





Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment						
	<table><tr><td>Health Hazard</td><td>2</td></tr><tr><td>Fire Hazard</td><td>0</td></tr><tr><td>Reactivity</td><td>0</td></tr></table>	Health Hazard	2	Fire Hazard	0	Reactivity	0	<div></div> <div>See Section 15.</div>
Health Hazard	2							
Fire Hazard	0							
Reactivity	0							

Section 1. Chemical Product and Company Identification		Page Number: 1
Common Name/ Trade Name	Thorium nitrate	Catalog Number(s). T1044, T1045
Manufacturer	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	CAS# 13470-07-0; 13823-29-5 (anhydrous)
Commercial Name(s)	Not available.	RTECS XO6825000
Synonym	Nitric acid, thorium (4+) salt tetrahydrate; Thorium tetranitrate	TSCA TSCA 8(b) inventory: CAS no. 13470-07-0 is not TSCA listed because it is a hydrate. CAS no. 13823-29-5 is TSCA listed
Chemical Name	Thorium (IV) Nitrate tetrahydrate	CI# Not available.
Chemical Family	Not available.	IN CASE OF EMERGENCY CHEMTREC (24hr) 800-424-9300 CALL (310) 516-8000
Chemical Formula	Th(NO ₃) ₄ ·4H ₂ O	
Supplier	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	

Section 2. Composition and Information on Ingredients					
		Exposure Limits			
Name	CAS #	TWA (mg/m ³)	STEL (mg/m ³)	CEIL (mg/m ³)	% by Weight
1) Thorium nitrate	13470-07-0; 13823-29-5 (anhydrous)				100
Toxicological Data on Ingredients Thorium nitrate anhydrous (CAS no. 13823-29-5): ORAL (LD50): Acute: 1760 mg/kg [Mouse].					

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Section 3. Hazards Identification

Potential Acute Health Effects	Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation.
Potential Chronic Health Effects	CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, lungs, bone marrow. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4. First Aid Measures

Eye Contact	Check for and remove any contact lenses. Flush with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Cold water may be used. Get medical attention. Seek medical attention in case of eye contact with a radioactive material.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Serious Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention in case of skin contact with a radioactive material.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Serious Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention in case of inhalation of a radioactive material.
Ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.
Serious Ingestion	Not available.

Section 5. Fire and Explosion Data

Flammability of the Product	Non-flammable.
Auto-Ignition Temperature	Not applicable.
Flash Points	Not applicable.
Flammable Limits	Not applicable.
Products of Combustion	Not available.
Fire Hazards in Presence of Various Substances	organic materials. combustible materials.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Slightly explosive in presence of combustible materials, of organic materials.
Fire Fighting Media and Instructions	OXIDIZING MATERIAL. Use DRY chemicals, CO ₂ , water spray or foam.
Special Remarks on Fire Hazards	Oxidizing agent; may ignite oxidizable materials. Contact with combustible or organic materials may cause fire. It increases the flammability of any combustible substance.
Special Remarks on Explosion Hazards	In contact with easily oxidizable substances, it may react rapidly enough to cause violent combustion or explosion.

Section 6. Accidental Release Measures

Small Spill	Use appropriate tools to put the spilled solid in a convenient waste disposal container.
Large Spill	Radioactive material. Oxidizing material. Stop leak if without risk. Do not attempt recovery actions unless for rescue purposes. Do not touch damaged container or spilled material. Do not clean-up or dispose except under supervision of a specialist. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal.

Section 7. Handling and Storage

Precautions	Keep away from heat. Keep away from sources of ignition. Keep away from combustible material.. Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as combustible materials, organic materials.
Storage	Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalies, reducing agents and combustibles. See NFPA 43A, Code for the Storage of Liquid and Solid Oxidizers.

Section 8. Exposure Controls/Personal Protection

Engineering Controls	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.
Personal Protection	Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Personal Protection in Case of a Large Spill	Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits	Not available.

Section 9. Physical and Chemical Properties

Physical state and appearance	Solid. (Deliquescent solid.)	Odor	Odorless.
Molecular Weight	552.12 g/mole	Taste	Not available.
pH (1% soln/water)	Not available.	Color	White.
Boiling Point	Not available.		
Melting Point	Decomposition temperature: 500°C (932°F)		
Critical Temperature	Not available.		
Specific Gravity	Not available.		
Vapor Pressure	Not applicable.		
Vapor Density	Not available.		
Volatility	Not available.		
Odor Threshold	Not available.		
Water/Oil Dist. Coeff.	Not available.		
Ionicity (in Water)	Not available.		
Dispersion Properties	See solubility in water.		
Solubility	Easily soluble in cold water. Very soluble in alcohol (ethanol), acids.		

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Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Incompatible materials
Incompatibility with various substances	Highly reactive with combustible materials, organic materials. Reactive with reducing agents, acids.
Corrosivity	Non-corrosive in presence of glass.
Special Remarks on Reactivity	Also incompatible with finely powdered metals.
Special Remarks on Corrosivity	Not available.
Polymerization	Will not occur.

