

MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: Zirconium**Formula :** Zr**Product Code:** R-Zr-1001**Chemical Family:** Metal**Synonyms:** Zirconium Metal**Atomic Weight:** 91.22**Manufacturer:**

Rhexon Metals Co., Ltd.

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(0086) 120 (24 Hours)

SECTION 2 COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS No.	Wt%
Zr	7440-67-7	100

SECTION 3 HAZARDS IDENTIFICATION

ROUTES OF ENTRYInhalation Skin Eyes Ingestion Others **CARCINOGEN LISTED IN**

NO DATA

POTENTIAL HEALTH EFFECTS:**Inhalation:**

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

Chronic: No chronic health effects recorded.

Skin:

Acute: May cause irritation.

Chronic: May cause skin granulomas.

Eyes:

Acute: May cause abrasive irritation.

Chronic: No chronic health effects recorded.

Ingestion:

Acute: May cause irritation to the gastrointestinal tract.

Chronic: No chronic health effects recorded.

Signs and Symptoms:

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

Skin: May cause redness and itching.

Eyes: May cause redness, itching and watering.

Ingestion: May cause burning sensation.

Target Organs: May affect the respiratory system and skin.

SECTION 4 FIRST AID MEASURES

Eyes: Hold eyelids apart and flush eyes with lukewarm clear water for at least 15 minutes. Seek medical attention if symptoms persist.

Skin: Remove contaminated clothing and brush materials off skin. Wash affected area with mild soap and water. Wash clothing before reuse. Seek medical attention if irritation persists.

Inhalation: Move victim to fresh air. Keep warm and quiet. If breathing is difficult, give oxygen and seek medical attention immediately.

Ingestion: If patient is conscious, give 1-2 glasses of water or milk and induce vomiting. Seek immediate medical attention. Never induce vomiting or give anything by mouth to an unconscious person.

SECTION 5 FIRE FIGHTING MEASURE

Flammable Properties:

Flash point: Not Applicable

Method used: Flammable Solid

Explosive limits: LEL/UEL: Not established

Auto-ignition Temperature: 200°C (392F)

Unusual Fire and Explosion Hazards:

Spontaneously combustible in dry powder form. Flammable and explosive as dust or powder, also in the form of borings and shavings. Zirconium metal is a very dangerous fire hazard in the form of dust when exposed to heat, flame or by chemical reaction with oxidizing agents. May be an explosion hazard in the form of dust by chemical reaction with air, alkali hydroxides, alkali metal chromates, dichromates, molybdates, sulfates, tungstates, borax, CCl₄, Copper oxide, lead, lead oxide, phosphorous, KClO₃, KNO₃, nitryl fluoride. May be extremely sensitive to shock and static electricity cause spontaneous ignition.

Extinguishing Media: Use Class D or other metal extinguishing agent. DO NOT use water, carbon dioxide or halocarbon extinguishing agent.

Special Fire Fighting Procedures: Firefighters must wear full face and

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.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Keep good general ventilation. Isolate spill and clean up with vacuum. Avoid conditions which create fumes or fine dust. Do not sweep solids and raise dust levels. Put material in appropriate waste container. An approved air purifying respirator with particulate cartridge and other personal protective equipment such as rubber gloves are recommended.

SECTION 7 HANDLING AND STORAGE

Handling: Machining of zirconium may result in fine turnings or chips. Any material with a dimension less than 0.0625" (1/16") or a cross section less than 0.0078" square (1/16" x 1/8"), if present in any quantity, can be ignited and can sustain combustion. Keep away from any source of ignition. Keep fine turnings completely dry, or very wet. If wet, the water content should be more than 25% by weight for maximum safety in handling. Severe explosions can result from ignition of zirconium powder or machining fines containing moisture in the concentration range of 5 to 10%.

Storage: Keep fine turnings completely dry, or very wet. If wet, the water content should be more than 25% by weight.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Local and general exhaust ventilation is recommended to control any airborne contaminants and to reduce potential exposure.

Personal protection

Eyes: wear chemical safety glasses or goggles

Skin: gloves are recommended when handling solids

Respirator: A NIOSH approved air purifying respirator with a particulate filter or a HEPA dust mask is recommended under certain circumstances where airborne concentrations are expected to be elevated or when ventilation is not available. Avoid breathing dust.

Other: avoid the use of contact lens in high fume and dust areas. Maintain good housekeeping. Clear up spills immediately. Source of clear water should be available. Good person hygiene is essential. Avoid eating, drinking, or smoking in the work area. Wash hand thoroughly with soap and water immediately upon leaving the working area.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Silver-grey metallic pieces
Odor: no odor
Boiling Point: 4377°C (7910.6 F)
Melting Point: 1850°C (3362F) to 1852°C (3365.6 F)
Specific Gravity: 6.506 g/cm³
Solubility in water: insoluble
PH: No data
Percent volatile: no data

SECTION 10 STABILITY AND REACTIVITY

General: stable
Conditions to Avoid: None
Incompatible Materials: Strong oxidizing agents, air, alkali hydroxides, alkali metal chromates, dichromates, molybdates, sulfates, tungstates, borax, CCL₄, copper oxide, lead, lead oxide, phosphorus, KClO₃, KNO₃, nitrylfluoride and acids
Hazardous Decompositions or byproducts: None recorded
Hazardous Polymerization: Will not occur.

SECTION 11 TOXICOLOGICAL INFORMAITON

Carcinogenicity
Occupational Safety & Health Administration (OSHA) NO
U.N. International Agency for Research on Cancer (IRAC) NO

Irritancy of product : may be a irritancy
Sensitization to product: not established
Reproductive toxicity: not establish
Mutagenicity: not established
Teratogenicity: not established
synergistic products: not established

SECTION 12 ECOLOGICAL INFORMAITON

Do not allow material to be released to the environment without proper governmental permits.

SECTION 13 DISPOSAL CONSIDERATIONS

Consult local or national regulations to ensure proper disposals

SECTION 14 TRANSPORT INFORMATION

Not a hazardous material for transportation. Transport in accordance with applicable regulations and requirements.

SECTION 15 OTHER INFORMATION

HMIS Hazard Rating

Minimal 0 ; Slight 1 ; Moderate 2; Serious 3; Extreme 4

Health 2

Flammability 3

Reactivity: 0

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