

SECTION 1. IDENTIFICATION

GHS product identifier Zirconia Ceramic

Chemical name Fired or Sintered Zirconia Ceramic Formed Parts

Other means of identification YTZP, TTZ, DURA-Z, ZDY, YZ-110, TZ-3Y-E, Cerastat

Product type Solid

RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

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SECTION 2. HAZARDS IDENTIFICATION

OSHA/HCS status While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture Not classified

GHS LABEL ELEMENTS

Signal word No signal word

Hazard statements No known significant effects or critical hazards

PRECAUTIONARY STATEMENTS

Prevention Not applicable

Response Not applicable

Storage Not applicable

Disposal Not applicable

Hazards not otherwise classified None known

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/mixture	Mixture
Chemical name	Fired or Sintered Zirconia Ceramic Formed Parts
Other means of identification	YTZP, TTZ, DURA-Z, ZDY, YZ-110, TZ-3Y-E, Cerastat
CAS NUMBER/OTHER IDENTIFIERS	
CAS number	Not applicable
Product code	Not available

INGREDIENT NAME	%	CAS NUMBER
Zirconium dioxide	90 - 100	1314-23-4
Yttrium oxide	10 - 30	1314-36-9
Magnesium oxide	1 - 5	1309-48-4

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4. FIRST AID MEASURES

DESCRIPTION OF NECESSARY FIRST AID MEASURES

Eye contact	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Get medical attention if irritation occurs.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact	Flush contaminated skin with plenty of water. Get medical attention if symptoms occur.
Ingestion	Not a likely route of exposure. If large amounts of product are ingested, give two glasses of water and get prompt medical attention. Never give anything by mouth to an unconscious person.

SECTION 4. FIRST AID MEASURES CONTINUED

MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE AND DELAYED

Potential acute health effects

Eye contact	High dust concentrations from grinding, sanding, or machining formed parts in a way that generates dust may cause mechanical eye irritation.
Inhalation	High dust concentrations from grinding, sanding, or machining formed parts in a way that generates dust may cause upper respiratory irritation.
Skin contact	Prolonged skin contact with dust may result in dryness. If no dust is generated from fired parts, no acute effects are known.
Ingestion	No known significant effects or critical hazards

Over-exposure signs/symptoms

Eye contact	No known significant effects or critical hazards
Inhalation	No known significant effects or critical hazards
Skin contact	No known significant effects or critical hazards
Ingestion	No known significant effects or critical hazards

INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED, IF NECESSARY

Notes to physician	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	No specific treatment
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. See toxicological information (Section 11)

SECTION 5. FIREFIGHTING MEASURES

EXTINGUISHING MEDIA

Suitable extinguishing media	Material does not burn. Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	None known
Specific hazards arising from the chemical	No specific fire or explosion hazard
Hazardous thermal decomposition products	Decomposition products may include the following materials: metal oxide/oxides
Special protective actions for firefighters	No special measures are required
Special protective equipment for firefighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

For non-emergency personnel

No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Put on appropriate personal protective equipment.

For emergency responders

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For nonemergency personnel".

Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil, or air).

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP

Spill

Move containers from spill area. Prevent entry into sewers, water courses, basements, or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. If fired powder is released, wear an N-95 dust mask or half-face respirator and polymer gloves and clean up with a shovel, wet mop, or vacuum system. If the powder is mixed with water, dam any drains in the area with absorbent material and clean up using mops, wet vacuums, or similar equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

SECTION 7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING

Protective measures

Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene

Eating, drinking, and smoking should be prohibited in areas where this material is handled, stored, and processed. Workers should wash hands and face before eating, drinking, and smoking. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Do not store in unlabeled containers. Any dust generated during handling or processing should be removed by wet mopping or vacuuming.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CONTROL PARAMETERS

Occupational exposure limits	None
Appropriate engineering controls	Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
Environmental exposure controls	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

INDIVIDUAL PROTECTION MEASURES

Hygiene measures	Wash hands, forearms, and face thoroughly after handling chemical products, before eating, smoking, and using the lavatory and at the end of the working period.
Eye/face protection	Recommended: safety glasses or goggles
SKIN PROTECTION	
Hand protection	Wear polymer gloves if prolonged exposure to powder is expected. Use of a barrier cream can reduce potential skin rash due to extremely dry skin.
Body protection	Not required under normal conditions of use
Other skin protection	Not required under normal conditions of use
Respiratory protection	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Physical state	Solid [Formed Parts]
Color	White
Odor	None
Odor threshold	Not applicable
pH	Not applicable
Melting point	>1700°C (>3092°F)
Boiling point	>2200°C (>3992°F)
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability (solid, gas)	Material does not burn
Lower and upper explosive (flammable) limits	Not applicable
Vapor pressure	Not applicable
Vapor density	Not applicable
Relative density	3.7

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES CONTINUED

Solubility	Insoluble in the following materials: cold water and hot water.
Solubility in water	Negligible solubility in water
Partition coefficient: n-octanol/water	Not applicable
Auto-ignition temperature	Not flammable
Decomposition temperature	Not available
Viscosity	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	No specific data
Incompatible materials	Reactive or incompatible with the following materials: oxidizing materials
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON TOXICOLOGICAL EFFECTS

Acute toxicity	There is no data available.
Irritation/Corrosion	There is no data available.
Sensitization	There is no data available.
Mutagenicity	There is no data available.

