

MATERIAL SAFETY DATA SHEET**I PRODUCT IDENTIFICATION**

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|-------------------------|---------------------|-----------------|-----------------------------------|
| Trade Name: | Zirconium Tungstate | Synonym: | Zirconium tungsten oxide |
| Chemical Family: | Metal tungstate | Formula: | Zr(WO ₄) ₂ |
| CAS #: | 16853-74-0 | | |

II HAZARDOUS INGREDIENTS

| <u>Hazardous Components</u> | <u>%</u> | <u>OSHA/PEL</u> | <u>ACGIH/TLV</u> |
|-----------------------------|----------|--------------------------|--|
| Zirconium Tungstate* | 0-100 | 5 mg (Zr)/m ³ | 5 mg(Zr)/m ³ , 1 mg(W)/m ³ |

*All zirconium materials contain 2-4% hafnium unless otherwise specified.

HMIS Hazard Rating: Health: 2 Flammability: 0 Reactivity: 0 Personal Protection: E

III PHYSICAL DATA

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|--------------------------------------|------------------------|------------------------|---------|
| Boiling Point (°C): | No data | Melting Point: | No data |
| Specific Gravity: | 5.09 gm/cc | Vapor Pressure: | N/A |
| Solubility in H₂O: | Insoluble | Vapor Density: | N/A |
| Appearance and Odor: | White powder, no odor. | | |

IV FIRE AND EXPLOSION HAZARDS DATA

Flash Point: N/A **Autoignition Temperature:** N/A
Explosive Limits: Lower: N/A **Upper:** N/A

Extinguishing Media: Use dry chemical, CO₂.

Special Fire Fighting Procedures: Wear a self-contained breathing apparatus and full protective clothing to prevent contact with skin and eyes.

Unusual Fire and Explosion Hazards: Material may emit toxic fumes if involved in a fire.

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

Zirconium is not an important industrial poison. Most zirconium compounds in common use are insoluble and considered inert. Pulmonary granuloma in zirconium workers has been reported and sodium zirconium lactate has been held responsible for skin granulomas. Avoid inhalation of Zr-containing aerosols, which can cause lung granulomas.

Tungsten compounds are considered somewhat more toxic than those of molybdenum. However, industrially, this element does not constitute an important health hazard. Recent studies have failed to indicate any serious toxic effect following the inhalation or ingestion of various tungsten compounds, although heavy exposure to the dust or the ingestion of large amounts of the soluble

compounds produces a certain rate of mortality in experimental animals.

Acute Effects:

Inhalation: May act as a nuisance dust. Coughing, sneezing, difficulty breathing may occur.

Ingestion: Insoluble tungsten and zirconium compounds are considered toxicologically inert.

Skin: Mechanical irritation only.

Eye: Mechanical irritation. Inflammation and redness possible.

Chronic Effects:

Inhalation: Chronic exposure may cause pulmonary granulomas. May cause irritation of the mucous membranes of the nose and throat.

Ingestion: No data available.

Skin: Chronic exposure may cause dermatitis and skin granulomas.

Eye: No data available.

Target Organs: No data available.

Routes of Entry: Inhalation

Medical Conditions Generally Aggravated by Exposure: Respiratory disorders.

Carcinogenicity: NTP: No IARC: No OSHA: No

EMERGENCY AND FIRST AID PROCEDURES:

INHALATION: Remove to fresh air; give oxygen if breathing is difficult. Seek medical attention immediately.

INGESTION: Give 2 glasses of water. Induce vomiting if large amounts were ingested. Seek medical attention immediately.

SKIN: Brush material off skin, wash area with soap and water. Seek medical attention immediately.

EYE: Flush eyes with lukewarm water for 15 minutes and seek medical attention immediately.

VI REACTIVITY DATA

Stability: Stable

Conditions to Avoid: Heat, incompatible materials.

Incompatibility (Materials to Avoid): Interhalogens, lithium.

Hazardous Decomposition Products: Zr_xO_y , W_xO_y , Zr, W.

Hazardous Polymerization: Will not occur

VII SPILL OR LEAK PROCEDURES

Steps to Be Taken in Case Material Is Released or Spilled: Wear a self-contained breathing apparatus and full protective clothing. Isolate the area where the spill occurred, insure proper ventilation is available. Vacuum up the spill using a high efficiency unit and place in a container for proper disposal. Take care not to raise dust.

Waste Disposal Method: Dispose of in accordance with Local, State and Federal regulations.

VIII SPECIAL PROTECTION INFORMATION

Respiratory Protection: Wear a NIOSH-approved dust-mist-fume cartridge respirator.

Ventilation: Handle in a dry, controlled atmosphere. Use local exhaust to maintain exposure below TLV. General exhaust is recommended

Protective Gloves: Neoprene

Eye Protection: Safety Glasses

Other Protective Equipment: Wear protective gear suitable to prevent contamination.

IX SPECIAL PRECAUTIONS

Precautions to Be Taken in Handling and Storage: Store in tightly closed containers in a cool, dry place. Wash hands and face thoroughly after handling and before eating.

Work Practices: Implement engineering and work practice controls to reduce and maintain concentration of exposure. Handle in a controlled, inert atmosphere. Minimize exposure by using local exhaust and an enclosing process if/when possible. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air.

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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