



Material Safety Data Sheet

TI-4 Perfluorobutyl Iodide

Revised 03- November-2009

1. PRODUCT AND COMPANY IDENTIFICATION

Material Identification:

Product name: TI-4
Chemical name: Perfluorobutyl iodide
1-Iodononafluorobutane
Chemical formula: $CF_3CF_2CF_2CF_2I$
 C_4F_9I

Company Identification:

Distributor

Top Fluorochem Co., Ltd.
Building C2, 3rd Floor
479 Chun Dong Road
XinZhuang Industrial Park
Minhang District
Shanghai, P. R. China 201108

Manufacturer

Fuxin Hengtong Fluorine Chemicals Co., Ltd.
Fuxin Chemicals Community
West Pingan St.
Haizhou District
Fuxin City, Liaoning Province, P. R. China

Emergency Call

+86-21-54833399

2. COMPOSITION AND INFORMATION ON COMPONENTS

Material	Molecular Weight	EINECS #	CAS #
Perfluorobutyl iodide	345.93	207-025-8	423-39-2

3. HAZARDS IDENTIFICATION

Emergency Overview:

Remove victim from exposure and lie down. Never give anything by mouth to an unconscious person. If a person vomits when lying on his back, place him in the side recovery position. When symptoms persist, or in all cases of doubt, seek medical advice.

Potential Effects of Exposure:

Dermal contact:

Skin contact may cause skin irritation with discomfort or rash.

Inhalation:

Inhalation may cause irritation of the nose and throat with sneezing, sore throat, or runny nose.

Inhalation of large amounts of aerosolized respirable particles may cause pulmonary edema (body fluid in the lungs). Symptoms may be

modest initially, followed in hours by severe shortness of breath requiring prompt medical attention.

Eye contact:

May cause eye irritation with discomfort, tearing or blurring of vision.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

4. FIRST AID MEASURES

Potential Exposure:

Inhalation:

Remove to fresh air. If breathing is difficult, give oxygen and seek medical attention.

Eye contact:

Flush with copious amounts of water for at least 15 minutes. If irritation persists, seek medical attention.

Skin contact:

Remove contaminated clothing. Wash affected area with soap and water. Rinse thoroughly. If irritation persists or other symptoms are observed, seek medical advice.

Ingestion:

Rinse out mouth and drink lots of water. Seek medical attention.

Notes to Physicians

Activated charcoal mixture may be beneficial. Suspend 50 g activated charcoal in 400 mL water and mix well. Administer 5 mL/kg, or 350 mL for an average adult. Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should only be used with special caution in situations of emergency life support.

5. FIRE FIGHTING MEASURES

Flash Point:

None

Extinguishing Media:

Use fire-fighting measures that suit the environment and take account of other materials that may be involved. In general, water-based extinguishers should not be used for fires involving organic materials. Use carbon dioxide or dry powder.

Protective Equipment:

Wear self-contained breathing apparatus and protective clothing.

Hazardous Products of Combustion May Include:

Carbon monoxide, carbon dioxide, hydrogen fluoride (hydrofluoric acid), hydrogen iodide (hydroiodic acid). These products may cause severe eye, nose, and throat irritation or toxic effects.

6. ACCIDENTAL RELEASE MEASURES

Personal Protection:

Wear protective equipment including 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 vermiculite or proprietary absorbent material and transfer to sealed containers for disposal.

7. HANDLING AND STORAGE

Safe Handling:	Avoid formation of respirable particles. Do not breathe vapors or spray mist. Wash hands immediately after handling the product. Keep away from heat, sparks, and flames.
Storage:	Store in tightly sealed containers in a cool place. Protect from moisture, light, and oxygen.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls	<p>Keep container tightly closed. Use only with adequate ventilation.</p> <p>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.</p>
Personal Protective Equipment	
Eye/face protection:	Wear coverall chemical splash goggles. Additionally, wear a face shield where the possibility exists for face contact due to splashing or spraying of material.
Respirators:	Where there is potential for airborne exposures, wear NIOSH approved air supplied respiratory protection.
Protective clothing:	Where there is potential for skin contact have available and wear as appropriate impervious gloves, apron, pants, jacket, hood and boots.
Exposure Guidelines	
Exposure limits:	<p>Perfluorobutyl iodide PEL (OSHA): None established TLV (ACGIH): None established AEL* (DuPont): 50 ppm, 8 Hr. TWA 25 ppm, 12 Hr. TWA</p>
Other applicable exposure limits:	<p>Iodine PEL (OSHA): 0.1 ppm, 1 mg/m³, Ceiling TLV (ACGIH): Ceiling 0.1 ppm, 1.0 mg/m³ 0.01 ppm, A4, 8 Hr. TWA STEL 0.1 A4</p> <p>Iodides 0.1 mg/m³, 8 Hr. TWA, A4 AEL* (DuPont): None established</p>

*AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point	64-66 °C @ 760 mm Hg
Molecular Weight	345.93 g/mol
Vapor Pressure	114.3 mm Hg @ 37.8 °C
pH	Acidic @ 20 °C
Odor	Iodine (impurity)
Form	Liquid
Color	Colorless, turns pink on exposure to light
Flash Point	Does not ignite
Melting Point	-88 °C
Density	2.01 @ 25 °C
Solubility in Water	0 Weight percent
Refractive Index	1.3285 @ 20 °C

10. STABILITY AND REACTIVITY

Chemical Stability	Stable at normal temperatures and storage conditions.
Incompatibility with Other Materials	None reasonably foreseeable.
Decomposition	Decomposes with heat. Decomposition temperature: > 250 °C (> 482 °F) 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. Decomposes when exposed to UV light.
Polymerization	Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Animal Data	Inhalation 4 hr. ALC: 160 mg/L Perfluorobutyl iodide is untested for skin or eye irritancy, and is untested for animal sensitization. The effects in animals from a single exposure by inhalation include labored breathing, staggering and other nonspecific effects. Repeated exposures produced nasal irritation with squamous metaplasia of the turbinates. Perfluorobutyl iodide was not mutagenic nor clastogenic in vitro. The thyroid is the target organ for repeated inhalation exposures in rats. Perfluoroethyl iodide is untested for skin irritancy, is untested for eye irritancy, and is untested for animal sensitization. Toxic effects described in animals from short exposures by inhalation include central nervous system effects and cardiac sensitization.
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12. ECOLOGICAL EFFECT

General: Prevent chemicals from entering the ground, water courses, or drainage system.

13. DISPOSAL CONSIDERATIONS

Disposal: Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

14. TRANSPORTATION INFORMATION

Mode	DOT/IMDG/IATA
UN Number	None. Non-hazardous for transport.
Class (Subsidiary)	None. Non-hazardous for transport.
Proper Shipping Name	None. Non-hazardous for transport.
Hazard Label (Subsidiary)	None. Non-hazardous for transport.
Packing Group	None. Non-hazardous for transport.
Shipping Hazard Label	None. Non-hazardous for transport.

15. REGULATORY INFORMATION

U.S. Federal Regulations:

TSCA Inventory Status: Reported/Included.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes
 Chronic : No
 Fire : No
 Reactivity : No
 Pressure : No

16. OTHER INFORMATION

NPCA-HMIS Rating

Health : 2
 Flammability : 0
 Reactivity : 0

Personal protection rating to be supplied by user depending on use conditions.

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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