

## Safety Data Sheet

# Thorium Fluoride

### 1. Identification

Product identifier	Thorium Fluoride
Synonyms	Thorium tetrafluoride
Manufacturer	
Company name	International Bio-Analytical Industries, Inc.
Address	3495 N. Dixie Hwy. Unit 8 Boca Raton, Florida 33487 United States
Telephone	561-826-0061
E-mail	contact@ibilabs.com

### 2. Hazard(s) identification

Physical hazards	Not classified.
Health hazards	Not classified.
Environmental hazards	Not classified.
OSHA defined hazards	Not classified.
Label elements	



**Signal word**

Warning

**Hazard statement**

Causes serious eye irritation. Causes skin irritation. May cause respiratory irritation. May cause harm to breast-fed children. May cause damage to organs through prolonged or repeated exposure.

Suspected of damaging fertility or the unborn child.

Precautionary statement

**Prevention**

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

dust/fume/gas/mist/vapors/spray. Avoid contact during pregnancy/while nursing. Wash thoroughly

after handling. Do not eat, drink or smoke when using this product. Wear eye protection/face

protection. Wear protective gloves. Use personal protective equipment as required. Observe good

industrial hygiene practices.

**Response**

If on skin: Wash with plenty of water. If inhaled: Remove person to fresh air and keep comfortable

for breathing. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get

medical assistance if you feel unwell. If in eyes: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing. If exposed or concerned: Get

medical advice/attention. Call a poison center/doctor if you feel unwell. If skin irritation occurs:  
Get

medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off  
contaminated clothing and wash before reuse. Wash hands after handling.

### **Storage**

Store in a well-ventilated place. Keep container tightly closed. Store away from  
incompatible materials.

### **Disposal**

Dispose of waste and residues in accordance with local authority requirements. Dispose of  
contents/container (in accordance with related regulations).

### **Hazard(s) not otherwise classified (HNOC)**

Radioactive.

Radioactive material must be handled by qualified personnel in conformity with  
regulations appropriate to the government agency authorized to license the use of this  
radionuclide.

## **3. Composition/information on ingredients**

Substances

Chemical name synonyms	Common name and CAS number	%
Thorium Fluoride tetrafluoride 6100	Thorium 13709-59- 100	

## **4. First-aid measures**

### **Inhalation**

Move to fresh air. Notify radiation safety personnel immediately. Call a physician if symptoms

develop or persist. The amount of material inhaled should be assessed and documented.

### **Skin contact**

Remove contaminated clothing immediately and wash skin with soap and water. Do not abrade skin. Always blot dry. Notify radiation safety personnel. Get medical attention if irritation develops and persists.

### **Eye contact**

Rinse with water. Remove contact lenses, if present and easy to do. Notify radiation safety personnel. Get medical attention if irritation develops and persists.

### **Ingestion**

Notify radiation safety personnel immediately. Rinse mouth. Get medical attention if symptoms occur.

### **Most important symptoms/effects, acute and delayed**

Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation.

### **Indication of immediate medical attention and special treatment needed**

Treat symptomatically.

### **General information**

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

## **5. Fire-fighting measures**

### **Suitable extinguishing media**

Water fog. Foam. Dry chemical powder. Carbon dioxide (CO<sub>2</sub>). Use fire-extinguishing media appropriate for surrounding materials.

### **Unsuitable extinguishing media**

Do not use water jet as an extinguisher, as this will spread the fire. Use fire-extinguishing media appropriate for surrounding materials.

### **Specific hazards arising from the chemical**

During fire, gases hazardous to health may be formed.

### **Special protective equipment and precautions for firefighters**

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

### **Fire fighting equipment/instructions**

Move containers from fire area if you can do so without risk.

### **Specific methods**

Use standard firefighting procedures and consider the hazards of other involved materials.

### **General fire hazards**

No unusual fire or explosion hazards noted.

## **6. Accidental release measures**

### **Personal precautions, protective equipment and emergency procedures**

Keep unnecessary personnel away. Avoid contact with spilled material. For personal protection, see section 8 of the SDS.

### **Methods and materials for containment and cleaning**

Collect and dispose of spillage as indicated in section 13 of the SDS. In the event of a spill or upaccidental release, notify relevant authorities in accordance with all applicable regulations.  
Clean

up in accordance with all applicable regulations. Stop the flow of material, if this is without risk.

Following product recovery, flush area with water.

## Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

### 7. Handling and storage

#### Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read

and understood. Avoid all personal contact. Avoid contact with skin. Avoid contact with eyes.

Avoid

contact during pregnancy/while nursing. Avoid prolonged exposure. When using, do not eat, drink

or smoke. Use personal protective equipment as required. Wash thoroughly after handling.

Avoid

release to the environment.

#### Conditions for safe storage, including any incompatibilities

Store locked up. Store in a place accessible by authorized persons only. Store in a cool, dry place

out of direct sunlight. Store in original tightly closed container. Keep container tightly closed.

Keep

out of the reach of children. Store away from incompatible materials (see Section 10 of the SDS).

Store in accordance with local/regional/national/international regulation.

