



## 1 Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

**Trade name:** Thulium (III) fluoride ROTI®REMETIC 99,99%

**Article number:** 7223

**CAS Number:**

13760-79-7

**EC number:**

237-353-7

### Registration number

A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

No further relevant information available.

### Application of the substance / the mixture

Laboratory chemical

### 1.3 Details of the supplier of the safety data sheet

#### Manufacturer/Supplier:

Carl Roth GmbH + Co.KG

Schoemperlenstraße 3-5

76185 Karlsruhe

Germany

Telefon: +49/(0)721 5606-0

Telefax: +49/(0)721 5606-149

e-mail: [sicherheit@carlroth.de](mailto:sicherheit@carlroth.de)

**Further information obtainable from:** Department Health, Safety and Environment

### 1.4 Emergency telephone number:

Poison Centre Munich

Telefon +49/(0)89 19240

## 2 Hazards identification

### 2.1 Classification of the substance or mixture

#### Classification according to Regulation (EC) No 1272/2008

Acute Tox. 3 H301 Toxic if swallowed.

Acute Tox. 4 H312 Harmful in contact with skin.

Acute Tox. 4 H332 Harmful if inhaled.

---

#### Classification according to Directive 67/548/EEC or Directive 1999/45/EC

T; Toxic

R25: Toxic if swallowed.

Xn; Harmful

R20/21: Harmful by inhalation and in contact with skin.

R32: Contact with acids liberates very toxic gas.

---

### 2.2 Label elements

#### Labelling according to Regulation (EC) No 1272/2008

The substance is classified and labelled according to the CLP regulation.

(Contd. on page 2)

**Trade name: Thulium (III) fluoride ROTI®REMETIC 99,99%**

(Contd. of page 1)

**Hazard pictograms**

GHS06

**Signal word** Danger**Hazard statements**

H301 Toxic if swallowed.

H312+H332 Harmful in contact with skin or if inhaled.

**Precautionary statements**

P280 Wear protective gloves / eye protection.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P302+P352 IF ON SKIN: Wash with plenty of water.

P405 Store locked up.

**Additional information:**

EUH032 Contact with acids liberates very toxic gas.

**2.3 Other hazards**

All chemicals are potentially dangerous. They are therefore only be handled by specially trained personnel with the necessary care.

**Results of PBT and vPvB assessment**

PBT: Not applicable.

vPvB: Not applicable.

### 3 Composition/information on ingredients

**3.1 Chemical characterization: Substances****CAS No. Description**

13760-79-7 thulium trifluoride

**Identification number(s)**

EC number: 237-353-7

Formula: F<sub>3</sub> Tm

Molar mass [g/mol]: 225,93

### 4 First aid measures

**4.1 Description of first aid measures****General information:**

Immediately remove any clothing soiled by the product.

**After inhalation:**

Supply fresh air; if there is any trouble seek medical help.

(Contd. on page 3)

**Trade name: Thulium (III) fluoride ROTI®REMETIC 99,99%**

(Contd. of page 2)

**After skin contact:**

Immediately rinse with water.  
If skin irritation continues, consult a doctor.

**After eye contact:**

Rinse opened eye for 10 minutes under running water. Then consult a doctor.

**After swallowing:**

Rinse out mouth and drink a glass of water. Do not induce vomiting.  
Call for a doctor immediately.

**4.2 Most important symptoms and effects, both acute and delayed**

We have no description of any toxic symptoms.

**4.3 Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

**5 Firefighting measures****5.1 Extinguishing media****Suitable extinguishing agents:**

Use fire extinguishing methods suitable to surrounding conditions.  
CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

**For safety reasons unsuitable extinguishing agents:**

For this substance/mixture no limitations of extinguishing agents are given.

**5.2 Special hazards arising from the substance or mixture**

In the event of fire development of hazardous combustion gases or vapours possible.

In case of fire, the following can be released:

Hydrogen fluoride (HF)  
Carbon monoxide and carbon dioxide

**5.3 Advice for firefighters****Protective equipment:**

Mouth respiratory protective device.  
Wear self-contained respiratory protective device.  
Wear fully protective suit.

**6 Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Ensure adequate ventilation  
Avoid formation of dust.  
Wear protective equipment. Keep unprotected persons away.  
Evacuate the danger area, observe emergency procedures, consult an expert.

**6.2 Environmental precautions**

Do not allow to enter sewers/ground water or penetrate the soil.

**6.3 Methods and material for containment and cleaning up**

Pick up mechanically.  
Dispose of the material collected according to regulations.  
Dispose contaminated material as waste according to item 13.

