





# Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment						
	<table><tr><td>Health Hazard</td><td>3</td></tr><tr><td>Fire Hazard</td><td>0</td></tr><tr><td>Reactivity</td><td>0</td></tr></table>	Health Hazard	3	Fire Hazard	0	Reactivity	0	 See Section 15.
Health Hazard	3							
Fire Hazard	0							
Reactivity	0							

Section 1. Chemical Product and Company Identification			Page Number: 1	
Common Name/ Trade Name		Thorium Plasma Emission Standard	Catalog Number(s).	PM305
Manufacturer		SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	CAS#	Mixture.
Commercial Name(s)		Not available.	RTECS	Not applicable.
Synonym		Not available.	TSCA	TSCA 8(b) inventory: Nitric acid; Thorium Nitrate (CAS no. 13823-29-5); Water
Chemical Name		Not applicable.	CI#	Not applicable.
Chemical Family		(Acid.)	<b><u>IN CASE OF EMERGENCY</u></b> <b><u>CHEMTREC (24hr) 800-424-9300</u></b>  CALL (310) 516-8000	
Chemical Formula		Not applicable.		
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/m³)	STEL (mg/m³)	CEIL (mg/m³)	% by Weight
1) Thorium nitrate	13823-29-5	2	4		0.1-1
2) Nitric acid, fuming	7697-37-2				5
3) Water	7732-18-5				94-95
Toxicological Data on Ingredients		Thorium nitrate: ORAL (LD50): Acute: 1760 mg/kg [Mouse]. Nitric acid, fuming: VAPOR (LC50): Acute: 244 ppm 0.5 hours [Rat]. 344 ppm 0.5 hours [Rat].			

Section 3. Hazards Identification	
Potential Acute Health Effects	Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, . Hazardous in case of skin contact (corrosive, permeator), of eye contact (corrosive). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

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**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, mucous membranes, upper respiratory tract, skin, eyes, bone marrow, teeth.

Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

**Section 4. First Aid Measures****Eye Contact**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

**Skin Contact**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

**Serious Skin Contact**

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

**Inhalation**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**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. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

**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**

Not applicable.

**Explosion Hazards in Presence of Various Substances**

Slightly explosive in presence of reducing materials, of organic materials, of metals, of alkalis.  
Non-explosive in presence of open flames and sparks, of shocks.

**Fire Fighting Media and Instructions**

Not applicable.

**Special Remarks on Fire Hazards**

Not available.

<b>Special Remarks on Explosion Hazards</b>	<p>Reacts explosively with metallic powders, carbides, cyanides, sulfides, alkalies and turpentine.</p> <p>Can react explosively with many reducing agents.</p> <p>Arsine, phosphine, tetraborane all oxidized explosively in presence of nitric acid.</p> <p>Cesium and rubidium acetylides explode in contact with nitric acid.</p> <p>Explosive reaction with Nitric Acid + Nitrobenzene + water.</p> <p>Detonation with Nitric Acid + 4-Methylcyclohexane.</p> <p>(Nitric acid, fuming)</p>
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### Section 6. Accidental Release Measures

<b>Small Spill</b>	Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: <b>Neutralize the residue with a dilute solution of sodium carbonate.</b>
<b>Large Spill</b>	<p>Corrosive liquid. Poisonous liquid.</p> <p>Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal.</p> <p><b>Neutralize the residue with a dilute solution of sodium carbonate.</b> Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.</p>

### Section 7. Handling and Storage

<b>Precautions</b>	<p>Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. 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 alkalis.</p> <p>May corrode metallic surfaces. Store in a metallic or coated fiberboard drum using a strong polyethylene inner package.</p>
<b>Storage</b>	Keep container tightly closed. Keep container in a cool, well-ventilated area.

