SAFETY DATA SHEET

MATERION

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SECTION 1: Identification of the substance/mixture and of the company/undertaking

Registration number -
Synonyms Thorium tetrafluoride
Materion Code 2BG

1.1. Product identifier

Name of the substance Thorium Fluoride
Identification number 237-259-6 (EC number)

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

Identified uses Not available.
Uses advised against None known.

1.3. Details of the supplier of the safety data sheet

Supplier

Company name Materion Electronic Materials
Address 6070 Parkland Blvd
Mayfield Heights, OH 44124
United States
Division
Telephone 1.216.383.4019
e-mail Materion-PS@materion.com
Contact person Product Stewardship Director

1.4. Emergency telephone number

Document number 2BG

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The substance has been assessed and/or tested for its physical, health and environmental hazards and the following classificatior applies.

Classification according to Regulation (EC) No 1272/2008 as amended

This substance does not meet the criteria for classification according to Regulation (EC) 1272/2008 as amended.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: Thorium Fluoride

Hazard pictograms

Signal word Warning

Hazard statements

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H361	Suspected of damaging fertility or the unborn child.
H362	May cause harm to breast-fed children.
H373	May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention

	Observe good industrial hygiene practices.
P202	Do not handle until all safety precautions have been read and understood.

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P337 + P313	If eye irritation persists: Get medical advice/attention.

Storage

	Store away from incompatible materials.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.

Disposal

	Dispose of waste and residues in accordance with local authority requirements.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

Supplemental label information

100% of the substance consists of component(s) of unknown acute hazards to the aquatic environment. 100% of the substance consists of component(s) of unknown long-term hazards to the aquatic environment.
For further information, please contact the Product Stewardship Department at +1.800.862.4118.

2.3. Other hazards

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. This substance does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII. The substance is not included in the list established in accordance with REACH Article 59(1) for having endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

3.1. Substances

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Thorium Fluoride	100	13709-59-6 237-259-6	-	-	#
Classification:	Skin Irrit. 2;H315, Eye Irrit. 2;H319, Lact.;H362, Repr. 2;H361, STOT SE 3;H335, STOT RE 2;H373				

List of abbreviations and symbols that may be used above

DSD: Directive 67/548/EEC.
CLP: Regulation No. 1272/2008.
ATE: Acute toxicity estimate.
M: M-factor
vPvB: very persistent and very bioaccumulative substance.
PBT: persistent, bioaccumulative and toxic substance.
#: This substance has been assigned Union workplace exposure limit(s).
All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. *Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

SECTION 4: First aid measures

General information

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

4.1. Description of first aid measures

Inhalation

Move to fresh air. The amount of material inhaled should be assessed and documented. Notify radiation safety personnel immediately. Call a physician if symptoms develop or persist.

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.

4.2. Most important symptoms and effects, both acute and delayed Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation.

4.3. Indication of any immediate medical attention and special treatment needed Treat symptomatically.

SECTION 5: Firefighting measures

General fire hazards No unusual fire or explosion hazards noted.

5.1. Extinguishing media

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2). 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.

5.2. Special hazards arising from the substance or mixture During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

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

Special firefighting procedures 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.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Avoid contact with spilled material. Wear appropriate personal protective equipment.

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

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

6.3. Methods and material for containment and cleaning up Collect and dispose of spillage as indicated in section 13 of the SDS. In the event of a spill or accidental 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.

6.4. Reference to other sections For personal protection, see section 8 of the SDS. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. 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 eyes. Avoid contact with skin. 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.

7.2. Conditions for safe storage, including any incompatibilities Store locked up. Store in a place accessible by authorised persons only. Store in a cool, dry place out of direct sunlight. Keep container tightly closed. Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Store in accordance with local/regional/national/international regulation.

7.3. Specific end use(s) Observe industrial sector guidance on best practices.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001, as amended

Material	Type	Value	Form
Thorium Fluoride (CAS 13709-59-6)	MAK	2,5 mg/m3	Inhalable fraction.
	STEL	12,5 mg/m3	Inhalable fraction.

