

SAFETY DATA SHEET

Preparation Date: 06/19/2019

Revision date 7/10/2019

Revision Number: G2

1. IDENTIFICATION

Product identifier

Product code: T1044
Product Name: THORIUM NITRATE, CRYSTAL, REAGENT

Other means of identification

Synonyms: Thorium(4+) nitrate, tetrahydrate
 Nitric acid, thorium(4+) salt (8Cl,9Cl), tetrahydrate
 Thorium nitrate, tetrahydrate
 Thorium tetranitrate, tetrahydrate

CAS #: 13470-07-0
RTECS # Not available
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: No information available.
Uses advised against No information available

Supplier: Spectrum Chemical Mfg. Corp
 14422 South San Pedro St.
 Gardena, CA 90248
 (310) 516-8000

Order Online At: <https://www.spectrumchemical.com>
Emergency telephone number Chemtrec 1-800-424-9300
Contact Person: Tom Tyner (USA - West Coast)
Contact Person: Ibad Tirmiz (USA - East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 2
Oxidizing solids	Category 2

Label elements

Danger

Hazard statements

Product code: T1044

Product name: THORIUM NITRATE,
CRYSTAL, REAGENT

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Harmful if swallowed
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation
May cause damage to organs through prolonged or repeated exposure
May intensify fire; oxidizer



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Radioactive

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Do not breathe dust
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep/Store away from clothing and other combustible materials
Take any precaution to avoid mixing with combustibles

Precautionary Statements - Response

Get medical attention if you feel unwell

IN CASE OF FIRE: Use water to extinguish. Do not use dry chemicals or foams. CO₂ or Halon may provide limited control.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

IF ON SKIN: Wash with plenty of water

If skin irritation occurs: Get medical attention

Take off contaminated clothing and wash it before reuse

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.

IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell

Rinse mouth

Precautionary Statements - Storage

Store in a well-ventilated place. Keep container tightly closed

Store locked up

Precautionary Statements - Disposal

Dispose of contents and container to an approved waste disposal plant in accordance with local, regional, national and international regulations as applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight-%
Thorium Nitrate	13470-07-0	100

4. FIRST AID MEASURES

First aid measures

General Advice:	National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222.
Skin Contact:	Wash off immediately with soap and plenty of water removing all contaminated clothing and shoes. Get medical attention. If skin irritation persists, call a physician.
Eye Contact:	Flush eyes with water for 15 minutes. Immediate medical attention is required. Call a physician immediately.
Inhalation:	Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Ingestion:	Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms	Causes skin irritation Skin rash Causes serious eye irritation Irritating to respiratory system Ingestion may cause gastrointestinal irritation, nausea, vomiting, and diarrhea Abdominal pain May cause bleeding or ulceration from the stomach Weakness Convulsions Headache Dizziness May cause depression May cause mental impairment May cause bleeding or ulceration from the small intestine May affect the liver It may affect the kidneys May affect the bone marrow
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Indication of any immediate medical attention and special treatment needed

Notes to Physician:	Treat symptomatically.
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Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Water. CO2 may be of no value in extinguishing fires involving oxidizers and may only provide limited control.

Unsuitable Extinguishing Media: Dry chemical. Foam. Halons.

Specific hazards arising from the chemical

Hazardous combustion products If it is involved in a fire the following can be released:
Nitrogen oxides (NOx). Metal oxides.

Specific hazards Oxidizer. Keep away from combustible materials (wood, paper, oil, clothing, etc.). The product is not flammable, but

it may cause fire when in contact with other material. Contact with combustible or organic materials may cause fire. Will accelerate burning when involved in a fire. Container explosion may occur under fire conditions or when heated.