CARCINOGENICITY

Classification

PRODUCT/INGREDIENT NAME	OSHA	IARC	NTP	ACGIH	EPA	NIOSH
Zirconium dioxide	-	-	-	A4	-	-
Magnesium oxide	-	-	-	A4	-	-

Reproductive toxicity	There is no data available.
Teratogenicity	There is no data available.
Specific target organ toxicity (single exposure)	There is no data available.
Specific target organ toxicity (repeated exposure)	There is no data available.

SECTION 11. TOXICOLOGICAL INFORMATION CONTINUED

Aspiration hazard	There is no data available.
Information on the likely routes of exposure	Inhalation
POTENTIAL ACUTE HEALTH EFFECTS	
Eye contact	High dust concentrations from grinding, sanding, or machining formed parts in a way that generates dust may cause mechanical eye irritation.
Inhalation	High dust concentrations from grinding, sanding, or machining formed parts in a way that generates dust may cause upper respiratory irritation.
Skin contact	Prolonged skin contact with dust may result in dryness. If no dust is generated from fired parts, no acute effects are known.
Ingestion	No known significant effects or critical hazards.
SYMPTOMS RELATED TO THE PHYSICAL, CHEMICAL AND TOXICOLOGICAL CHARACTERISTICS	
Eye contact	No known significant effects or critical hazards
Inhalation	No known significant effects or critical hazards
Skin contact	No known significant effects or critical hazards
Ingestion	No known significant effects or critical hazards
DELAYED AND IMMEDIATE EFFECTS AND ALSO CHRONIC EFFECTS FROM SHORT AND LONG TERM EXPOSURE	
Short term exposure	
Potential immediate effects	No known significant effects or critical hazards
Potential delayed effects	No known significant effects or critical hazards
Long term exposure	
Potential immediate effects	No known significant effects or critical hazards
Potential delayed effects	No known significant effects or critical hazards
Potential chronic health effects	
General	No known significant effects or critical hazards
Carcinogenicity	No known significant effects or critical hazards
Mutagenicity	No known significant effects or critical hazards
Teratogenicity	No known significant effects or critical hazards
Developmental effects	No known significant effects or critical hazards
Fertility effects	No known significant effects or critical hazards
NUMERICAL MEASURES OF TOXICITY	
Acute toxicity estimates	There is no data available.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity	There is no data available.
Persistence and degradability	There is no data available.
Bioaccumulative potential	There is no data available.

MOBILITY IN SOIL

Soil/water partition coefficient (K_{oc})	Not available
Other adverse effects	No known significant effects or critical hazards.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods	The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions, and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers.
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SECTION 14. TRANSPORT INFORMATION

	DOT CLASSIFICATION	IMDG	IATA
UN number	Not regulated	Not regulated	Not regulated
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No	No	No
Additional information	-	-	-

AERG : Not applicable.

Special precautions for user	Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
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SECTION 15. REGULATORY INFORMATION

U.S. Federal regulations	TSCA 8(a) CDR Exempt/Partial exemption: Not determined United States inventory (TSCA 8b): All components are listed or exempted.
Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)	Not listed
Clean Air Act Section 602 Class I Substances	Not listed
Clean Air Act Section 602 Class II Substances	Not listed
DEA List I Chemicals (Precursor Chemicals)	Not listed
DEA List II Chemicals (Essential Chemicals)	Not listed
SARA 302/304	
Composition/information on ingredients	No products were found.
SARA 304 RQ	Not applicable
SARA 311/312	
Classification	Not applicable
SARA 313	There is no data available.
STATE REGULATIONS	
Massachusetts	The following components are listed: Zirconium dioxide; Magnesium oxide
New York	None of the components are listed.
New Jersey	The following components are listed: Magnesium oxide
Pennsylvania	The following components are listed: Magnesium oxide
California Prop. 65	No products were found.

SECTION 16. OTHER INFORMATION

Procedure used to derive the classification

CLASSIFICATION

JUSTIFICATION

Not classified

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HISTORY

Date of issue mm/dd/yyyy 02/15/2024

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Prepared by Heeger Materials Inc.

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Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.