Belgium. OEL. Exposure Limit Values to Chemical Substances at Work, Code of Well-being at work, Book VI, Title 1 - Chemical agents, as amended

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TWA	2,5 mg/m3

Bulgaria. OELs. Ordinance No 13 on protection of workers against risks of exposure to chemical agents at work, as amended

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TWA	2,5 mg/m3

Croatia. OELs (GVI). Regulation on Protection of Workers against Exposure to Dangerous Chemicals at Work, OELs and Biological Limit Values, Annex I (NN 91/2018), as amended

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	MAC	2,5 mg/m3

Cyprus. OELs. Occupational Exposure Limit Values of Chemicals at Work (Safety and Health at Work (Chem. Agents) Reg., Ann. 1, R.A.A. 268/2001, as amended)

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TWA	2,5 mg/m3

Czech Republic. Occupational exposure limit values of chemicals at work (Decree on protection of health at work, 361/2007, Annex 2, Part A & Annex 3, Part A, as amended)

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	Ceiling	5 mg/m3
	TWA	2,5 mg/m3

Denmark. Work Environment Authority. Exposure Limits for Substances & Materials, Annex 2

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TLV	2,5 mg/m3

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances (Regulation No. 105/2001, Annex), as amended

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TWA	2,5 mg/m3

Finland. HTP-arvot, App 3., Binding Limit Values, Social Affairs and Ministry of Health

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TWA	2,5 mg/m3

France. OELs. Indicative Occupational Exposure Limits as Prescribed by Order of 30 June 2004, as amended

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	VME	2,5 mg/m3

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	VME	2,5 mg/m3

Regulatory status: Regulatory indicative (VRI)

Hungary. OELs. Decree on protection of workers exposed to chemical agents (5/2020. (II.6)), Annex 1&2, as amended

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TWA	2,5 mg/m3

Iceland. OELs. Regulation 390/2009 on Pollution Limits and Measures to Reduce Pollution at the Workplace, as amended

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TWA	0,6 mg/m3

Latvia. OELs. Occupational Exposure Limits of Chemical Substances at Workplace (Reg. No. 325/ 2007, L.V. 80, Annex 1), as amended

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TWA	2,5 mg/m3

Lithuania. OELs. Occupational Exposure Limit Values for Chemical Substances (Hygiene Norm HN 23:2011; Order No. V-824/A1-389), as amended

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TWA	2,5 mg/m3

Luxembourg. OELs. Binding Occupational Exposure Limit Values (Annex I), G.D.R. of 14 November 2016, OJ Memorial A, n ° 235/2016, as amended

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TWA	2,5 mg/m3

Malta. OELs. Protection of Health and Safety of Workers from Risks related to Chemical Agents at Work (L.N 227/2003 Schedules I and V), as amended

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TWA	2,5 mg/m3

Netherlands. OELs per Annex XIII of Working Conditions Regulation (Staatscourant no. 252, 29 December 2006), as amended

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	STEL	2 mg/m3

Norway. Regulation No. 1358 on Measures and Limit Values for Physical and Chemical Factors in Work Environment and Infection Groups for Biological Factors, as amended

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TLV	0,5 mg/m3

Portugal. Decree-Law No. 24/2012, Occupational Exposure Limit Values, Annex II, as amended

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TWA	2,5 mg/m3

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796-2014)

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TWA	2,5 mg/m3

Romania. OELs. Limit Values of Chemical Agents at Workplace (Regulation 1.218/2006, M.O 845, Annex 1, 3&4, as amended)

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TWA	2,5 mg/m3

Slovakia. OELs. Maximum permissible exposure limits for chemical factors in workplace air (Regulation No 355/2006, Annex 1, Table 1, as amended)

