



MATERIAL SAFETY DATA SHEET

SECTION 1. Chemical Product and Company Identification			
Product Name:	Magnesia Stabilized Zirconia	Chemical Name:	
Supplier:	Superior Technical Ceramics Corp. 600 Industrial Park Road St. Albans, VT 05478 (802) 527-7726 phone (802) 527-1181 fax	<u>In Case of Emergency Call:</u> (802) 527-7726	
Synonym:	Calcia/Magnesia stabilized zirconia		
Material Use:	Wear resistant or thermal insulating technical ceramics.		
Date Prepared:	May 6, 2009		
Prepared By:	Janna L. Bevins/Jason B. Voellinger		

SECTION 2. Composition, Information or Ingredients			
NAME:	CAS#:	% BY WEIGHT	COMMENTS:
Zirconium Oxide	1314-23-4	80-99	5 mg/m ³ TLV and OSHA PEL
Magnesium Oxide	1309-48-4	<10	10 mg/m ³ TLV and OSHA PEL
Calcium Oxide	1305-78-8	<10	
Amorphous Silica	112926-00-8	<1	
Hafnium Oxide	12055-23-1	<1	

SECTION 3. Hazards Identification			
Emergency Overview:			
Production poses dust or machining swarf that may cause irritation to eyes, nose, throat, and/or skin.			
Health Rating:	Flammability Rating:	Reactivity Rating:	Contact Rating:
2 – Moderate	0 – None	0 – None	2 – Moderate
Lab Protective Equipment:	Eye protection and proper dust collection if machining occurs.		
Storage Color Code:	Green (General Storage)		



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Potential Health Effects:	
Inhalation:	Hazard is principally that of a nuisance dust only as a byproduct of machining. Coughing or shortness of breath may occur in cases of excessive inhalation.
Ingestion:	No adverse effects expected.
Skin Contact:	No adverse effects expected but dust may cause irritation.
Eye Contact:	No adverse effects expected but dust may cause irritation.
Chronic Exposure:	Prolonged exposure may cause dermatitis and a benign pneumoconiosis. The liver and lung toxicity exhibited by pure hafnia does not manifest itself in studies involving zirconia containing 2-3% hafnia. Calcia and magnesia have a lower order of chronic toxicity. Pre-existing lung and skin conditions may possibly be aggravated by exposure to the components of the product. See Section 16.
Aggravation of Pre-existing Conditions:	Not expected to be a health hazard.

SECTION 4. First Aid Measures	
Inhalation:	Move to fresh air and consult with local medical personnel if discomfort persists.
Ingestion:	Administer water to dilute, but not if person is unconscious. Consult with local medical personnel if discomfort persists.
Eye Contact:	Flush with tepid water for a minimum of 15 minutes and consult with local medical personnel if discomfort persists.
Skin Contact:	Wash affected area with soap and water and consult with local medical personnel if irritation persists.

SECTION 5. Fire-Fighting Measures	
Fire:	Not considered a fire hazard.
Explosion:	Not considered an explosion hazard.
Fire Extinguishing Media:	Use any means suitable for extinguishing surrounding fire.
Special Information:	Use protective clothing and breathing equipment appropriate for the surrounding fire and to protect against the dust that may be dispersed in the air.

SECTION 6. Accidental Release Measures	
Any dust from machining should be wet mopped or dry vacuumed.	



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SECTION 7. Handling and Storage	
Any dust from machining should be wet mopped or dry vacuumed.	

SECTION 8. Exposure Controls and Personal Protection	
Airborne Exposure Limits:	5 mg/m ³ TWA matter OSHA PEL
Ventilation System:	Local or general exhaust ventilation recommended.
Personal Respirators (NIOSH Approved):	NIOSH/MSHA approved respirator for dust when exposure limit is exceeded.
Skin Protection:	Polymer gloves for prolonged dust exposure.
Eye Protection:	Safety goggles in the presence of airborne dust.

SECTION 9. Physical and Chemical Properties			
Appearance:	White, light yellow or tan solid	pH:	NIA
Odor:	Odorless	Boiling Point:	3910°C (7000°F)
Solubility:	<1% soluble in water	Melting Point:	2200°C (4000°F)
Specific Gravity:	5.6-5.8 g/cc	Vapor Pressure/ Vapor Density:	NIA

SECTION 10. Stability and Reactivity			
Chemical Stability:	Stable		
Hazardous Decomposition:	NIA	Hazardous Polymerization:	NIA
Incompatibilities:	NIA	Conditions to Avoid:	NIA

SECTION 11. Toxicological Information	
NIA	

SECTION 12. Ecological Information	
NIA	

SECTION 13. Disposal Considerations	
This material is not hazardous per 40 CFR 261. Consultation with federal, state and local officials is recommended before disposal.	



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SECTION 14. Transport Information

Not regulated.

SECTION 15. Regulatory Information

NIA

SECTION 16. Other Information

The product contains less than 0.0825% (825 ppm) of uranium plus thorium. An NRC license is required by individuals who use more than 18,000 pounds at any time or 180,000 pounds per year. Thorium dioxide has been listed as a substance known to cause cancer by the State of California, and as an Extraordinarily Hazardous Substance and Carcinogen by the State of Massachusetts.