



# Safety Data Sheet

9/15/2017

## Zirconium Metal Powder

---

### SECTION 1: PRODUCT AND COMPANY INFORMATION

Product Name: Zirconium Metal Powder  
CAS Number: 7440-67-7  
EC No: 231-176-9  
Appearance and Odor: Dark gray powder, odorless

Use and Restrictions: Product is intended for professional Special Effects use only. Use of this material is at sole risk of the purchaser.

Supplier: Roger George Special Effects  
14525 Bessemer St Van Nuys, CA 91411

Telephone: (818) 994-3049  
Fax: (818) 994-9432  
Emergency Phone: 800-535-5053 #85740

---

### SECTION 2: HAZARDS IDENTIFICATION

#### 2.1 Classification of Substance or Mixture

Pictogram



GHS02

Signal Word: **Danger**

#### 2.2 Hazard Statement

H228 Flammable solid  
H250 Catches fire spontaneously if exposed to air

#### 2.3 Precautionary Statement

P210 Keep away from heat/ sparks/ open flames/ hot surfaces  
P222 Do not allow contact with air  
P231 + P232 Handle under inert gas. Protect from moisture  
P235 Keep cool  
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection  
P402 + P404 Store in a dry place. Store in a closed container

#### 2.4 HMIS Classification

Health: 1  
Fire: 3  
Reactivity: 2

#### 2.5 NFPA Rating

Health: 1  
Fire: 3  
Reactivity: 2

## 2.6 Chronic Health Hazard

Prolonged inhalation of zirconium dust or fumes may result in inflammation of the lung tissue

## 2.7 Acute Health

**EYE EXPOSURE:** May cause eye irritation.

**SKIN EXPOSURE:** May cause skin irritation.

**INHALATION:** May be harmful if inhaled. Can cause irritation to respiratory tract.

**INGESTION:** May be harmful if swallowed.

---

## SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

|                   |             |
|-------------------|-------------|
| Chemical Name:    | Zirconium   |
| Formula:          | Zr          |
| Percent content:  | 95-100%     |
| Molecular weight: | 91.22 g/mol |
| CAS Number:       | 7440-67-7   |
| EINECS no.        | 231-176-9   |

---

## SECTION 4: FIRST AID MEASURES

**EYE EXPOSURE:** Flush eyes IMMEDIATELY with water for at least 15 minutes consistently.

**SKIN EXPOSURE:** Wash area of contact with water and remove affected clothing if required.

**INHALATION:** Remove individual to a well ventilated area and provide oxygen if breathing is difficult.

**INGESTION:** Drink 1-2 glasses of water and induce vomiting if directed by medical personnel.

Seek immediate medical attention. DO NOT induce vomiting or give water if individual is unconscious.

\*Seek immediate medical attention if required.

---

## SECTION 5: FIREFIGHTING MEASURES

### 5.1 Extinguishing Media

Use Type-D dry powder extinguisher, limestone, or sand. Where applicable, let allow fire to self extinguish. DO NOT use water, carbon dioxide, or halocarbon to extinguish.

### 5.2 Hazardous Combustion Products

Zirconium Oxides, Carbon oxides

### 5.3 Special Fire Fighting Procedures

Wear self-contained NIOSH approved positive pressure respirator along with fully protective clothing/equipment, including eye and face shield.

### 5.4 Special Hazards Arising from the Substance or Mixture

Zirconium oxide fumes

---

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1 Personal Precautions

Wear protective eye wear, gloves, and fire resistant clothing at all times when handling this material. Avoid dust formation. Avoid breathing dust vapours, mist or gas. Avoid contact with skin, eyes, and clothing. Ensure adequate ventilation. Keep away from shock, friction, and sources of ignition.

## 6.2 Environmental Precautions

Prevent spillage or leakage. Prevent material from getting into drain or sewer system. Do not allow material to be released into the environment or ground soil.

## 6.3 Methods and Materials for Containment and Cleaning Up

Clean up or sweep any spilled material and place inside a suitable container for disposal. Dispose in accordance with federal, state, and local regulations.

---

# SECTION 7: HANDLING AND STORAGE

## 7.1 Precautions for Safe Handling

Wear protective eye wear, gloves, and fire resistant clothing at all times when handling this material. Avoid contact with skin, eyes, and clothing. Avoid dust formation. Avoid friction, heat, sparks, and flames. Use non-sparking tools and utensils. Ensure adequate ventilation.

## 7.2 Conditions for Safe Storage

Store in a cool and dry place away from heat sources, sunlight, static electricity, and sources of ignition. Keep container tightly sealed at all times when not in use. Avoid contact with or storing next to oxidizers, acids, or bases.

## 7.3 Environmental Precautions

Prevent spillage or leakage. Prevent material from getting into drain or sewer system. Do not allow material to be released into the environment or ground soil.

---

# SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

## 8.1 Exposure Controls

| <u>Component</u> | <u>Exposure</u><br>(Long Term) | <u>Exposure</u><br>(Short Term) | <u>Basis</u>                                 | <u>Authority</u> |
|------------------|--------------------------------|---------------------------------|--|------------------|
| Zirconium        | 5 mg/m <sup>3</sup>            |                                 | Permissible Exposure Limit                   | OSHA             |
| Zirconium        | 5 mg/m <sup>3</sup>            | 10 mg/m <sup>3</sup>            | Threshold Limit Value (over 8 hours of work) | ACGIH            |
| Zirconium        | 5 mg/m <sup>3</sup>            | 10 mg/m <sup>3</sup>            | Recommended Exposure Limit                   | NIOSH            |
| Zirconium        | 0.15 mg/m <sup>3</sup>         |                                 | Time-Weighted Average                        | OSHA             |

## 8.2 Personal Protection

Respiratory Protection: Use a NIOSH/MSHA approved respirator when breathing conditions are difficult or when exposure limits are exceeded.

Eye Protection: Use NIOSH/MSHA approved chemical safety goggles along with face shield.

Skin Protection: Use impervious gloves such as butyl rubber or nitrile along with fire resistant clothing to prevent contact with skin.

Ventilation: Use adequate exhaust ventilation.

Protective Gloves: Use impervious gloves such as butyl rubber or nitrile.

Other Protective Equipment: Wear boots and/or adequate footwear protection.

Work Hygienic Practices: Exercise good hygienic and safety practices. Thoroughly wash hands with soap and water after handling material, especially before eating, drinking, smoking, or using restroom facilities.

---

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

|                                       |   |
|---------------------------------------|---|
| <b>Appearance:</b>                    | Dark Gray powder                                  |
| <b>Odor:</b>                          | None  |
| <b>Melting Point:</b>                 | 1852° C / 3,366° F                                |
| <b>Boiling Point:</b>                 | 4,377° C / 7,911° F                               |
| <b>Flash Point:</b>                   | Not applicable                                    |
| <b>Auto Ignition Temperature:</b>     | 200° C / 392° F                                   |
| <b>Flammable Limits:</b>              | LEL (lower explosion limit): 40 mg/m <sup>3</sup> |
| <b>pH:</b>                            | Not applicable                                    |
| <b>Density / Specific Gravity:</b>    | 6.51 g/cm <sup>3</sup>                            |
| <b>Vapor Density:</b>                 | Not applicable                                    |
| <b>Solubility in Water:</b>           | Insoluble   |
| <b>Vapor Pressure (mmHg @ 25° C):</b> | 0   |

---

## SECTION 10: STABILITY AND REACTIVITY

### 10.1 Chemical Stability

Stable under normal / recommended storage conditions.

### 10.2 Possibility of Hazardous Reactions

Reacts with oxidizers, acids, and bases.

### 10.3 Conditions to Avoid

Avoid friction, heat, sparks, static discharges, flames, and/or other ignition source. Avoid exposure of dry powder to air.