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TWA	2,5 mg/m3

Spain. OELs. INSST, Límites de Exposición Profesional Para Agentes Químicos, Table 1-Valores Límites Ambientales (VLAs)

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TWA	2,5 mg/m3

Sweden. OELs (Annex 1). Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2018:1), as amended

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TWA	2 mg/m3

UK. OELs. Workplace Exposure Limits (WELs) (EH40/2005 (Fourth Edition 2020)), Table 1

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TWA	2,5 mg/m3

EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU

Material	Type	Value
Thorium Fluoride (CAS 13709-59-6)	TWA	2,5 mg/m3

Biological limit values

Croatia. BELs (BGV). Regulation on Protection of Workers against Exposure to Dangerous Chemicals at Work, OELs and BELs, Annex IV (NN 91/2018), as amended

Material	Value	Determinant	Specimen	Sampling Time
Thorium Fluoride (CAS 13709-59-6)	8 mg/g	Fluoride	Creatinine in urine	*
	4 mg/g	Fluoride	Creatinine in urine	*
	40 mmol/mol	Fluoride	Creatinine in urine	*
	24 mmol/mol	Fluoride	Creatinine in urine	*

* - For sampling details, please see the source document.

Czech Republic. BELs. Government Decree 432/2003 Sb., as amended

Material	Value	Determinant	Specimen	Sampling Time
Thorium Fluoride (CAS 13709-59-6)	60 µmol/mmol	Fluoride	Creatinine in urine	*
	10 mg/g	Fluoride	Creatinine in urine	*

* - For sampling details, please see the source document.

France. Biological indicators of exposure (IBE) (National Institute for Research and Security (INRS), ND 2065)

Material	Value	Determinant	Specimen	Sampling Time
Thorium Fluoride (CAS 13709-59-6)	3 mg/g	Fluorures	Creatinine in urine	*
	10 mg/g	Fluorures	Creatinine in urine	*

* - For sampling details, please see the source document.

Germany. TRGS 903, BAT List (Biological Limit Values)

Material	Value	Determinant	Specimen	Sampling Time
Thorium Fluoride (CAS 13709-59-6)	4 mg/l	Fluorid	Urine	*

* - For sampling details, please see the source document.

Hungary. BELs. Decree on protection of workers exposed to chemical agents (5/2020. (II.6)), Annex 3&4, as amended

Material	Value	Determinant	Specimen	Sampling Time
Thorium Fluoride (CAS 13709-59-6)	42 µmol/mmol	fluoride	Creatinine in urine	*

Hungary. BELs. Decree on protection of workers exposed to chemical agents (5/2020. (II.6)), Annex 3&4, as amended

Material	Value	Determinant	Specimen	Sampling Time
	24 µmol/mmol	fluoride	Creatinine in urine	*
	7 mg/g	fluoride	Creatinine in urine	*
	4 mg/g	fluoride	Creatinine in urine	*

* - For sampling details, please see the source document.

Slovakia. BLVs (Biological Limit Value). Regulation no. 355/2006 concerning protection of workers exposed to chemical agents, Annex 2

Material	Value	Determinant	Specimen	Sampling Time
Thorium Fluoride (CAS 13709-59-6)	7 mg/g	fluorides	Creatinine in urine	*
	4 mg/g	fluorides	Creatinine in urine	*

* - For sampling details, please see the source document.

Spain. BELs. INSST, Límites de Exposición Profesional Para Agentes Químicos, Table 3-Valores Límite Biológicos (VLB)

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

* - For sampling details, please see the source document.

Switzerland. SUVA Grenzwerte am Arbeitsplatz: Aktuelle BAT-Werte

Material	Value	Determinant	Specimen	Sampling Time
Thorium Fluoride (CAS 13709-59-6)	4 mg/l	Fluorid	Urine	*

* - For sampling details, please see the source document.

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no effect levels (DNELs) Not available.

Predicted no effect concentrations (PNECs) Not available.

