UN regulation:

UN number : Non-restricted goods

UN shipping name: Not applicable

IMO: Not applicable

IATA: Not applicable

Packing group: Not applicable

Environmental hazards:

Marine pollutants (yes / no): No Special Notes for Users: Not applicable

15. REGULATORY INFORMATION

EPCRA 311/312 Hazard Classifications:

Physical Hazards : Not applicable.

Health Hazards: Not applicable

Chemical Inventories

The components of this material are 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.

The components of this product are in compliance with the new substance notification requirements of CEPA.

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

The components of this material are in compliance with the provisions of the Korean Toxic Chemical Control Law. Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of Japan Chemical Substance Control Law. Certain restrictions may apply. Contact the selling division for additional information.

The components of this material are in compliance with the provisions of Philippines RA 6969 requirements. Certain restrictions may apply. Contact the selling division for additional information.

The components of this product are 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.

16. OTHER INFORMATION

Each user of this product should study this SDS carefully and consult appropriate expertise as necessary to become aware of and understand the data contained in this SDS and any hazards that may be associated with this product. The information provided in this Safety Data Sheet relates only to the specific material designated herein. The user is responsible for determining the conditions of safe use of this product and for complying with all Federal, State and Local governmental laws and regulations concerning its use. The information contained herein is accurate to the best of our knowledge. Unistar Chemical, Inc. makes no warranty, express or implied, including the warranty of merchantability and fitness for a particular purpose, and assumes no liability or responsibility for the accuracy, completeness, timeliness or usefulness of this information. Unistar Chemical, Inc. assumes no liability for any damages incurred, whether directly or indirectly, as a result of any errors, omissions or discrepancies in this information. Unistar Chemical, Inc. assumes no liability for reliance on this data and assumes no liability for damages related to the use or misuse of this product in your process or in combination with other substances.

Any technique problem about the SDS, Enquire the Quality Department

This SDS contents are based on the collected materials and information at the present.

Any technique problem about the MSDS, Enquire the Quality Department.

This SDS contents are based on the collected materials and information at the present.

Initial preparation date: 2018.01.15