Section 11. Toxicological Information

Routes of Entry	Inhalation. Ingestion.
Toxicity to Animals	For Thorium Nitrate Anhydrous, (CAS number 13823-29-5): Acute oral toxicity (LD50): 1760 mg/kg [Mouse].
Chronic Effects on Humans	May cause damage to the following organs: kidneys, lungs, bone marrow.
Other Toxic Effects on Humans	Hazardous in case of skin contact (irritant), of ingestion, of inhalation.
Special Remarks on Toxicity to Animals	Not available.
Special Remarks on Chronic Effects on Humans	May cause adverse reproductive effects. Thorium reproductive effects, if they occur, are likely to be mediated by ionizing radiation. Thorium is a suspected carcinogen. Thorium Nitrate emits radiation which could cause cancer, but no evidence of cancer has yet been found. May affect genetic material (mutagenic)
Special Remarks on other Toxic Effects on Humans	Acute Potential Health Effects: Skin: Causes skin irritation with a rash, or burning feeling on contact. Eyes: Causes eye irritation. Inhalation: It can irritate the respiratory tract (nose, throat). Ingestion: May be harmful if swallowed. It may cause nausea, vomiting, dizziness, abdominal cramps, ulceration or bleeding from the small intestine, bloody diarrhea, weakness, convulsions, general depression, headache, mental impairment. Chronic Potential Health Effects: Skin: May cause dermatitis. Ingestion and Inhalation: Repeated or prolonged exposure may affect the liver, kidneys, lungs, bone marrow. It may reduce the ability of the bone marrow to make blood cells. Prolonged or repeated inhalation may cause scarring of the lungs. Note: Thorium can accumulate in the bones, lungs and lymph system. Thorium that is absorbed into the body can remain for long periods of time and increase the risk of radiation induced cancer in tissues where it is retained.


Section 12. Ecological Information

Ecotoxicity	Not available.
BOD5 and COD	Not available.
Products of Biodegradation	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
Toxicity of the Products of Biodegradation	The products of degradation are less toxic than the product itself.
Special Remarks on the Products of Biodegradation	Not available.

Section 13. Disposal Considerations

Waste Disposal	Waste must be disposed of in accordance with federal, state and local environmental control regulations.
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Section 14. Transport Information

DOT Classification	CLASS 5.1: Oxidizing material.
Identification	UNNA: 1477 : Nitrate, inorganic, n.o.s (Thorium Nitrate) PG: III
Special Provisions for Transport	Not available.
DOT (Pictograms)	

Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations	<p>California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Thorium nitrate (listed as Radionuclides)</p> <p>California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Thorium nitrate (Listed as Radionuclides)</p> <p>Connecticut hazardous material survey.: Thorium nitrate (CAS no. 13823-29-5)</p> <p>Rhode Island RTK hazardous substances: Thorium nitrate (CAS no. 13823-29-5)</p> <p>Pennsylvania RTK: Thorium nitrate (CAS no. 13823-29-5)</p> <p>Massachusetts RTK: Thorium nitrate (CAS no. 13823-29-5)</p> <p>New Jersey: Thorium nitrate (CAS no. 13823-29-5)</p> <p>CAS no. 13470-07-0 is not TCSA listed because it is a hydrate. CAS no. 13823-29-5 is TSCA listed.</p>
California Proposition 65 Warnings	<p>California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Thorium nitrate (listed as Radionuclides)</p> <p>California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.</p>
Other Regulations	<p>OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).</p> <p>For CAS number 13470-07-0:</p> <p>EINECS: This product is not on the European Inventory of Existing Commercial Chemical Substances.</p> <p>Canada: Not listed on Canadian Domestic Substance List (DSL) or Canadian Non- Domestic Substance List (NDSL).</p> <p>China: Not listed on National Inventory.</p> <p>Japan: Not listed on National Inventory (ENCS).</p> <p>Korea: Not listed on National Inventory (KECI).</p> <p>Philippines: Not listed on National Inventory (PICCS).</p> <p>Australia: Not listed on AICS.</p>

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For CAS number 13823-29-5:
 EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances. (EINECS No. 237-514-1).
 Canada: Listed on Canadian Domestic Substance List (DSL).
 China: Listed on National Inventory.
 Japan: Not listed on National Inventory (ENCS).
 Korea: Listed on National Inventory (KECI).
 Philippines: Listed on National Inventory (PICCS).
 Australia: Listed on AICS.

Other Classifications

WHMIS (Canada)

CLASS C: Oxidizing material.
 CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC)

R8- Contact with combustible material may cause fire.
 R36/38- Irritating to eyes and skin.
 R45- May cause cancer.

S17- Keep away from combustible material.
 S36/37- Wear suitable protective clothing and gloves.
 S46- If swallowed, seek medical advice immediately and show this container or label.

HMIS (U.S.A.)

Health Hazard	2
Fire Hazard	0
Reactivity	0
Personal Protection	X

National Fire Protection Association (U.S.A.)

Health	2	0	0	Flammability
	OXY			Reactivity
				Specific hazard

WHMIS (Canada) (Pictograms)



DSCL (Europe) (Pictograms)



TDG (Canada) (Pictograms)



ADR (Europe) (Pictograms)



Protective Equipment



Gloves.



Lab coat.



Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.



Splash goggles.

Section 16. Other Information**MSDS Code** T3490**References** Not available.**Other Special Considerations** Not available.

Validated by Sonia Owen on 12/13/2007.

Verified by Sonia Owen.

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CALL (310) 516-8000

Notice to Reader

All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) 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 MSDS. 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 MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.