Special Protective Actions for Firefighters

Specific Methods:

For large fires, flood fire area with water from a distance
Cool affected containers with flooding quantities of water
Do not get water inside containers DO NOT use combustible materials such as sawdust

Special Protective Equipment for Firefighters:

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions:

Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Evacuate personnel to safe areas. Avoid breathing dust. Avoid dust formation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep combustibles (wood, paper, oil, clothing, etc.) away from spilled material. Remove all sources of ignition.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment

Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

Methods for cleaning up

Sweep up and shovel into suitable containers for disposal. Use appropriate tools to put the spilled solid in a suitable waste disposal container. Do not use combustible materials such as paper towels, sawdust, clothing, etc. to clean up spill. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Provide sufficient air exchange and/or exhaust in work rooms. Avoid dust formation. Remove all sources of ignition. Keep away from incompatible materials.

Safe Handling Advice:

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not ingest. Do not breathe dust. Keep away from combustible material. Keep away from heat and sources of ignition. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Keep container tightly closed in a dry and well-ventilated place. Do not store near combustible materials. Keep away from heat and sources of ignition. Store away from incompatible materials. Store in a segregated and approved area.

Incompatible Materials:

Combustible materials
 Organic materials
 Reducing agents
 Strong oxidizing agents
 Acids
 Bases

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters**National occupational exposure limits****United States**

Component	CAS No	OSHA	NIOSH	ACGIH	AIHA WEEL
Thorium Nitrate	13470-07-0	None	None	None	None

Canada

Component	CAS No	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
Thorium Nitrate	13470-07-0	None	None	None	None

Australia and Mexico

Component	CAS No	Australia	Mexico
Thorium Nitrate	13470-07-0	None	None

Appropriate engineering controls**Engineering measures to reduce exposure:**

Ensure adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Individual protection measures, such as personal protective equipment**Personal Protective Equipment**

- Eye protection:** Safety glasses with side-shields. or Goggles
- Skin and body protection:** Chemical resistant apron
 Long sleeved clothing
 Gloves
- Respiratory protection:** Wear respirator with dust filter. Be sure to use an approved/certified respirator or equivalent.
- Hygiene measures:** Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product

9. PHYSICAL AND CHEMICAL PROPERTIES
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Physical state: Solid	Appearance: Crystals.	Color: White.
Odor: No information available.	Taste No information available.	Formula Th(NO ₃) ₄ .4H ₂ O
Molecular/Formula weight (g/mole): 552.12	Flammability (solid, gas) no data available	Flashpoint (°C/°F): No information available
Flash Point Tested according to: Not available	Autoignition Temperature (°C/°F): No information available	Lower Explosion Limit (%): No information available
Upper Explosion Limit (%): No information available	Melting point/range(°C/°F): No information available	Decomposition temperature(°C/°F): 500°C/ 932°F
Boiling point/range(°C/°F): No information available	Bulk density: No information available	Density (g/cm³): No information available
Specific gravity: No information available	pH No information available	Vapor pressure @ 20°C (kPa): No information available
Evaporation rate: No information available	Vapor density: No information available	VOC content (g/L): No information available
Odor threshold (ppm): No information available	Partition coefficient (n-octanol/water): No information available	Viscosity: No information available
Miscibility: No information available	Solubility: Easily soluble in cold water Very soluble in alcohol Soluble in acids	

10. STABILITY AND REACTIVITY

Reactivity

No information available

Chemical stability

Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Heat. Ignition sources. Incompatible materials.

Incompatible Materials: Combustible materials
Organic materials
Reducing agents
Strong oxidizing agents
Acids
Bases

Hazardous decomposition products: Nitrogen oxides (NO_x). Metallic oxides.

Other Information

Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:

Skin. Eyes. Ingestion. Inhalation.

Acute Toxicity

Component Information

Thorium Nitrate	
CAS No	13470-07-0

LD50/oral/rat = 3800 mg/kg Oral LD50 Rat
LD50/oral/mouse = 1760 mg/kg Oral LD50 Mouse
LD50/dermal/rabbit = No information available
LD50/dermal/rat = No information available
LC50/inhalation/rat = No information available
LC50/inhalation/mouse = No information available
Other LD50 or LC50 information = No information available

Product Information

LD50/oral/rat =
Value - Acute Toxicity = 3800 mg/kg

LD50/oral/mouse =
Value - Acute Tox = 1760 mg/kg

LD50/dermal/rabbit
Value - Acute Toxicity = No information available

LD50/dermal/rat
VALUE - Acute Tox = No information available

LC50/inhalation/rat
VALUE-Vapor = No information available
VALUE-Gas = No information available
VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse
VALUE-Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

Symptoms

Skin Contact: Causes skin irritation. rash.

