



Safety Data Sheet
Magnesia Stabilized Zirconia Powder

SECTION 1: Identification

Product identifier

Product name	Magnesia Stabilized Zirconia Powder
Substance name	Magnesia Stabilized Zirconia ZrO ₂ , HfO ₂ , MgO
Other names / synonyms	Magnesia Stabilized Zirconia Ceramic, 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 Forest, CA 92630 USA

Telephone	+1 (949) 407-8904
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Emergency phone number(s)	+1 (949) 407-8904
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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 %
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Other names / synonyms	Zirconium oxide
CAS no.	1314-23-4

2. Magnesium oxide

Safety Data Sheet

Magnesia Stabilized Zirconia Powder

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 220°C (428°F).

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 >220°C (428°F).

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Safety Data Sheet

Magnesia Stabilized Zirconia Powder

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

Safety Data Sheet

Magnesia Stabilized Zirconia Powder

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 >220°C (428°F).

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

Safety Data Sheet

Magnesia Stabilized Zirconia Powder

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: --