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MATERIAL SAFETY DATA SHEET

Section 1- PRODUCT IDENTIFICATION

COMPOSITION ThO2	PRODUCT NAME Thorium Oxide
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Section 2- HAZARDOUS INGREDIENTS

Note: Products under normal conditions do not represent an inhalation, ingestion or contact health hazard.

MATERIAL OR COMPONENT	CAS NUMBER	WT%	EXPOSURE LIMITS	
			OSHA PEL (Mg/M3)	ACGIH TLV(MG/M3)
Thorium Oxide	1314-20-1	100	Nuclear Regulatory Commission maximum concentration 6x10(-11)uCi/ml	

Section 3- PHYSICAL DATA

MATERIAL IS (AT NORMAL CONDITIONS) <input type="checkbox"/> Liquid <input type="checkbox"/> Solid <input type="checkbox"/> Gas <input type="checkbox"/> Other	APPEARANCE AND ODOR White crystalline powder or pieces, no odor
MELTING POINT (BASE METAL) 3050C	SPECIFIC GRAVITY 9.86(gm/cc)

Section 4- FIRE AND EXPLOSION

Flash Point (Method Used) N/A	Flammable Limits None	LEL N/A	UEL N/A
EXTINGUISHING MEDIA Non-flammable			
SPECIAL FIRE FIGHTING PROCEDURES Wear SCBA unit and full protective gear when fighting fires were radioactive material may be present.			
UNUSUAL FIRE AND EXPLOSION HAZARDS A mildly radioactive material.			

Section 5- REACTIVITY DATA

STABILITY Stable	INCOMPATIBILITY (MATERIALS TO AVOID) Strong acids and oxidizers.
CONDITIONS TO AVOID None	

HAZARDOUS DECOMPOSITION PRODUCTS

Emits gamma and alpha radiation and thoron daughter decay products.

Section 6- HEALTH HAZARD GUIDE

MAJOR EXPOSURE HAZARD

Inhalation Skin Skin Absorption Eye Contact Ingestion

EFFECTS OF OVEREXPOSURE

INHALATION: No specific data on effects of inhalation. May be respiratory irritant. Inhaled ThO₂ tends to remain in the lungs and may increase the risk of cancer due to alpha and gamma radiation emission.

SKIN/EYE CONTACT: A skin and eye irritant. Can cause dermatitis upon repeated contact.

OTHER: Insoluble thorium compounds are toxicologically inert on the basis of their chemical properties. However, once deposited in the body, thorium remains for a long period of time and may increase the risk of radiation induced cancer in tissues where it is deposited.

EMERGENCY & FIRST AID PROCEDURES

INHALATION: Remove victim from exposed area to fresh air. Treat symptomatically.

SKIN CONTACT: Remove contaminated clothing and shoes immediately. Brush material off skin and wash affected area with mild soap and water. Check for contamination.

EYE CONTACT: Flush eyes with lukewarm water, lifting upper and lower eyelids for at least 15 minutes. Seek medical attention.

INGESTION: Give 1-2 glasses of water and induce vomiting; seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person.

Section 7- SPILL OR LEAK PROCEDURES

SPILL OR LEAK PROCEDURES

Use vacuum to clean up spills. Vacuum should be equipped with a high efficiency particulate absolute (HEPA) air filter and dedicated to use for radioactive spills only.

WASTE DISPOSAL METHODS

Limits for disposal of thorium natural: Sanitary sewer: 2×10^{-5} uCi/ml; air discharge: 2×10^{-12} uCi/ml. Dispose of contaminated waste in authorized landfills only.

Reference 10CFR Part 20 appendix B. Check with NRC for further restrictions.

Observe all federal, state and local regulations when storing or disposing of this substance.

Section 8- SPECIAL PROTECTION

RESPIRATORY

Respirators approved for dusts, mists, fumes and radionuclides.

VENTILATION

Local exhaust: Recommended for all Th handling. Ventilation system should be filtered to prevent ThO₂ discharges. Mechanical ventilation is not recommended.

EYE PROTECTION & PROTECTIVE CLOTHING

Neoprene, nitrile, polyvinyl protective gloves; safety glasses, goggles; disposable clothing recommended. Prevent skin contact or clothing contamination. Employees should be monitored for exposure to airborne material and should be provided with dosimeters to monitor external exposure.

Section 9- SPECIAL PRECAUTIONS

Wash thoroughly after handling. Store in tight containers away from radiation sensitive equipment or devices.

DOT CLASS: Radioactive

UN Number: 2912

IMCO Class: 7

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