### 8. Exposure controls/personal protection

#### Occupational exposure limits

US OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Material	Type
Value	
Thorium Fluoride (CAS 13709-59-6)	PEL
	2.5 mg/m <sup>3</sup>

US OSHA Table Z-2 (29 CFR 1910.1000)

Material	Value	Form	Type
Thorium Fluoride (CAS 13709-59-6)	TWA	Dust.	2.5

US ACGIH Threshold Limit Values

Material	Value	Type
Thorium Fluoride (CAS 13709-59-6)	TWA	2.5 mg/m3

US NIOSH: Pocket Guide to Chemical Hazards

Material	Value	Type
Thorium Fluoride (CAS 13709-59-6)	TWA	2.5 mg/m3

California Code of Regulations, Title 8, Section 5155. Airborne Contaminants

Material	Value	Type
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Thorium Fluoride (CAS 13709-59-6)  
PEL

2.5 mg/m3

Biological limit values

ACGIH Biological Exposure Indices

Material	Determinant	Value	Specimen	Sampling Time
Thorium Fluoride (CAS 13709-59-6)	mg/l	3	Fluoride	Urine
	*			
2	mg/		IFluoride	Urine
	*			

\* – For sampling details, please see the source document.

**Control parameters** Follow standard monitoring procedures. Individual protection measures, such as personal protective equipment

**Eye/face protection** Wear safety glasses with side shields (or goggles).

**Skin protection**

**Hand protection**

Wear appropriate chemical resistant gloves. Rubber gloves. Suitable gloves can be recommended by the glove supplier.

**Other**

Wear suitable protective clothing. Lab coat.

**Respiratory protection**

In case of insufficient ventilation, wear suitable respiratory equipment.

**Thermal hazards**

Wear appropriate thermal protective clothing, when necessary.



## General hygiene considerations

No smoking, eating or drinking should be allowed in any area where radioactive materials are handled or stored. When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

### 9. Physical and chemical properties

Appearance

Physical state

Solid.

Form

Solid.

Color

Not available.

Odor

Not applicable.

Odor threshold

Not available.

pH

Not available.

Melting point/freezing point

Not available.

Initial boiling point and boiling range

Not applicable.

Flash point

Not available.

Evaporation rate

Not available.

Flammability (solid, gas)

Not available.

Upper/lower flammability or explosive limits

Flammability limit – lower (%)

Not available.

Flammability limit – upper (%)

Not available.

Explosive limit – lower (%)

Not available.

Explosive limit – upper (%)

Not available.

Vapor pressure	< 0.0000001 kPa at 25 °C
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not applicable.
Decomposition temperature	Not available.
Viscosity	Not available.

**Other information**

Explosive properties	Not explosive.
Molecular formula	F4Th
Oxidizing properties	Not oxidizing.

**10. Stability and reactivity**

**Reactivity** The product is stable and non-reactive under normal conditions of use, storage and transport.

**Chemical stability** Stable; however, may decompose if heated.

**Possibility of hazardous reactions** No dangerous reaction known under conditions of normal use.

**Conditions to avoid** Contact with incompatible materials.

**Incompatible materials** Strong oxidizing agents.

**Hazardous decomposition products** No hazardous decomposition products are known.

**11. Toxicological information**

## Information on likely routes of exposure

**Inhalation** May cause irritation to the respiratory system. Prolonged inhalation may be harmful.

**Skin contact** Causes skin irritation.

**Eye contact** Causes serious eye irritation.

**Ingestion** Due to lack of data the classification is not possible.

**Symptoms related to the characteristics** **physical, chemical and toxicological**  
Irritant effects.

## Information on toxicological effects

**Acute toxicity** May cause respiratory irritation.

**Skin corrosion/irritation** Causes skin irritation.

**Serious eye damage/eye irritation** Causes serious eye irritation.

## Respiratory or skin sensitization

**Respiratory sensitization** Due to lack of data the classification is not possible.

**Skin sensitization** Due to lack of data the classification is not possible.

**Germ cell mutagenicity** Due to lack of data the classification is not possible.

**Carcinogenicity** This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

## IARC Monographs. Overall Evaluation of Carcinogenicity

Thorium Fluoride (CAS 13709-59-6) Not classifiable as to carcinogenicity to humans US OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

**Reproductive toxicity** May cause harm to breastfed babies.  
Suspected of damaging fertility or the unborn child.

**Specific target organ toxicity single exposure** Respiratory tract irritation.

**Specific target organ toxicity – repeated exposure** May cause damage to organs through prolonged or repeated exposure.

**Aspiration hazard** Due to lack of data the classification is not possible.

**Chronic effects** May cause damage to organs through prolonged or repeated exposure. Prolonged inhalation may be harmful.

**Further information** This product has no known adverse effect on human health.

## 12. Ecological information

**Ecotoxicity** Contains a substance which causes risk of hazardous effects to the environment.

**Persistence and degradability** No data is available on the degradability of this product.

**Bioaccumulative potential** No data available.

**Mobility in soil** No data available.

**Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation

potential, endocrine disruption, global warming potential) are expected from this component.