Eye Contact: Causes serious eye irritation.

Inhalation Irritating to respiratory system.

Ingestion Harmful if swallowed. May cause abdominal pain, nausea, vomiting, diarrhea. Diarrhea may be watery or bloody. May affect behavior/central nervous system (dizziness, headache). May cause ulceration or bleeding from the deodenum. May affect behavior/central nervous system (muscle weakness, convulsions).

Aspiration hazard No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity Chronic exposure may affect the liver and kidneys. Repeated (chronic) exposure by inhalation may affect the lungs. Prolonged or repeated ingestion may affect the bone marrow. Prolonged or repeated inhalation may cause scarring of the lungs. It can accumulate in the body (bones, lungs and lymph system). It can take years for the body to get rid of it.

Sensitization: No information available.

Mutagenic Effects: Contains a radioactive isotope which may produce genetic mutation

Carcinogenic effects: Contains a radioactive isotope which may produce cancer.

Component	CAS No	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Thorium Nitrate	13470-07-0	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

ACGIH (American Conference of Governmental Industrial Hygienists)

IARC (International Agency for Research on Cancer)

NTP (National Toxicology Program)

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

Reproductive toxicity No data is available

Reproductive Effects: No information available

Developmental Effects: No information available

Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure respiratory system.

STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure.

Target Organs: Kidneys. Lungs. Bone Marrow. Liver.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available.

Mobility in soil No information available
Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Component	CAS No	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Thorium Nitrate	13470-07-0	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: UN1477
Proper Shipping Name: Nitrates, inorganic, n.o.s. (thorium nitrate)
Hazard Class 5.1
Subsidiary Class No information available
Packing group: II
Emergency Response Guide Number 140
Marine Pollutant No data available
DOT RQ (lbs): No information available
Special Provisions IB8, IP2, IP4, T3, TP33
Symbol(s): No information available
Description: UN1477, Nitrates, inorganic, n.o.s., 5.1, II
Further Information: Radioactive material. excepted package - limited quantity of material. (49 CFR 173.421 Excepted packages for limited quantities of radioactive materials)

TDG (Canada)

UN-No: UN1477
Proper Shipping Name: Nitrates, inorganic, n.o.s. (thorium nitrate)
Hazard Class 5.1
Subsidiary Risk: No information available
Packing Group: II
Marine Pollutant No Information available
Description: UN1477, Nitrates, inorganic, n.o.s., 5.1, II
Further Information: Radioactive material. excepted package for limited quantity of material

ADR

UN Number UN1477
Proper Shipping Name: Nitrates, inorganic, n.o.s. (thorium nitrate)
Transport hazard class(es) 5.1
Packing group II
Subsidiary Risk: No information available
Special Provisions 511
Description: UN1477, Nitrates, inorganic, n.o.s., 5.1, II
Further Information: Radioactive material. excepted package for limited quantity

of material

IMDG

UN-No: UN1477
Proper Shipping Name: Nitrates, inorganic, n.o.s. (thorium nitrate)
Hazard Class: 5.1
Subsidiary Risk: 7, limited quantity radioactive material
Packing Group: II
Marine Pollutant No information available
EMS: F-A
Description UN1477, Nitrates, inorganic, n.o.s., 5.1, II
Further Information: Radioactive material. excepted package for limited quantities

RID

UN Number UN1477
Proper Shipping Name: Nitrates, inorganic, n.o.s. (thorium nitrate)
Transport hazard class(es) 5.1
Subsidiary Risk: 7, limited quantity radioactive material
Packing group II
Special Provisions 511
Description: UN1477, Nitrates, inorganic, n.o.s., 5.1, II
Further Information: Radioactive material. excepted package for limited quantity of material