Exposure guidelines

Hungary OELs: Skin designation

Thorium Fluoride (CAS 13709-59-6) Can be absorbed through the skin.

8.2. Exposure controls

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.
Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment

General information Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. Use personal protective equipment as required.

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

Skin protection

- Hand protection Wear appropriate chemical resistant gloves. Rubber gloves.

- 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.
Hygiene measures	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.
Environmental exposure controls	Environmental manager must be informed of all major releases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid.
Form	Solid.
Colour	Not available.
Odour	Not available.
Melting point/freezing point	Not available.
Boiling point or initial boiling point and boiling range	Not available.
Flammability	Not available.

Upper/lower flammability or explosive limits

Explosive limit - lower (%)	Not available.
Explosive limit – upper (%)	Not available.

Flash point	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
pH	Not available.
Kinematic viscosity	Not available.

Solubility

Solubility (water)	Not available.
Partition coefficient (n-octanol/water) (log value)	Not available.
Vapour pressure	<0,0000001 kPa (25 °C (77 °F))
Density and/or relative density	Not available.
Vapour density	Not available.
Particle characteristics	Not available.

9.2. Other information

9.2.1. Information with regard to physical hazard classes	No relevant additional information available.

9.2.2. Other safety characteristics

Molecular formula	F4Th
Molecular weight	308,03 g/mol

SECTION 10: Stability and reactivity

10.1. Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
10.2. Chemical stability	Stable; however, may decompose if heated.
10.3. Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
10.4. Conditions to avoid	Contact with incompatible materials.
10.5. Incompatible materials	Strong oxidising agents.
10.6. Hazardous decomposition products	No hazardous decomposition products are known.

SECTION 11: Toxicological information

General information It is widely accepted by the scientific community that exposure to sufficient quantities of ionizing radiation can potentially cause harmful biological effects which include cancer, leukaemia and genetic and teratogenic effects. Occupational exposure to the substance or mixture may cause adverse effects.

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 Irritant effects.

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity May cause respiratory irritation. Due to partial or complete lack of data the classification is not possible.

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory sensitisation Due to partial or complete lack of data the classification is not possible.

Skin sensitisation Due to partial or complete lack of data the classification is not possible.

Germ cell mutagenicity Due to partial or complete 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)	3 Not classifiable as to carcinogenicity to humans.

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 partial or complete lack of data the classification is not possible.

Mixture versus substance information No information available.

11.2. Information on other hazards

Endocrine disrupting properties This substance does not have endocrine disrupting properties with respect to human health, as it does not meet the assessment criteria laid out in Regulations (EC) No 1907/2006, (EU) No 2017/2100 and (EU) 2018/605.

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

SECTION 12: Ecological information

12.1. Toxicity Contains a substance which causes risk of hazardous effects to the environment. Due to partial or complete lack of data the classification for hazardous to the aquatic environment, is not possible.

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

12.3. Bioaccumulative potential No data available.

Partition coefficient n-octanol/water (log Kow) Not available.

Bioconcentration factor (BCF) Not available.

12.4. Mobility in soil No data available.

12.5. Results of PBT and vPvB assessment This substance does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII.

12.6. Endocrine disrupting properties This substance does not have endocrine disrupting properties with respect to the environment, as it does not meet the assessment criteria laid out in Regulations (EC) No 1907/2006, (EU) No 2017/2100 and (EU) 2018/605.

12.7. 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.

12.8. Additional information

Estonia Dangerous substances in soil Data

Thorium Fluoride (CAS 13709-59-6)	Fluoride (As F ion) 1200 mg/kg Fluoride (As F ion) 2000 mg/kg Fluoride (As F ion) 450 mg/kg

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste	Dispose of in accordance with local regulations. 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).
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.
EU waste code	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Disposal methods/information	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.
Special precautions	Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. UN number	Not regulated as dangerous goods.
14.2. UN proper shipping name	Not regulated as dangerous goods.
14.3. Transport hazard class(es)	
Class	Not assigned.
Subsidiary risk	-
Hazard No. (ADR)	Not assigned.
Tunnel restriction code	Not assigned.
14.4. Packing group	-
14.5. Environmental hazards	No.
14.6. Special precautions for user	Not assigned.