### 10.4 Incompatibility

Oxidizers, acids, bases, hydrogen fluoride, phosphorus, halocarbons, oxygen

### 10.5 Hazardous decomposition Products

Zirconium oxides, Carbon oxides

---

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1 Acute Toxicity

No known effects

|                         |               |
|-------------------------|---------------|
| <b>Oral LD50:</b>       | Not available |
| <b>Inhalation LC50:</b> | Not available |
| <b>Dermal LD50:</b>     | Not available |

## 11.2 Carcinogenicity

**ACGIH:** Not classified as a carcinogen  
**IARC:** Not classified as a carcinogen  
**OSHA:** Not classified as a carcinogen  
**NTP:** Not classified as a carcinogen  
**EPA:** Not classified as a carcinogen

## 11.3 Reproductive Toxicity

No known effects

## 11.4 Teratogenicity

No known effects

## 11.5 Specific Target Organ System Toxicity (Single exposure)

No known effects

## 11.6 Specific Target Organ System Toxicity (Repeated exposure)

No known effects

## 11.7 Aspiration Hazard

No known effects

**11.8 Other information on toxicity:** Powder may cause irritation to the eyes, skin, and respiratory tract. May be harmful if absorbed through skin, ingested, or inhaled.

## 11.9 RTECS

ZH7070000

---

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1 Toxicity

Not available

### 12.2 Persistence and Degradability

Not available

### 12.3 Bioaccumulative Potential

Not available

### 12.4 Mobility in Soil

Not available

### 12.5 PBT and vPvB Assessment

Not available

### 12.6 Other Adverse Effects

Not available

## SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of product and container in accordance with federal, state, and local regulations. Use precautions when disposing with ignitable waste. Consult with an environmental waste disposal service provider.

---

## SECTION 14: TRANSPORTATION DATA

### 14.1 DOT

Proper Shipping Name: Zirconium Powder, Dry  
UN number: 2008  
Class: 4.2 Spontaneously Combustible  
Packing Group: II

Marine Pollutant: No  
Poison Inhalation Hazard: No

### 14.2 IMDG

Proper Shipping Name: Zirconium Powder, Dry  
UN number: 2008  
Class: 4.2 Spontaneously Combustible  
Packing Group: II

Marine Pollutant: No

### 14.3 IATA

Proper Shipping Name: Zirconium Powder, Dry  
UN number: 2008  
Class: 4.2 Spontaneously Combustible  
Packing Group: II

Marine Pollutant: No

---

## SECTION 15: REGULATORY INFORMATION

### 15.1 Toxic Substance Control Act (TSCA)

Chemical component(s) in this product are on the section 8(b) Chemical Substance Inventory List (40 CFR 710).

### 15.2 Superfund Amendments and Reauthorization Act (SARA)

**SARA 302:** Extremely Hazardous Substances: Pursuant to Section 302 of SARA Title III, this product does not contain an extremely hazardous substance.

**SARA 311/312:** Hazard Categories: Pursuant to Section 311/312 of SARA Title III, the physical and health categories for this product are identified below:

|                                    |     |
|------------------------------------|-----|
| Fire Hazard:                       | Yes |
| Sudden Release of Pressure Hazard: | No  |
| Reactivity Hazard:                 | No  |
| Immediate (Acute) Health Hazard:   | Yes |
| Delayed (Chronic) Health Hazard:   | No  |

**SARA 313:** Toxic Chemicals: Pursuant to Section 313 of SARA Title III, this product does not contain a toxic chemical in excess of 1 percent of the mixture.

### **15.3 California Prop 65**

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

### **15.4 Massachusetts Right to Know Components**

Zirconium pyrophoric

### **15.5 Pennsylvania Right to Know Components**

Zirconium pyrophoric

### **15.6 New Jersey Right to Know Components**

Zirconium pyrophoric

---

## **SECTION 16: OTHER INFORMATION**

The information contained in this SDS is believed to be correct and accurate to the best of our knowledge. Roger George Special Effects makes no representations with respect to any warranty for use of this information, including, but not limited to the warranty of merchantability, express or implied, and assumes no liability resulting from its use. This disclaimer further extends to the accuracy, completeness, or integrity of the information contained herein. Roger George Special Effects urges that each user undertake their own investigation to determine the suitability of this information for their particular use. This information is intended to be used only as a guide in handling the product. Roger George Special Effects and/or and of its Affiliates will not be held liable in any manner for any claims, losses, or damages resulting from contact to, handling of, and/or use of the product(s) mentioned herein.