ICAO (air)

UN-No: UN1477
Proper Shipping Name: Nitrates, inorganic, n.o.s. (thorium nitrate)
Hazard Class 5.1
Subsidiary Risk: 7, limited quantity radioactive material
Packing Group: II
Description: UN1477, Nitrates, inorganic, n.o.s., 5.1, II
Further Information: Radioactive material. excepted package for limited quantity of material
Special Provisions A3

IATA

UN Number UN1477
Proper Shipping Name: Nitrates, inorganic, n.o.s. (thorium nitrate)
Transport hazard class(es) 5.1
Subsidiary Risk: 7, limited quantity radioactive material
Packing group II
Precautionary Statements - Response 5L
Special Provisions No information available
Description: UN1477, Nitrates, inorganic, n.o.s., 5.1, II
Further Information: Radioactive material. excepted package for limited quantity of material

15. REGULATORY INFORMATION

International Inventories

Component	CAS No	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	China IECSC	Australia (AICS)	EINECS-No.
Thorium Nitrate	13470-07-0	Not listed. It exempt from listing on the TSCA	Not present	Not present	Not present	Not listed	Not listed	Not present

		8(b)Inventory since it is a hydrate. However, the anhydrous form (CAS no. 13823-29-5) is listed as ACTIVE on the TSCA 8(b) Inventory						
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U.S. Regulations

Thorium Nitrate

New Jersey RTK Hazardous Substance List: Present (nitrate compounds) sn 3722

New Jersey (EHS) List: Present (nitrate compounds)SN 3722 500 lb. TPQ

New Jersey - Discharge Prevention - List of Hazardous Substances: Present (nitrate compounds)

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Component	CAS No	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Thorium Nitrate	13470-07-0	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Component	CAS No	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting de minimis
Thorium Nitrate	13470-07-0	None	None	None	Nitrate compounds	1.0% de minimis concentration

U.S. TSCA

Component	CAS No	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Thorium Nitrate	13470-07-0	Not Applicable	Not Applicable

Canada

WHMIS 2015 - GHS Classifications

WHMIS 2015 Hazard Classification Information:

The WHMIS 2015 classification of this product has not been validated or reviewed yet.

Canada Hazardous Products Regulation This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

DSL/NDSL

Component	CAS No	Canada (DSL)	Canada (NDSL)
Thorium Nitrate	13470-07-0	Not Listed	Not Listed

Component	CAS No	CEPA Schedule I - Toxic Substances
Thorium Nitrate	13470-07-0	Not listed
Component	CAS No	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Thorium Nitrate	13470-07-0	Not listed

EU Classification**EU GHS - SV - CLP 1272/2008**

Component	CAS No	EU GHS - SV - CLP (1272/2008)
Thorium Nitrate	13470-07-0	Oxidizing solid (H272); Acute Tox. 4(H302); Skin Irrit. 2(H315); Eye Irrit. 2 (H319); STOT SE 3 (H335); STOT RE 2(H373); Aquatic Chronic 2 (H411)

EU - CLP (1272/2008)**R-phrase(s)**

R 8 - Contact with combustible material may cause fire.

R22 - Harmful if swallowed

R51 - Toxic to aquatic organisms

R53 - May cause long-term adverse effects in the aquatic environment

R36/38 - Irritating to eyes and skin

S -phrase(s)

S17 - Keep away from combustible material

S46 - If swallowed, seek medical advice immediately and show this container or label

S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection

Component	CAS No	Classification	Concentration Limits:	Safety Phrases
Thorium Nitrate	13470-07-0		No information	

The product is classified in accordance with Annex VI to Directive 67/548/EEC**Indication of danger:**

O - Oxidising.

Xn - Harmful

Xi - Irritant

N - Dangerous for the environment

Xn



Xi



O



N

**16. OTHER INFORMATION**

Preparation Date:

06/19/2019

Revision date

7/10/2019

Prepared by:

Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet