



Material Safety Data Sheet

FC12-E4 *n*-Perfluorobutyl Ethane

Revised 15-September-2011

1. PRODUCT AND COMPANY IDENTIFICATION

Material Identification:

Product name: FC12-E4
Chemical names: *n*-Perfluorobutyl ethane;
1H,1H,1H,1H,2H,2H-Nonafluorohexane;
R 569;
AC 4000
Chemical formula: CH₃CH₂CF₂CF₂CF₂CF₃
C₆ H₅F₉

Company Identification:

Distributor: **Fluoryx, Inc.**
1933 Davis St., Suite 293
San Leandro, CA 94577
USA
Emergency call: +86-1346-4812437
+1-510-329-2811

2. COMPOSITION AND INFORMATION ON COMPONENTS

Material	Molecular Weight	TSCA Listed	EINECS #	CAS #
<i>n</i> -Perfluorobutyl ethane	248.09	No	Not available	38436-17-8

3. HAZARDS IDENTIFICATION

Emergency Overview:

Potential Effects of Exposure:

General: Irritant. Irritating to eyes, respiratory system and skin.
HIMIS rating Health: 0
Flammability: 0
Reactivity: 0
NFPA rating Health: 0
Flammability: 0
Reactivity: 0

For additional information on toxicity, please refer to Section 11.

4. FIRST AID MEASURES

Potential Effects Of Exposure:

Inhalation:	If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a physician.
Skin contact:	Flush skin with soap and water after contact. Wash contaminated clothing before reuse.
Eye contact:	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.
Ingestion:	If swallowed, wash out mouth with water provided person is conscious. Call a physician.

5. FIRE FIGHTING MEASURES

Flammable Properties

Flash point:	None below the boil
Method:	PMCC
Autoignition temperature:	N/A
Flammability:	N/A

Extinguishing Media: Use fire-fighting measures which suit the environment and take into account other materials which may be involved. Use water spray, carbon dioxide, dry powder, or appropriate foam.

Protective Equipment: Wear self-contained breathing apparatus and protective clothing.

Hazardous Products of Combustion May Include: Carbon dioxide, carbon monoxide, 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.

6. ACCIDENTAL RELEASE MEASURES

Personal Protection: Wear protective equipment including respirator, rubber gloves, and eye protection. Evacuate personnel to safe areas.

Environmental Protection: Take precautions to ensure product does not contaminate the ground or enter the drainage system.

Spill Clean-Up: Mix with dry lime or soda ash and transfer to sealed containers for disposal. Ventilate area and flush spill area with water.

7. HANDLING AND STORAGE

Safe Handling: Avoid contact with eyes and skin. Avoid contact

with clothing. Avoid formation of respirable particles. Do not breathe vapors or spray mist. Wash hands immediately after handling the product.

Storage: Store in a cool place. Keep container tightly closed.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls: Safety shower and eye bath. Keep container tightly closed. Mechanical ventilation required. Vent heated extruder or dryer fumes outside work area. Do not aerosolize. In spray applications, use airless type pressure spray equipment at less than 60 psi, and exhaust ducts, drip pans, or other design features to minimize worker exposure to mists and overspray. Keep away from open flames and heated surfaces above 200 °C.

Personal Protective Equipment:

Eye/face protection: Wear safety glasses or coverall chemical splash goggles.

Respirators: Where there is potential for airborne exposures wear NIOSH (US) or CEN (EU) approved respiratory protection.

Protective clothing: Where there is potential for skin contact have available and wear as appropriate impervious gloves, apron, pants, and jacket.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point	63 °C @ 760 mm Hg
Formula Weight	248.09 g/mole
Density	1.428 g/mL @ 25 °C
Solubility in Water	Low
Volatiles	< 1 weight %
Flash Point	None (closed cup)
Melting Point	Not available
Form	Liquid
Color	Clear
Odor	None
Refractive Index	Not available

10. STABILITY AND REACTIVITY

Chemical Stability: Stable at normal temperatures and storage conditions.

Incompatibility with Other Materials: Incompatible with strong oxidizing agents.

Decomposition: Decomposes with heat. Hazardous decomposition products including carbon dioxide, carbon monoxide, 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.

Polymerization: Polymerization cannot occur.

11. TOXICOLOGICAL INFORMATION

Route Of Exposure:

Skin Contact: May cause skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: May cause eye irritation.

Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.

Ingestion: May be harmful if swallowed.

Signs And Symptoms Of Exposure:

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Toxicity Data:

No data available.

12. DISPOSAL CONSIDERATIONS

Waste Disposal:

Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state/provincial, and local regulations.

13. TRANSPORTATION INFORMATION

Shipping Information:

Not regulated as a hazardous material by DOT, IMO, or IATA.

DOT Proper Shipping Name:

None. Non-hazardous for transport.

IATA:

Non-hazardous for air transport.

14. REGULATORY INFORMATION

EU Additional Classification

Symbol of Danger: Xi



Indication of Danger: Irritant.

R: 36/37/38

Risk Statements: Irritating to eyes, respiratory system and skin.

S: 26-36

Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.

US Classification And Label Text

Indication of Danger: Irritant.

Risk Statements: Irritating to eyes, respiratory system and skin.

Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable gloves and eye/face protection.

United States Regulatory Information

SARA Listed: No

TSCA Inventory Item: No

Canada Regulatory Information

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: No

NDSL: No

15. OTHER INFORMATION

Legal Disclaimer:

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 MSDS