



# Material Safety Data Sheet

## TI-R

Perfluoroalkyl Iodides, Mixture

Revised 03- November-2009

### 1. PRODUCT AND COMPANY IDENTIFICATION

#### Material Identification:

**Product name:** TI-R  
**Chemical name:** Perfluoroalkyl iodides, mixture  
1-Iodoperfluoroalkanes  
**Chemical formula:**  $F(CF_2CF_2)_nI$ , n = 5, 6, 7, 8, mostly n = 5  
 $C_nF_mI$ ; n = 10,12,14,16...; m = 2n+1

#### Company Identification:

##### Distributor

Top Fluorochem Co., Ltd.  
Building C2, 3<sup>rd</sup> 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 #
Perfluorodecyl iodide	645.98	207-030-5	423-62-1
Perfluorododecyl iodide	745.99	206-205-3	307-60-8
Perfluorotetradecyl iodide	845.99	206-207-4	307-63-1
Perfluorohexadecyl iodide	945.99	206-589-2	355-50-0

### 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**

**Flammable Properties**

**Flash point:** > 90 °C (closed cup)

**Autoignition temp:** Not available

**Flammability:** Not available

**Extinguishing Medium:**

Use fire-fighting measures which suit the environment and take into account other materials which 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. Advice on protection against fire and explosion: do not spray on a naked flame or any other incandescent material.

**Storage:**

Store in tightly sealed containers in a cool, well-ventilated place. Protect from moisture, light, and oxygen.

**8. EXPOSURE CONTROLS AND PERSONAL PROTECTION**

**Engineering Controls**

Keep container tightly closed. Use only with adequate ventilation.

Do not aerosolize or spray. Prevent leaks in high-pressure systems that could create fine mists.

**Personal Protective Equipment**

**Eye/face protection:**

Wear overall 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:**

**Perfluoroalkyl iodides**

PEL (OSHA): None Established

TLV (ACGIH): None Established

AEL\* (DuPont): 10 mg/m<sup>3</sup>, 8 hour TWA

**Other applicable exposure limits:**

**Iodine**

PEL (OSHA): 0.1 ppm, 1 mg/m<sup>3</sup>, Ceiling  
 TLV (ACGIH): Ceiling 0.1 ppm, 1.0 mg/m<sup>3</sup>  
 545.96 ppm, A4, 8 Hr. TWA  
 STEL 0.1 A4

**Iodides**

0.1 mg/m<sup>3</sup>, 8 Hr. TWA, A4  
 AEL\* (DuPont): None established

\*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.

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

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<b>pH</b>	Not available
<b>Molecular Weight</b>	~700 g/mol (average)
<b>Boiling Point</b>	195 - 243 °C @ 760 mm Hg (approximate)
<b>Melting Point</b>	60.23 – 66.69 °C
<b>Vapor Pressure</b>	Not available
<b>Vapor Density</b>	> 1 (air = 1)
<b>Saturated Vapor Conc.</b>	Not available
<b>Density</b>	1.9 g/mL
<b>Flash Point</b>	>90 °C (closed cup)
<b>Explosion Limits</b>	Not available
<b>Flammability</b>	Not available
<b>Refractive Index</b>	1.3
<b>Solubility in Water</b>	Negligible

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**10. STABILITY AND REACTIVITY**

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<b>Chemical Stability</b>	Stable at normal temperatures and storage conditions.
<b>Incompatibility with Other Materials</b>	None reasonably foreseeable.
<b>Decomposition</b>	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.
<b>Polymerization</b>	Decomposes when exposed to UV light. Polymerization will not occur.

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**11. TOXICOLOGICAL INFORMATION**

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<b>RTECS Number:</b>	Not listed
<b>Acute Toxicity</b>	
<b>LD50:</b>	No data available

<b>Skin irritation:</b>	No data available
<b>Eye irritation:</b>	No data available
<b>Human Experience:</b>	Excessive exposures may affect human health as follows:
<b>Inhalation:</b>	Lungs: cough, shortness of breath. Symptoms may be delayed.
<b>Skin contact:</b>	Irritation, discomfort, rash.
<b>Eye contact:</b>	Excessive lachrymation, blurred vision, discomfort, irritation.
<b>Ingestion:</b>	Nausea, weakness, and disturbance.

## 12. ECOLOGICAL INFORMATION

No data available.

<b>General:</b>	Prevent chemicals from entering the ground, water courses, or drainage system.
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## 13. DISPOSAL CONSIDERATIONS


<b>Disposal Operations:</b>	Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.
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## 14. TRANSPORTATION INFORMATION

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

## 15. REGULATORY INFORMATION

### EU Additional Classification

<b>Symbol of danger:</b>	
<b>Indication of danger:</b>	Irritant (Xi)
<b>R:</b>	36/37/38
<b>Risk statements:</b>	Irritating to eyes, respiratory system and skin.
<b>S:</b>	26-36
<b>Safety statements:</b>	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

**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:** Yes

**NDSL:** No

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**16. OTHER INFORMATION**

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**HMIS (Hazardous Materials Identification System) Ratings**

**(scale 0-4)**

Health (acute effects) = 1  
Flammability = 1  
Reactivity = 1

**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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TI-R MSDS

End of MSDS