**6.4 Reference to other sections**

See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.

(Contd. on page 4)



**Trade name: Thulium (III) fluoride ROTI®REMETIC 99,99%**

(Contd. of page 3)

See Section 13 for disposal information.

## 7 Handling and storage

### 7.1 Precautions for safe handling

Keep receptacles tightly sealed.  
Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of dust.  
Any unavoidable deposit of dust must be regularly removed.  
Handling corresponding to laboratory safety guidelines.

#### Information about fire - and explosion protection:

No special measures required.

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

#### Storage:

#### Requirements to be met by storerooms and receptacles:

Store only in the original receptacle.

#### Information about storage in one common storage facility:

Do not store together with acids.  
Store away from foodstuffs.

#### Further information about storage conditions:

Keep container tightly sealed.

**Recommended storage temperature:** 15 - 25 °C

### 7.3 Specific end use(s)

No further relevant information available.

## 8 Exposure controls/personal protection

#### Additional information about design of technical facilities:

No further data; see item 7.

### 8.1 Control parameters

#### Ingredients with limit values that require monitoring at the workplace:

##### 13760-79-7 thulium trifluoride

WEL (Great Britain)	Long-term value: 2.5 mg/m <sup>3</sup> as F
IOELV (EU)	Long-term value: 2.5 mg/m <sup>3</sup> as F

#### Additional information:

The lists valid during the making were used as basis.

### 8.2 Exposure controls

#### Personal protective equipment:

#### General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing.  
Wash hands before breaks and at the end of work.  
Avoid contact with the eyes and skin.

(Contd. on page 5)

**Trade name: Thulium (III) fluoride ROTI®REMATIC 99,99%**

(Contd. of page 4)

**Individual protection measures**

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

**Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

Filter P3 (colour code: white)

**Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

**Material of gloves**

Nitrile, thickness:  $\geq 0.11$  mm

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

**Penetration time of glove material**

Value for the permeation: Level  $\geq 6$

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

**As protection from splashes gloves made of the following materials are suitable:**

Nitrile rubber, thickness:  $\geq 0.11$  mm

Value for the permeation: Level  $\geq 6$

**Eye protection:**

Tightly sealed goggles

**Body protection:**

Protective work clothing

## 9 Physical and chemical properties

**9.1 Information on basic physical and chemical properties****General Information****Appearance:**

<b>Form:</b>	Solid
<b>Colour:</b>	White

(Contd. on page 6)

# Safety data sheet

according to Regulation (EC) No. 1907/2006



Printing date 05.02.2014

Version number 1

Revision: 05.02.2014

**Trade name: Thulium (III) fluoride ROTI®REMETIC 99,99%**

(Contd. of page 5)

<b>Odour:</b>	Odourless
<b>Odour threshold:</b>	No information available.
<b>pH-value:</b>	No information available.
<b>Change in condition</b>	
<b>Melting point/Melting range:</b>	1158 °C
<b>Boiling point/Boiling range:</b>	>2200 °C
<b>Flash point:</b>	Not applicable.
<b>Flammability (solid, gaseous):</b>	Product is not flammable.
<b>Ignition temperature:</b>	No information available
<b>Decomposition temperature:</b>	No information available
<b>Self-igniting:</b>	No information available
<b>Danger of explosion:</b>	Product does not present an explosion hazard.
<b>Explosion limits:</b>	
<b>Lower:</b>	No information available.
<b>Upper:</b>	No information available.
<b>Oxidizing properties:</b>	No information available.
<b>Vapour pressure:</b>	No information available
<b>Density at 20 °C:</b>	7.9 g/cm <sup>3</sup>
<b>Relative density</b>	No information available.
<b>Vapour density</b>	No information available
<b>Evaporation rate</b>	No information available
<b>Solubility in / Miscibility with water:</b>	Not miscible or difficult to mix.
<b>Partition coefficient (n-octanol/water):</b>	No information available
<b>Viscosity:</b>	
<b>Dynamic:</b>	No information available.
<b>Kinematic:</b>	No information available.
<b>9.2 Other information</b>	No further relevant information available.

## 10 Stability and reactivity

### 10.1 Reactivity

See section 10.3

### 10.2 Chemical stability

#### Thermal decomposition / conditions to be avoided:

No decomposition if used and stored according to specifications.

### 10.3 Possibility of hazardous reactions

Contact with acids liberates very toxic gas.

### 10.4 Conditions to avoid

No information available.

### 10.5 Incompatible materials:

No information available.

### 10.6 Hazardous decomposition products:

In case of fire: see item 5.