RID

14.1. UN number	UN2912
14.2. UN proper shipping name	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I), non fissile or fissile-excepted
14.3. Transport hazard class(es)	
Class	7
Subsidiary risk	-
Label(s)	7X
14.4. Packing group	-
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

ADN

14.1. UN number	Not regulated as dangerous goods.
14.2. UN proper shipping name	Not regulated as dangerous goods.
14.3. Transport hazard class(es)	
Class	Not assigned.
Subsidiary risk	-
14.4. Packing group	-
14.5. Environmental hazards	No.
14.6. Special precautions for user	Not assigned.

IATA

14.1. UN number	UN2912

14.2. UN proper shipping name Radioactive material, low specific activity (LSA-I) non-fissile or fissile excepted

14.3. Transport hazard class(es)

Class 7

Subsidiary risk -

14.4. Packing group -

14.5. Environmental hazards No.

ERG Code 7L

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

14.1. UN number UN2912

14.2. UN proper shipping name RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I) non fissile or fissile - excepted

14.3. Transport hazard class(es)

Class 7

Subsidiary risk -

14.4. Packing group -

14.5. Environmental hazards

Marine pollutant No.

EmS F-I, S-S

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IATA; IMDG; RID

SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EU) 2019/1021 On persistent organic pollutants (recast), as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Thorium Fluoride (CAS 13709-59-6)

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use, as amended - Conditions of restriction given for the associated entry number should be considered

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Regulation 2019/1148 on Marketing and Use of Explosive Precursors, Annex I, as amended

Not listed.

Regulation 2019/1148 on Marketing and Use of Explosive Precursors, Annex II, as amended

Not listed.

Other regulations

The product is classified and labelled in accordance with EC directives or respective national laws The product does not need to be labelled in accordance with EC directives or respective nationa laws. The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

National regulations

Follow national regulation for work with chemical agents.

Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended.

France regulations

France INRS Table of Occupational Diseases

Thorium Fluoride (CAS 13709-59-6)	Affections professionnelles provoquées par le fluor, l'acide fluorhydrique et ses sels minéraux 32

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

ADN: European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways.
ADR: Agreement concerning the International Carriage of Dangerous Goods by Road.
AGW: Occupational threshold limit value (Arbeitsplatzgrenzwert – Germany).
CAS: Chemical Abstract Service.
CEN: European Committee for Standardization.
IATA: International Air Transport Association.
IBC Code: International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk.
IMDG: International Maritime Dangerous Goods.
MAC: Maximum Allowed Concentration.
MARPOL: International Convention for the Prevention of Pollution from Ships.
PBT: Persistent, bioaccumulative and toxic.
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.
STEL: Short term exposure limit.
TLV: Threshold Limit Value.
TWA: Time Weighted Average.
VLE: Exposure Limit Value.
VME: Exposure Average Value.
vPvB: Very persistent and very bioaccumulative.

References

ACGIH
EPA: AQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents

Information on evaluation method leading to the classification of mixture

Not applicable.

Full text of any statements, which are not written out in full under sections 2 to 15

H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H361 Suspected of damaging fertility or the unborn child.
H362 May cause harm to breast-fed children.
H373 May cause damage to organs through prolonged or repeated exposure.

Revision information	This document has undergone significant changes and should be reviewed in its entirety.
Training information	Follow training instructions when handling this material.
Further information	Transportation Emergency Call Chemtrec at: US: 800.424.9300 International: 703.741.5970 Spain: 900.868.538 Switzerland: 0800.564.402 Chemtrec's toll free, mobile-enabled number in Germany – 0800 1817059 South Korea Toll-free Number – 080-880-0468
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