


ELECTRONIC SPACE PRODUCTS INTERNATIONAL

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MATERIAL SAFETY DATA SHEET
I PRODUCT IDENTIFICATION

Trade Name: Zirconium Oxide
Formula: ZrO₂

Chemical Family: Metal Oxide
CAS #: 1314-23-4

II HAZARDOUS INGREDIENTS

Hazardous Component	%	OSHA/PEL	ACGIH/TLV	STEL
Zirconium Oxide	100	5 mg (Zr)/m ³	5 mg (Zr)/m ³	10 mg/m ³

Sec. 302: No Sec. 304: No Sec. 313: No

HMIS Ratings (0-4): Health: 2 Flammability: 0 Reactivity: 0
HMIS Protective Equipment: E: glasses, gloves, dust respirator

III PHYSICAL DATA

Boiling Point: 5000 °C
Vapor Pressure: N/A
Specific Gravity: 5.89 gm/cc
Appearance and Odor: White, heavy powder or crystal, no odor.

Melting Point: 2700 °C
Vapor Density: N/A
% Volatile: N/E or N/A
Solubility in H₂O: Insoluble

IV FIRE AND EXPLOSION HAZARDS DATA

Flash Point: N/E or N/A
Explosive Limits: Lower: N/A Upper: N/A

Method Used: Non-flammable

Extinguishing Media: Use suitable extinguishing media for surrounding material and type of fire.

Special Fire Fighting Procedures: Firefighters must wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

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

V HEALTH HAZARD INFORMATION

Effects of Exposure:

To the best of our knowledge the chemical, physical and toxicological properties of zirconium oxide have not been thoroughly investigated and recorded.

Zirconium compounds are not an important industrial poison. Most zirconium compounds in common use are insoluble and considered inert. Pulmonary granuloma in zirconium workers has been reported.

Acute Effects:

Inhalation: May cause irritation to the respiratory tract, mucous membranes or the nose and throat.

Ingestion: No acute health effects recorded.

Skin: May cause irritation.

Eye: May cause irritation.

Chronic Effects:

Inhalation: May cause pulmonary edema.

Ingestion: No chronic health effects recorded.

Skin: May cause dermatitis.

Eye: No chronic health effects recorded.

Target Organs: May affect the respiratory system and skin.

Medical Conditions Generally Aggravated by Exposure: Pre-existing respiratory disorders.

Carcinogenicity: NTP: No IARC: No OSHA: No

EMERGENCY AND FIRST AID PROCEDURES:

INHALATION: Remove victim to fresh air. Keep warm and quiet. Give oxygen if breathing is difficult and seek medical attention.

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

SKIN: Remove contaminated clothing, brush material off skin, and wash affected area with mild soap and water. Seek medical attention.

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

VI REACTIVITY DATA

Stability: Stable

Conditions to Avoid: None identified

Incompatibility (Material to Avoid): None identified

Hazardous Decomposition Products: Zirconium and oxides of zirconium.

Hazardous Polymerization: Will not occur

VII SPILL OR LEAK PROCEDURES

Steps to Be Taken in Case Material Is Released or Spilled: Wearing full protective clothing, isolate the area and insure proper ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA)n air filter 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 Waste Disposal Regulations.

VIII SPECIAL PROTECTION INFORMATION

Respiratory Protection (Specify Type): Wear a NIOSH/MSHA approved dust respirator.

Ventilation: Use local exhaust to maintain concentration at or below TLV, PEL. General exhaust is recommended.

Protective Gloves: Rubber gloves

Eye Protection: Safety glasses with side shields

Other Protective Equipment: Maintain sink, safety shower and eyewash fountain in the work area. Wear full protective clothing at all times.

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 meals.

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.

Transportation Requirements: No DOT regulations listed.

TSCA: Product is listed.

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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