

1050 Benson Way, Ashland, OR 97520 Toll Free (800) 638-2581 \* Fax (541) 488-8313 E-Mail: sales@espimetals.com

# MATERIAL SAFETY DATA SHEET

PRODUCT IDENTIFICATION

Trade Name: Zirconium Nitrate Chemical Family: Metal nitrate

Formula:  $Zr(NO_3)_4 \cdot 5H_2O$ 

II HAZARDOUS INGREDIENTS

Hazardous Components%OSHA PELACGIH TLVZirconium nitrate0-100 $5 \text{ mg(Zr)/m}^3$  $5 \text{ mg(Zr)/m}^3$ 

PHYSICAL DATA

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Boiling Point:Decomposes at  $100\,^{\circ}$ CMelting Point:N/E or N/ASpecific Gravity:N/E or N/ASolubility in  $H_2O$ :SolubleVapor Density:N/A% Volatile:N/E or N/A

Appearance And Odor: White hygroscopic crystals, no odor. Vapor Pressure: N/A

IV FIRE AND EXPLOSION HAZARDS DATA

Flash Point: N/E or N/A

Autoignition Temperature: N/E or N/A

Explosive Limits: Lower: N/A Upper: N/A

Extinguishing Media: Use water. Do not use dry chemicals or foams. CO<sub>2</sub> or Halon may provide limited control.

Special Fire Fighting Procedures: Firefighters must wear full face, self-contained breathing apparatus with full protective clothing

to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

Unusual Fire and Explosion Hazards: Dangerous fire and explosion risk in contact with organic materials.

## V HEALTH HAZARD INFORMATION

# Effects of Exposure:

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

Zirconium compounds are not and important industrial poison. Most zirconium compounds in common use are insoluble and considered inert. Pulmonary granuloma in zirconium workers has been reported. (Sax, Dangerous Properties of Industrial Materials, eighth edition).

Large amounts of nitrates taken by mouth may have serious or even fatal results. The symptoms are dizziness, abdominal cramps, vomiting, bloody diarrhea, weakness, convulsions and collapse. Small, repeated doses of nitrates may lead to weakness, general depression, headache and mental impairment. There is also some implication of increased cancer incidence among those exposed.

#### Acute Effects:

Inhalation: Caustic and irritating to the mucous membranes.

Ingestion: Can cause severe gastroenteritis.

Skin: Caustic and irritating to the skin and mucous membranes.

Eye: May cause irritation.

Chronic Effects: No data

Routes of Entry: Inhalation, ingestion and skin.

Medical Conditions Generally Aggravated by Exposure: No data

Carcinogenicity: NTP: No IARC Monographs: No OSHA Regulated: 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: If swallowed do not induce vomiting. Dilute with milk or water and seek medical attention immediately.

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

if symptoms persist.

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

persist.

#### VI REACTIVITY DATA

Stability: Stable

Conditions to Avoid (Instability): None

Incompatibility (Material to Avoid): Explosive compounds may be formed in the presence of ammonia.

Hazardous Decomposition Products:  $NO_x$ Hazardous Polymerization: Will not occur

#### VII SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled: Wear appropriate respiratory and protective equipment specified in Section VIII - Special Protection Information. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed 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 (Specify Type): NIOSH-approved dust respirator.

Ventilation: Use local exhaust to maintain concentration at low exposure levels. General exhaust is not recommended.

Protective Gloves: Rubber Gloves

Eye Protection: ANSI approved safety glasses

Other Protective Clothing or Equipment: Protective gear suitable to prevent contamination.

## IX SPECIAL PRECAUTIONS

**Precautions to Be Taken in Handling and Storage**: Store in a tightly sealed container, store in a cool, dry place. Wash thoroughly after handling. In view of its strong oxidizing properties zirconium nitrate must be stored away from flammable materials and ammonia, and in a cool, well-ventilated place.

Work/Hygienic/Maintenance 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.

Some of the chemicals listed herein are research or experimental substances which may be toxic, as defined by various governmental regulations. In accordance with Environmental Protection Agency regulations and the Toxic Substance Control Act (TSCA), these materials should only be handled by, or under the direct supervision of, a "technically qualified individual", as defined in 40CFR 710.2 (aa).

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