THORIUM NITRATE

CAUTIONARY RESPONSE INFORMATION

Common Synonyms: Thorium nitrate tetrahydrate

- Solid: White Odorless
- Mixes with water.

Evacuate.
Keep people away.
Avoid contact with solid and dust.
Shut off ignition sources and call fire department.
Notify local health and pollution control agencies.
Protect water intakes.

Fire
- Not flammable.
- May cause fire on contact with combustibles.
- Poisonous gases are produced in fire.
- Wear goggles and self-contained breathing apparatus.
- Flood discharge area with water.

Exposure
- Call for medical aid.
  DUST: Irritating to eyes, nose and throat.
  Harmful if inhaled.
  Move victim to fresh air.
  If in eyes, hold eyelids open and flush with plenty of water.
  IF SWALLOWED and victim is CONSCIOUS, have victim drink water
  or milk.
  IF IN EYES, hold eyelids open and flush with plenty of water.
  IF SWALLOWED and victim is CONSCIOUS, have victim drink water
  or milk.
  Notify operators of nearby water intakes.
  Notify local health and wildlife officials.
  Dangerous to aquatic life in high concentrations.
  May be dangerous if it enters water intakes.
  Not pertinent if it enters water intakes.
  Notify local health and wildlife officials.
  Notify operators of nearby water intakes.

Water Pollution
- Dangerous to aquatic life in high concentrations.
- May be dangerous if it enters water intakes.
- Notify local health and wildlife officials.
- Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS
Stop discharge
Chemical and Physical Treatment: Neutralize

2. CHEMICAL DESIGNATIONS
- 2.1 CG Compatibility Group: Not listed.
- 2.2 Formula: Th(NO3)4•4H2O (approx).
- 2.3 IMO/UN Designation: Not listed.
- 2.4 DOT ID No.: 2976
- 2.5 CAS Registry No.: Currently not available
- 2.6 NAERG Guide No.: 162
- 2.7 Standard Industrial Trade Classification: 52591

3. HEALTH HAZARDS
- 3.1 Personal Protective Equipment: Dust respirator, gloves, rubber shoes or boots.
- 3.2 Symptoms Following Exposure: Compound has low chemical toxicity, but alpha emission is expected to constitute a hazard if a fairly large amount is inhaled or ingested. Dust may irritate eyes and cause diffuse dermatitis. Beta and gamma emission is small.
- 3.3 Treatment of Exposure: EYES: flush with water until solid is removed. SKIN: wash thoroughly with soap and water. INGESTION: get medical attention.
- 3.4 TLV-TWA: Not listed.
- 3.5 TLV-STEL: Not listed.
- 3.6 TLV-Ceiling: Not listed.

3.1 Toxicity by Ingestion: Currently not available.
3.2 Toxicity by Inhalation: Currently not available.
3.3 Chronic Toxicity: Genetic effects of long exposure to low level radiation are suspected to be harmful.
3.10 Vapor (Gas) Irritant Characteristics: Currently not available.
3.11 Liquid or Solid Characteristics: Currently not available.
3.12 Odor Threshold: Odorless.
3.13 ILD Values: Not listed.
3.14 OSHA PEL-TWA: Not listed.
3.15 OSHA PEL-STEL: Not listed.
3.16 OSHA PEL-Ceiling: Not listed.
3.17 EPA AEGL: Not listed

4. FIRE HAZARDS
- 4.1 Flash Point: Not flammable, but may cause fire on contact with ordinary combustibles.
- 4.2 Flammable Limits in Air: Not flammable.
- 4.3 Fire Extinguishing Agents: Water.
- 4.4 Fire Extinguishing Agents Not to Be Used: Not pertinent.
- 4.5 Special Hazards of Combustion: Products: Yields toxic gaseous oxides of nitrogen when involved in fire.
- 4.6 Behavior in Fire: When large quantities are involved in fire, nitrate may fuse or melt, in which condition application of water may result in extensive scattering of molten material. Will increase the intensity of a fire.
- 4.7 Auto Ignition Temperature: Not pertinent.
- 4.8 Electrical Hazards: Not pertinent.
- 4.9 Burning Rate: Not pertinent.
- 4.10 Adiabatic Flame Temperature: Currently not available.

5. CHEMICAL REACTIVITY
- 5.1 Reactivity with Water: Forms a weak solution of nitric acid; the reaction is not hazardous.
- 5.2 Reactivity with Common Materials: In contact with easily oxidizable substances, may react rapidly enough to cause ignition, violent combustion, or explosion. Solutions in water may result in extensive scattering of molten material. May cause fire on contact with combustibles.
- 5.3 Stability During Transport: Stable.
- 5.4 Neutralizing Agents: Acids and Caustics: Not pertinent.
- 5.5 Polymerization: Not pertinent.
- 5.6 Inhibitor of Polymerization: Not pertinent.

6. WATER POLLUTION
- 6.1 Aquatic Toxicity: 1,000 ppm/48 hr/fish/toxic/fresh water.
- 6.2 Waterfowl Toxicity: Currently not available.
- 6.3 Biological Oxygen Demand (BOD): None.
- 6.4 Food Chain Concentration Potential: Currently not available.
- 6.5 GESAMP Hazard Profile: Not listed

7. SHIPPING INFORMATION
- 7.1 Grades of Purity: Reagent.
- 7.2 Storage Temperature: Ambient.
- 7.3 Inert Atmosphere: No requirement.
- 7.4 Vents: Open.
- 7.5 IMO Pollution Category: Currently not available.
- 7.6 Ship Type: Currently not available.
- 7.7 Barge Hull Type: Currently not available.

8. HAZARD CLASSIFICATIONS
- 8.1 40 CFR Category: Radioactive material.
- 8.4 Marine Pollutant: No.
- 8.5 NFPA Hazard Classification:
  Category Classification
  Health Hazard (Blue): Not pertinent
  Flammability (Red): Not pertinent
  Stability (Yellow): Not pertinent
  Special (White): Not pertinent

9. PHYSICAL & CHEMICAL PROPERTIES
- 9.1 Physical State at 15° C and 1 atm: Solid.
- 9.2 Molecular Weight: 555.2.
- 9.3 Boiling Point at 1 atm: Not pertinent.
- 9.4 Freezing Point: Not pertinent.
- 9.5 Critical Temperature: Not pertinent.
- 9.6 Critical Pressure: Not pertinent.
- 9.8 Liquid Water Interfacial Tension: Not pertinent.
- 9.9 Vapor (Gas) Specific Gravity: Not pertinent.
- 9.10 Heat of Decomposition: Currently not available.
- 9.11 Ratio of Specific Heats of Vapor (Gas): Not pertinent.
- 9.15 Heat of Solution: Not pertinent.
- 9.16 Heat of Polymerization: Not pertinent.
- 9.17 Heat of Fusion: Currently not available.
- 9.18 Limiting Value: Currently not available.
- 9.19 Reid Vapor Pressure: Currently not available.

NOTES
### THORIUM NITRATE

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<th>Temperature (degrees F)</th>
<th>Pounds per cubic foot</th>
<th>Temperature (degrees F)</th>
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### SATURATED LIQUID DENSITY

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### SATURATED VAPOR PRESSURE

### SATURATED VAPOR DENSITY

### IDEAL GAS HEAT CAPACITY

### JUNE 1999