(Contd. on page 7)

**Trade name: Thulium (III) fluoride ROTI®REMETIC 99,99%**

(Contd. of page 6)

## 11 Toxicological information

### 11.1 Information on toxicological effects

**Acute toxicity:****LD/LC50 values relevant for classification:**

Quantitative data on the toxicity of this product are not available.

**Specific symptoms in biological assay:**

No information available.

**Primary irritant effect:****on the skin:**

No information available.

**on the eye:**

No information available.

**after inhalation:**

No information available.

**Sensitization:**

No sensitizing effects known.

**CMR effects:****Germ cell mutagenicity:**

No information available.

**Carcinogenicity:**

No information available.

**Reproductive toxicity:**

No information available.

**Aspiration hazard:**

No aspiration toxicity classification.

**Specific target organ toxicity - single exposure**

The substance or mixture is not classified as specific target organ toxicant, single exposure.

**Specific target organ toxicity - repeated exposure**

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

**Additional toxicological information:**

We have no description of any toxic symptoms.

**Further information:**

To the best of our knowledge, the toxicological properties have not been thoroughly investigated. Further hazardous properties cannot be excluded.

This substance should be handled with particular care.

## 12 Ecological information

### 12.1 Toxicity

**Aquatic toxicity:**

Quantitative data on the ecological effect of this product are not available.

### 12.2 Persistence and degradability

No further relevant information available.

### 12.3 Bioaccumulative potential

No further relevant information available.

(Contd. on page 8)

**Safety data sheet**  
according to Regulation (EC) No. 1907/2006



Printing date 05.02.2014

Version number 1

Revision: 05.02.2014

**Trade name: Thulium (III) fluoride ROTI®REMETIC 99,99%**

(Contd. of page 7)

**12.4 Mobility in soil**

No further relevant information available.

**Ecotoxicological effects:****Remark:**

Do not allow to enter waters, waste water, or soil!

**12.5 Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.**12.6 Other adverse effects**

No further relevant information available.

**13 Disposal considerations****Waste treatment methods****Recommendation**

This material and its container must be disposed of as hazardous waste.

The disposal is regionally differently regulated, therefore the kind of disposal is to be inquired at the responsible authorities.

**Uncleaned packaging:****Recommendation:**

Disposal according to official regulations.

**14 Transport information****14.1 UN-Number**

ADR, IMDG, IATA

UN3288

**14.2 UN proper shipping name**

ADR

3288 TOXIC SOLID, INORGANIC, N.O.S. (thulium trifluoride)

IMDG, IATA

TOXIC SOLID, INORGANIC, N.O.S. (thulium trifluoride)

**14.3 Transport hazard class(es)**

ADR, IMDG, IATA

**Class**

6.1 Toxic substances.

**Label**

6.1

**14.4 Packing group**

ADR, IMDG, IATA

III

**14.5 Environmental hazards:****Marine pollutant:**

No

(Contd. on page 9)



## Safety data sheet

according to Regulation (EC) No. 1907/2006

Printing date 05.02.2014

Version number 1

Revision: 05.02.2014

**Trade name: Thulium (III) fluoride ROTI®REMETIC 99,99%**

(Contd. of page 8)

<b>14.6 Special precautions for user</b>	Warning: Toxic substances.
<b>Danger code (Kemler):</b>	60
<b>EMS Number:</b>	F-A,S-A
<b>14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
<b>Transport/Additional information:</b>	
-----	
<b>ADR</b>	
<b>Limited quantities (LQ)</b>	5 kg
<b>Transport category</b>	2
<b>Tunnel restriction code</b>	E
<b>Remarks:</b>	Not subject to transport regulations.
<b>UN "Model Regulation":</b>	UN3288, TOXIC SOLID, INORGANIC, N.O.S. (thulium trifluoride), 6.1, III

### 15 Regulatory information

#### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

##### National regulations:

##### Information about limitation of use:

In dealing with chemicals the national laws must be observed.  
Employment restrictions concerning juveniles must be observed.

##### Breakdown regulations:

##### Waterhazard class:

Water hazard class 3 (Self-assessment): extremely hazardous for water.

#### 15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

**Department issuing MSDS:** Department: Health, Safety and Environment

**Contact:** Herr Dr. Hagel

##### Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

LD50\*: Lethal Dose, 50 percent (Not relevant for classification)

LD50\*: Lethal Concentration, 50 percent (Not relevant for classification)

Acute Tox. 3: Acute toxicity, Hazard Category 3

Acute Tox. 4: Acute toxicity, Hazard Category 4