### Section 8. Exposure Controls/Personal Protection

<b>Engineering Controls</b>	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.
<b>Personal Protection</b>	Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.
<b>Personal Protection in Case of a Large Spill</b>	Splash goggles. Full suit. Vapor 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.
<b>Exposure Limits</b>	<p><b>Nitric acid, fuming</b></p> <p>TWA: 2 STEL: 4 (ppm) from ACGIH (TLV) [United States] [1999]</p> <p>TWA: 2 STEL: 4 (ppm) [Australia]</p> <p>TWA: 2 STEL: 4 from NIOSH</p> <p>TWA: 5 STEL: 10 (mg/m<sup>3</sup>) from NIOSH</p> <p>TWA: 2 STEL: 4 (ppm) from OSHA (PEL) [United States]</p> <p>TWA: 5 STEL: 10 (mg/m<sup>3</sup>) from OSHA (PEL) [United States]</p> <p>Consult local authorities for acceptable exposure limits.</p>

### Section 9. Physical and Chemical Properties

<b>Physical state and appearance</b>	Liquid.	<b>Odor</b>	Odorless.
<b>Molecular Weight</b>	Not applicable.	<b>Taste</b>	Not available.
<b>pH (1% soln/water)</b>	Acidic.	<b>Color</b>	Colorless.
<b>Boiling Point</b>	The lowest known value is 83°C (181.4°F) (Nitric acid, fuming). Weighted average: 99.15°C (210.5°F)		
<b>Melting Point</b>	May start to solidify at -41.6°C (-42.9°F) based on data for: Nitric acid, fuming.		
<b>Critical Temperature</b>	Not available.		
<b>Specific Gravity</b>	Weighted average: 1.02 (Water = 1)		

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<b>Thorium Plasma Emission Standard</b>		<b>Page Number: 4</b>
<b>Vapor Pressure</b>	The highest known value is 6.4 kPa (@ 20°C) (Nitric acid, fuming). Weighted average: 2.51 kPa (@ 20°C)	
<b>Vapor Density</b>	The highest known value is 2.3 (Air = 1) (Nitric acid, fuming). Weighted average: 0.7 (Air = 1)	
<b>Volatility</b>	Not available.	
<b>Odor Threshold</b>	The highest known value is 0.29 ppm (Nitric acid, fuming)	
<b>Water/Oil Dist. Coeff.</b>	Not available.	
<b>Ionicity (in Water)</b>	Not available.	
<b>Dispersion Properties</b>	See solubility in water, diethyl ether.	
<b>Solubility</b>	Easily soluble in cold water, hot water. Soluble in diethyl ether.	

<b>Section 10. Stability and Reactivity Data</b>	
<b>Stability</b>	The product is stable.
<b>Instability Temperature</b>	Not available.
<b>Conditions of Instability</b>	Incompatible materials
<b>Incompatibility with various substances</b>	Reactive with reducing agents, metals, alkalis. Slightly reactive to reactive with combustible materials, organic materials.
<b>Corrosivity</b>	Extremely corrosive in presence of copper, brass. Non-corrosive in presence of glass, of aluminum, of stainless steel(304), of stainless steel(316).
<b>Special Remarks on Reactivity</b>	Incompatible with strong bases, strong reducing agents, alkalies, most common metals.
<b>Special Remarks on Corrosivity</b>	It will attack some forms of plastics, rubber, and coatings. Nitric Acid corrodes almost all metals except gold, and white gold, forming nitrates. No corrosive effect on bronze. No corrosivity data for zinc, and steel
<b>Polymerization</b>	Will not occur.

<b>Section 11. Toxicological Information</b>	
<b>Routes of Entry</b>	Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.
<b>Toxicity to Animals</b>	LD50: Not available. LC50: Not available.
<b>Chronic Effects on Humans</b>	Contains material which may cause damage to the following organs: kidneys, lungs, mucous membranes, upper respiratory tract, skin, eyes, bone marrow, teeth.
<b>Other Toxic Effects on Humans</b>	Very hazardous in case of skin contact (irritant), of ingestion, . Hazardous in case of skin contact (corrosive, permeator), of eye contact (corrosive), of inhalation (lung corrosive).
<b>Special Remarks on Toxicity to Animals</b>	LDL - Lowest Published Lethal Dose [Human] - Route: Oral; Dose: 430 mg/kg (Nitric acid, fuming)
<b>Special Remarks on Chronic Effects on Humans</b>	May cause adverse reproductive effects (effects on newborn and fetotoxicity) based on animal data. (Nitric acid, fuming)
<b>Special Remarks on other Toxic Effects on Humans</b>	Acute Potential Health Effects: Skin: Corrosive. Severely irritates skin. Can cause skin burns. May cause yellow to brownish discoloration of skin. Eyes: Corrosive. Severely irritates eyes. Can cause eye burns. May cause irreversible eye injury. Ingestion: Corrosive. Can cause immediate pain and burns of the mouth, throat, esophagus, and gastrointestinal tract, nausea, vomiting, severe abdominal pain. This plasma emission standard also contains Thorium which may cause dizziness, weakness, general depression, headache, mental impairment. Inhalation: Corrosive. May cause irritation of the mucous membranes and respiratory tract with burning pain in the nose and throat, coughing, sneezing, wheezing, shortness of breath and pulmonary edema. Other symptoms may include nausea, and vomiting. Chronic Potential Health Effects:

