

**MATERIAL SAFETY DATA SHEET****I PRODUCT IDENTIFICATION**

<b>Trade Name:</b>	Yttrium Chloride Hydrate	<b>Chemical Nature:</b>	Lanthanides
<b>Molecular Formula:</b>	$YCl_3 \cdot xH_2O$	<b>CAS #:</b>	10025-94-2
<b>Synonyms:</b>	Yttrium Chloride Hexahydrate, Yttrium Trichloride		

**II HAZARDOUS INGREDIENTS**

<b>Hazardous Components</b>	<b>%</b>	<b>OSHA/PEL</b>	<b>ACGIH/TLV</b>
Yttrium Compounds	0-100	1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>

**NFPA Ratings:** Health: 2      **Flammability:** 0      **Reactivity:** 0

**III PHYSICAL DATA**

<b>Boiling Point 760 mm Hg:</b>	N/E or N/A	<b>Freezing/Melting Point:</b>	100 °C
<b>Specific Gravity:</b>	2.18 g/cc @ 18 °C	<b>Vapor Density:</b>	N/A
<b>Vapor Pressure:</b>	N/A	<b>pH:</b>	4.5 - 5.8
<b>Appearance and Odor:</b>	White to pale yellow crystalline solid, odorless	<b>Solubility in H<sub>2</sub>O:</b>	Soluble

**IV FIRE AND EXPLOSION HAZARDS DATA**

**Flash Point (Method used):** N/A

**Autoignition Temperature:** N/A

**Extinguishing Media:** Not combustible. Use extinguishing method suitable for surrounding materials and type of fire. Do NOT get water inside containers.

**Special Fire Fighting Procedures:** Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing.

**Unusual Fire & Explosion Hazard:** Under fire conditions, toxic, corrosive fumes of hydrogen chloride and/or chlorine are emitted.

**V HEALTH HAZARD INFORMATION****Effects of Exposure:**

To the best of our knowledge the chemical, physical and toxicological properties of yttrium chloride have not been thoroughly investigated and reported.

Yttrium is considered a rare earth metal. These metals are moderately to highly toxic. The symptoms of toxicity of the rare earth elements include writhing, ataxia, labored respiration, walking on the toes with arched back and sedation. The rare earth elements exhibit low toxicity by ingestion exposure. However, the intraperitoneal route is highly toxic while the subcutaneous route is poison to moderately toxic. The production of skin and lung granulomas after exposure to them requires extensive protection to prevent such exposure. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

**Acute Effects:**

**Inhalation:** May cause irritation to the respiratory tract and mucous membrane. Dusts may cause asthma attacks and lung damage such as lung granulomas. Large doses may cause immediate defecation, writhing, loss of muscle coordination, labored respiration, sedation, hypotension and cardiovascular failure.

**Ingestion:** Harmful if ingested. May cause nausea, vomiting, diarrhea, irritation.

**Skin:** Skin absorption not likely. Slightly irritating. May cause irritation, rashes and skin granulomas.

**Eye:** Severe irritant. Can cause redness, irritation, tissue destruction.

#### **Chronic Effects:**

**Inhalation:** Prolonged or repeated inhalation may cause writhing, loss of muscle coordination, labored respiration, sedation, hypotension and cardiovascular failure.

**Ingestion:** May affect the coagulation rate of the blood.

**Skin:** May cause dermatitis, sensitivity to heat, itching and skin lesions.

**Eye:** No chronic health effects recorded.

**Carcinogenicity:** This product does not contain any ingredient designated by IARC, NTP, ACGIH or OSHA as probable or suspected human carcinogens.

**Medical Conditions Possibly Aggravated by Exposure:** Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis.

#### **EMERGENCY AND FIRST AID PROCEDURES:**

**INHALATION:** If respiratory irritation or distress occurs, remove victim to fresh air immediately. Seek medical attention if respiratory irritation or distress continues.

**INGESTION:** If victim is conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water. Do not induce vomiting or give anything by mouth to an unconscious person. Seek immediate medical attention. Do not leave victim unattended. Vomiting may occur spontaneously. To prevent aspiration of swallowed product, lay victim on side with head lower than waist. If vomiting occurs and the victim is conscious, give water to further dilute the chemical. Wash mouth out with water.

**SKIN:** In case of contact, immediately wash with plenty of soap and water for at least 5 minutes. Seek medical attention if irritation develops or persists. Remove contaminated clothing and shoes. Clean contaminated clothing and shoes before re-use.

**EYES:** Hold eyelids open and flush with a steady, gentle stream of water for at least 15 minutes. Seek medical attention if irritation develops or persists or if visual changes occur.

**Notes To Physician:** All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred. Treat symptomatically. No specific antidote available.

#### **VI REACTIVITY DATA**

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**Stability:** Stable

**Conditions to be Avoided:** Incompatible materials, dust generation, moisture, excess heat, exposure to moist air or water.

**Incompatibility (Material to Avoid):** Strong acids, strong bases, moisture, strong oxidizing agents

**Hazardous Decomposition Products:** Hydrogen chloride, chlorine

**Hazardous Polymerization:** Will not occur

#### **VII SPILL OR LEAK PROCEDURES**

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**Steps to be Taken if Spilled or Released:** Sweep or vacuum up and place in an appropriate closed container. Clean up spills immediately, observing precautions in the Special Protection section. Avoid generating dusty conditions. Provide ventilation. Do not get water inside containers.

**Waste Disposal Method:** In accordance with Local, State and Federal Waste Disposal Regulations.

## **VIII SPECIAL PROTECTION INFORMATION**

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**Respiratory Protection (Specify Type):** NIOSH/MSHA approved air-purifying (half-mask/full-face) respirator with cartridges/canister approved for use against dusts, mists and fumes.

**Ventilation:** Use local exhaust to maintain concentration at low levels. Handle in an enclosed, controlled environment. Handle in an inert gas such as argon.

**Eye/Face Protection:** Chemical safety glasses with side shields or splash proof goggles. An emergency eye wash must be readily available in the work area.

**Skin Protection:** Skin contact should be minimized through use of gloves and suitable long-sleeved clothing (ie. Shirts and pants). Consideration must be given both to durability as well as permeation resistance.

## **IX SPECIAL PRECAUTIONS**

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**Precautions to Be Taken in Handling and Storage:** Yttrium chloride is deliquescent. Handle and store in a controlled environment and inert gas such as argon. Avoid direct or prolonged contact with skin and eyes. Avoid breathing dusts. Dry powders can build static electricity charges when subjected to the friction of conveying, mixing or sliding. Provide adequate precautions, such as electrical grounding, or inert atmospheres when material is used in the presence of flammable materials to prevent ignition. Store in an area that is dry. Store in tightly closed containers.

**Work Practices:** Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air. Maintain eyewash capable of sustained flushing, safety drench shower and facilities for washing.

**Warning Statements:** Severe eye irritant. Harmful if inhaled.

**Transportation Status:** The listed transportation classification does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors.

**TSCA Inventory Status:** The hydrated components of this product are listed on the TSCA inventory under their parent anhydrous compounds.

**State Regulations:** This product does not contain any components that are regulated under California Proposition 65.

The above information is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. ESPI shall not be held liable for any damage resulting from handling or from contact with the above product.

Issued by: S. Dierks  
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