## 13. Disposal considerations

**Disposal instructions** Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Radioactive waste must be handled in accordance with procedures established by your Radiation Safety Officer, NRC and other applicable regulations.

**Local disposal regulations** Dispose in accordance with all applicable regulations.

**Hazardous waste code** The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

**Waste from residues / unused products** Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). Dispose of in accordance with local regulations.

**Contaminated packaging** Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

#### 14. Transport information

DOT

UN number	UN2912
UN proper shipping name fissile-excepted	Radioactive material, low specific activity (LSA-I) non fissile or
Transport hazard class(es)	
Class	7
Subsidiary risk	–
Label(s)	7
Packing group	Not applicable.
Special precautions for user handling.	Read safety instructions, SDS and emergency procedures before
Special provisions	A56, T5, TP4, W7
Packaging exceptions	421, 422, 428
Packaging non bulk	427
Packaging bulk	427

IATA

UN number	UN2912
UN proper shipping name fissile excepted	Radioactive material, low specific activity (LSA-I) non-fissile or
Transport hazard class(es)	
Class	7
Subsidiary risk	–

Packing group	Not applicable.
Environmental hazards	No.
ERG Code	7L
Special precautions for user handling.	Read safety instructions, SDS and emergency procedures before handling.

**Other information**

Passenger and cargo aircraft	Allowed.
Cargo aircraft only	Allowed.
IMDG	
UN number	UN2912
UN proper shipping name (LSA-I) non fissile or fissile – excepted	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY
Transport hazard class(es)	
Class	7
Subsidiary risk	–
Packing group	Not applicable.
Environmental hazards	
Marine pollutant	No.
EmS	F-I, S-S
Special precautions for user before handling.	Read safety instructions, SDS and emergency procedures

DOT; IATA; IMDG



### 15. Regulatory information

US federal regulations applicable.

CERCLA/SARA Hazardous Substances – Not

All components are on the U.S. EPA TSCA Inventory List.

This product is a “Hazardous Chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed

US OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard – No

Delayed Hazard – No

Fire Hazard – No

Pressure Hazard – No

Reactivity Hazard – No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous Yes

chemical

SARA 313 (TRI reporting)

Not regulated.

### **Other federal regulations**

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act 4.0 mg/l

(SDWA) 4.0 mg/l

US state regulations California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US – New Jersey RTK – Substances: Listed substance

Thorium Fluoride (CAS 13709-59-6)

1. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

1. Massachusetts RTK – Substance List

Not regulated.

1. New Jersey Worker and Community Right-to-Know Act

Not regulated.



1. Pennsylvania RTK – Hazardous Substances

Thorium Fluoride (CAS 13709-59-6)

1. Pennsylvania Worker and Community Right-to-Know Law

Thorium Fluoride (CAS 13709-59-6)

1. Rhode Island RTK

Not regulated.

1. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain

any chemicals currently listed as carcinogens or reproductive toxins.

16. Other information, including date of preparation or last revision

Revision date 02-01-2016

Version #1

Further information Emergency telephone numbers

Austria – VergiftungsInformationsZentrale, +431.406.43.43

Belgium – Centre Antipoisons – +070.245.245

Bulgaria – Телефон за спешни случаи / факс, +359.2.9154.409

Cyprus – +357.22405611

Czech Republic – Toxikologické informační středisko, +420.224.919.293

Denmark – Akuthjælp ved forgiftning, +82.12.12.12

Estonia – Mürgistusteabekeskuse, 16662

Finland – Myrkytystietokeskus, +(0)9.471.977

France – numéro ORFILA, +33.(0)1.45.42.59.59

Germany – GIZ-Nord Poisons Centre, +49.(0)551.383.1876

Greece – +30.210.64.79.286

Hungary – Az Egészségügyi Toxikológiai Tájékoztató Szolgálat, +36 1 476 6464

Iceland – +354.591.2000

Ireland – National Poisons Information Centre – +353.01.8092566

Italy – Istituto Superiore di Sanità, 064990.2423

Latvia – Valsts Toksikoloģijas centra Saindēšanās un zāļu informācijas centrs, +371.67042473

Liechtenstein – +423.236.61.95

Lithuania – Neatidėliotina informacija apsinuodijus, +370 5 236 20 52

Luxembourg – +352 42 59 91 600

Malta – 2545 0000

Netherlands – NVIC, 030-2748888

Norway – Giftinformasjon, 22.59.13.00

Poland – Biuro ds. Substancji Chemicznych, +48 42 2538 424

Portugal – 808.250.143

Romania – Biroul RSI si Informare Toxicologica, 021.318.36.06

Slovakia – NTIC, +421.2.5477.4166

Slovenia – Kemična urad Republike Slovenije + 386.14.00.60.51

Spain – Servicio de Información Toxicológica, + 34.91.562.04.20

Sweden – 112

ReferencesACGIH

EPA: AQUIRE database

NLM: Hazardous Substances Data Base

## 1. IARC Monographs on Occupational Exposures to Chemical Agents

Disclaimer Additional information is given in the Material Safety Data Sheet. IBI Labs cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for

loss, injury, damage or expense due to improper use.

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