



**SAFETY DATA SHEET**

Identity: Zirconium nitride

Formula: ZrN

**SECTION I - GENERAL INFORMATION**

Manufacturer: Super Conductor Materials, Inc.

The information below is believed to be accurate and represents the best information available to Super Conductor Materials, Inc. However, SCM makes no warranty, expressed or implied with respect to such information and assumes no liability resulting from its use.

**SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION**

Molecular weight: 105.23

CAS #	OSHA PEL	ACGIH TLV	%
25658-42-8	5 mg(Zr)/m3	5 mg(Zr)/m3	0.0 -100.0 %

**SECTION III – PHYSICAL/CHEMICAL CHARACTERISTICS**

Physical States: Solid

Boiling Point: N/A

Vapor Pressure (vs. air or mmHg): N/A

Melting Point: 2980°C

Specific Gravity (Water=1): 7.09 g/cm<sup>3</sup>

Evaporation Rate: N/A

Flash Point: N/A

Solubility in water: Soluble

*Appearance and odor:* Yellow-brown powder and pieces, no odor.

**SECTION IV - FIRE AND EXPLOSION HAZARD DATA:**

*Method Used:* Unknown

*Explosive Limits:* LEL: N/A

UEL: N/A

*Extinguishing Media:* Use suitable extinguishing agent for surrounding material and type of fire

*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:* When heated to decomposition or comes in contact with water, zirconium nitride may emit toxic fumes of ammonia.



SECTION V - REACTIVITY DATA

*Stability:* Stable

*Conditions to Avoid (instability):* Moisture and Water

*Incompatibility (Materials to avoid):* Acids and water

*Hazardous Decomposition or Byproducts:* Ammonia and oxides of zirconium

*Hazardous Polymerization:* Will not occur

*Conditions to avoid (hazardous polymerization):* None

SECTION VI - HEALTH HAZARD DATA

*Routes of entry:* Inhalation? Yes    Ingestion? Yes    Eyes? Yes    Skin? Yes    Other? No

To the best of our knowledge the chemical, physical and toxicological properties of zirconium nitride 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. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

The details of the toxicity of nitrides as a group are unknown. (Sax, Dangerous Properties of Industrial Materials, eighth edition).

*Signs and Symptoms of Overexposure:*

*Inhalation:* May cause red, dry throat, coughing, sneezing and difficulty breathing.

*Ingestion:* No acute or chronic health effects recorded.

*Skin:* May cause redness and itching.

*Eye:* May cause redness, itching and watering.

*Health Hazards (Acute and Chronic):*

*Inhalation:*

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

Chronic: May cause pulmonary edema.

*Ingestion:*

Acute: No acute health effects recorded.

Chronic: No chronic health effects recorded.

*Skin:*

Acute: May cause irritation.

Chronic: May cause dermatitis and skin granulomas.

*Eye:*

Acute: May cause irritation.

Chronic: No chronic health effects recorded.

*Target Organs:* May affect the respiratory system and skin

*Carcinogenicity:* NTP? No    IARC Monographs? No    OSHA Regulated? No

*Medical Conditions Aggravated by Exposure:* Pre-existing and skin disorder



Emergency and First Aid Procedures:

- Inhalation:* Remove victim to fresh air, keep warm and quiet, and give oxygen if breathing is difficult; 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, wash affected area with mild soap and water, and seek medical attention if symptoms persist
- Eye:* Flush eyes with lukewarm water, lifting upper and lower eyelids for at least 15 minutes and seek medical attention

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

*Steps to be taken in case material is released or spilled:*

Wear appropriate respiratory and protective equipment specified in section VIII. Isolate spill area, provide ventilation and extinguish sources of ignition. 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 state, local, and federal regulations.

*Hazard Label Information:*

Store in cool, dry area and in tightly sealed container. Wash thoroughly after handling.

*Precautions:* Zirconium Nitride reacts with water. Handle and store in a dry, controlled atmosphere.

SECTION VIII - CONTROL MEASURES

*Protective Equipment Summary (Hazard Label Information):*

NIOSH approved respirator, impervious gloves, safety glasses, clothes to prevent contact.

*Ventilation:*

Local Exhaust: Local exhaust ventilation may be necessary to control any air contaminants to within their PELs or TLVs during the use of this product.

Special: Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Mechanical (General): Not recommended

Other: Handle in a dry, controlled atmosphere

*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 or smoking. Do not blow dust off clothing or skin with compressed air.

Please be advised that N/A can either mean Not Applicable or No Data Has Been Established