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Repeated inhalation may produce changes in pulmonary function and/or chronic bronchitis. It may also affect behavior (headache, dizziness, drowsiness, muscle contraction or spasticity, weakness, loss of coordination, mental confusion), and urinary system (kidney failure, decreased urinary output after several hours of uncorrected circulatory collapse).

Repeated exposure may cause discoloration and/or erosion of teeth (dental enamel).

Eye irritation and respiratory tract signs and symptoms resembling those of frequent upper respiratory viral infections have been associated with chronic nitric acid exposure.

This plasma emission standard also contains Thorium Nitrate. Repeated or prolonged exposure of Thorium Nitrate may affect the liver, kidneys, lungs, bone marrow. It may reduce the ability of the bone marrow to make blood cells.


## Section 12. Ecological Information

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

## Section 13. Disposal Considerations

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

<b>DOT Classification</b>	Class 8: Corrosive material
<b>Identification</b>	: Corrosive liquid, acidic, inorganic, n.o.s. (nitric acid solution) UNNA: 3264 PG: III
<b>Special Provisions for Transport</b>	Marine Pollutant (Nitric acid, fuming)
<b>DOT (Pictograms)</b>	

## Section 15. Other Regulatory Information and Pictograms

<b>Federal and State Regulations</b>	<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</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</p> <p>Connecticut hazardous material survey.: Thorium nitrate</p> <p>New York release reporting list: Nitric acid</p> <p>Rhode Island RTK hazardous substances: Thorium nitrate; Nitric acid</p> <p>Pennsylvania RTK: Thorium nitrate; Nitric acid</p> <p>Florida: Nitric acid</p> <p>Minnesota: Nitric acid</p> <p>Massachusetts RTK: Thorium nitrate; Nitric acid</p> <p>New Jersey: Thorium nitrate; Nitric acid</p> <p>California Director's List of Hazardous Substances: Nitric Acid</p> <p>TSCA 8(b) inventory: Nitric acid; Thorium Nitrate (CAS no. 13823-29-5); Water</p> <p>SARA 302/304/311/312 extremely hazardous substances: Nitric acid</p> <p>SARA 313 toxic chemical notification and release reporting: Nitric acid 5%</p>
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CERCLA: Hazardous substances.: Nitric acid: 1000 lbs. (453.6 kg);

**California  
Proposition 65  
Warnings**

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

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.

**Other Regulations**

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

**Other Classifications**
**WHMIS (Canada)**

CLASS E: Corrosive liquid.

**DSCL (EEC)**

R8- Contact with combustible material may cause fire.  
R34- Causes burns.  
R45- May cause cancer.

S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
S28- After contact with skin, wash immediately with plenty of water.  
S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.  
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

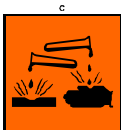
**HMIS (U.S.A.)**

Health Hazard	3
Fire Hazard	0
Reactivity	0
Personal Protection	0

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

Health	3	0	Flammability
	0	0	Reactivity
			Specific hazard

**WHMIS (Canada)  
(Pictograms)**

**DSCL (Europe)  
(Pictograms)**

**TDG (Canada)  
(Pictograms)**

**ADR (Europe)  
(Pictograms)**

**Protective Equipment**


Gloves.



Full suit.



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



Face shield.

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

Validated by Sonia Owen on 8/11/2006.

Verified by Sonia Owen.

Printed 9/13/2006.

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.*