# Safety Data Sheet
# Magnesia Stabilized Zirconia Powder

## SECTION 1: Identification

**Product identifier**

| | |
|---|---|
| Product name | Magnesia Stabilized Zirconia Powder |
| Substance name | Magnesia Stabilized Zirconia<br>ZrO2, HfO2,MgO |
| Other names / synonyms | Magnesia Stabilized Zirconia Ceramic,<br>RTP, MSZ |

**Recommended use of the chemical and restrictions on use**
For forming pressed compacts and fired ceramic components.

**Supplier's details**

| | |
|---|---|
| Name | Stanford Advanced Materials |
| Address | 23661 Birtcher Dr. Lake<br>Forest, CA 92630 USA |
| Telephone | +1 (949) 407-8904 |
| **Emergency phone number(s)** | +1 (949) 407-8904 |

## SECTION 2: Hazard identification

**Classification of the substance or mixture**
Not a hazardous substance or mixture

**GHS label elements, including precautionary statements**
Not a hazardous substance or mixture

**Other hazards which do not result in classification**
Not a hazardous substance or mixture

## SECTION 3: Composition/information on ingredients

**Components**

**1. Zirconium oxide**

| | |
|---|---|
| Concentration | 79 - 97 % |
| Other names / synonyms | Zirconium oxide |
| CAS no. | 1314-23-4 |

**2. Magnesium oxide**

| | |
|---|---|
| Concentration | 0 - 10 % |
| Other names / synonyms | Magnesium oxide |
| CAS no. | 1309-48-4 |

**3. Hafnium Oxide**

| | |
|---|---|
| Concentration | 0 - 1 % |
| Other names / synonyms | Hafnium Oxide |
| CAS no. | 12055-23-1 |

**2. Organic Binders**

| | |
|---|---|
| Concentration | 3 - 10 % |
| Other names / synonyms | Organic Binders |

## SECTION 4: First-aid measures

**Description of necessary first-aid measures**

| | |
|---|---|
| If inhaled | Move to fresh air and consult with local medical personnel if discomfort persists. |
| In case of skin contact | Wash affected area with soap and water and consult with local medical personnel if irritation persists. |
| In case of eye contact | Flush with tepid water for a minimum of 15 minutes and consult with local medical personnel if discomfort persists. |
| If swallowed | Administer water to dilute, but not if person is unconscious. Consult with local medical personnel if discomfort persists. |

## SECTION 5: Fire-fighting measures

**Suitable extinguishing media**
Use any means suitable for extinguishing surrounding fire.

**Specific hazards arising from the chemical**
Possible Class A fire hazard – combustible vapors can develop in the headspace over the product. Flash point is 220ºC (428ºF).

**Special protective actions for fire-fighters**
Use protective clothing and breathing equipment appropriate for the surrounding fire and to protect against the dust that may be dispersed in the air.

**Further information**
Releases CO and CO2 in a fire and at temperatures >220ºC (428ºF).

## SECTION 6: Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

Sweep up any spills and place in containers for disposal or reclaim. Vacuuming or wet sweeping may be used to avoid excessive dust.

**Methods and materials for containment and cleaning up**
Any dust from machining should be wet mopped or dry vacuumed.

## SECTION 7: Handling and storage

**Precautions for safe handling**
Store in a cool dry place. Any dust should be wet mopped.

## SECTION 8: Exposure controls/personal protection

**Control parameters**

**1. Magnesium oxide fume - Total Particulate (CAS: 1309-48-4)**
PEL (Inhalation): 15 mg/m3 (OSHA)
OSHA Annotated Table Z-1, www.osha.gov

**2. Magnesium oxide fume - Total Particulate (CAS: 1309-48-4)**
PEL (Inhalation): 10 mg/m3 (Cal/OSHA)
OSHA Annotated Table Z-1, www.osha.gov

**3. Magnesium oxide fume - Total Particulate (CAS: 1309-48-4)**
REL (Inhalation): See Appendix D (NIOSH)
OSHA Annotated Table Z-1, www.osha.gov

**Appropriate engineering controls**
Local or general exhaust ventilation recommended.

**Individual protection measures, such as personal protective equipment (PPE)**

**Eye/face protection**
Safety goggles in the presence of airborne dust.

**Skin protection**
Polymer gloves for prolonged dust exposure.

**Respiratory protection**
NIOSH/MSHA approved respirator for dust when exposure limit is exceeded.

## SECTION 9: Physical and chemical properties

**Information on basic physical and chemical properties**

| | |
|---|---|
| Appearance/form | White, Flowable Powder |
| Odor | Odorless |
| Odor threshold | N/A |
| pH | N/A |
| Melting point | N/A |
| Initial boiling point and boiling range | N/A |
| Flash point | N/A |
| Evaporation rate | N/A |
| Flammability (solid, gas) | N/A |

| | |
|---|---|
| Upper/lower flammability limits | N/A |
| Upper/lower explosive limits | N/A |
| Vapor pressure | N/A |
| Vapor density | N/A |
| Relative density | >1.2 g/cc |
| Solubility(ies) | Organic Portion Soluble in Water |
| Partition coefficient: n-octanol/water | N/A |
| Auto-ignition temperature | N/A |
| Decomposition temperature | N/A |
| Viscosity | N/A |
| Explosive properties | N/A |
| Oxidizing properties | N/A |

## SECTION 10: Stability and reactivity

**Chemical stability**
Stable

**Hazardous decomposition products**
CO and CO2 in a fire and at temperatures >220ºC (428ºF).

## SECTION 11: Toxicological information

**No Applicable Information Found**

## SECTION 12: Ecological information

**No Applicable Information Found**

## SECTION 13: Disposal considerations

**Disposal of the product**
This material is not hazardous per 40 CFR 261. Consultation with federal, state and local officials is recommended before disposal.

## SECTION 14: Transport information

**DOT (US)**
Not dangerous goods

**IMDG**
Not dangerous goods

**IATA**
Not dangerous goods

## SECTION 15: Regulatory information

**US FEDERAL**

**TSCA**

CAS# 1314-23-4 Zirconium Oxide is listed on the TSCA inventory.
CAS# 1309-48-4 Magnesium Oxide is listed on the TSCA inventory.
CAS# 12055-23-1 Hafnium Oxide is listed on the TSCA inventory.

**SARA Section 302 Extremely Hazardous Substances**
Substance Not Listed.
**Section 313**
Substance Not Listed.
**OSHA:**
None of the chemicals in this product are considered highly hazardous by OSHA.

**US STATE**

**CAS# 1309-48-4 Magnesium Oxide** can be found on the following state right to know lists:
Florida, Illinois, New Jersey, Pennsylvania, Texas (regulated under a synonym).
Consult your state and local resources for further information.

**California Prop 65**
No components on list.

## SECTION 16: Other information

**Further information/disclaimer**
Although reasonable care has been taken to provide accurate and current information in preparation of this document, Stanford Advanced Materials extends no warranties, makes no representation and assumes no responsibility for any loss, damage, or injury of any kind which may result from reliance of information provided in this document by any person.

**Preparation Information**
Prepared by: Stanford Advanced Materials
Email: sales@samaterials.com
www.samaterials.com

Prepared on: May 31, 2024
Last Revision: --