

**Calcium stabilised Zirconia (ZrO₂, CaO)****1 IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND COMPANY**

1.1	Identification of the substance or preparation: Commercial product name:	Zirconium dioxide calcium stabilised	95ZC
1.2	Use of substance / preparation Identified uses	Refractories, Abrasives and Ceramics	
1.3	Company/manufacturer: Manufacturer/distributor: PB No./street: State/postal code/city: Country: Telephone: Telefax: Email:	UCM Zirconia Inc. UCM Zirconia Inc. 109 Coile Street PO Box 1240 Greeneville Tennessee 37744 USA 001 423 787 0333 001 423 787 0775 rick.hawk@ucm-zirconia.com	
1.4	Emergency Information: Department responsible for information:	001 423 787 0333 Technical/Quality	

2 HAZARDS IDENTIFICATION

Critical hazards to man and environment	
Classification EC 1272/2008(CLP)	Not classified as hazardous goods
EC 67/548/EEC or 1999/45/EC:	No Hazards characteristics, No R- or H-Phrases

3 COMPOSITION / INFORMATION ON INGREDIENTS

Chemical characterization (substance):	ZrO ₂ 92-96 %, *CaO 3-6 %, *HfO ₂ 1-2%, *others < 1% *in combined state with Zirconium dioxide
Definition acc. to EC directive(EINECS No):	Zirconium dioxide 215-227-2, Calcium oxide 215-171-9 Hafnium dioxide 235-013-2
CAS No.:	ZrO ₂ 1314-23-4, CaO 1305-78-8 HfO ₂ 12055-23-1
REACH Reg. No.:	01-2119486976-14-0003

Zirconium dioxide is a non hazardous substance. A MSDS is not mandatory required. We provide on a voluntary basis a Data sheet in the style of 1907/2006 EEC.

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Edition 2 Issued:

Edition 3 Issued:

une société du groupe
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**Calcium stabilised Zirconia (ZrO₂, CaO)****4 FIRST AID MEASURES**

- | | | |
|-----|----------------------|---|
| 4.1 | Inhalation: | Move to fresh air, Consult a physician if necessary |
| 4.2 | Skin contact : | Mechanical (dry) removal. Subsequent rinsing with water. |
| 4.3 | Eye contact: | Flush with plenty of water.
Seek medical advice if irritation persists |
| 4.4 | Ingestion: | Rinse out mouth and give water to drink.
Seek medical advice. |

5 FIRE FIGHTING MEASURES

- | | | |
|-----|---|---|
| 5.1 | Suitable extinguishing media:..... | Not flammable. Use extinguishing measures appropriate to the source of the fire |
| 5.2 | Extinguishing media which must not be used for safety reasons: | None known |
| 5.3 | Special exposure hazards arising from the substance itself, combustion products, resulting gases: | Product is not an explosion hazard. May be capable of spark generation during attrition or impact (not applicable in fine powder form). |
| 5.4 | Special protective equipment:..... | Not applicable |

6 ACCIDENTAL RELEASE MEASURES

- | | | |
|-----|----------------------------------|---|
| 6.1 | Personal precautions:..... | Avoid dust formation. In case of exposure to high levels of airborne dust, wear personal protective equipment (see also item 8) |
| 6.2 | Environmental precautions: | No special measures required |
| 6.3 | Methods for cleaning up:..... | Pick up mechanically and dispose of in accordance to regulations |



**Calcia stabilised Zirconia (ZrO₂, CaO)****7 HANDLING AND STORAGE**

- 7.1 Handling:
Precautions for safe handling:..... Avoid dust formation
Precautions against fire and explosion:..... No danger of fire and dust explosion
- 7.2 Storage:
Conditions of storage rooms and vessels:.. No special precautionary measures
Advice of storage of incompatible materials: None

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

- 8.1 Exposure limit values: Not applicable
- 8.1.1 Components with specific control
parameters as limit values: Observe the local bye laws in terms of fine dust (e.g.: ACGIH-TWA value 10 mg/m³)
- 8.2 Exposure controls
- 8.2.1 Occupational exposure controls:
Respiratory protection: Avoid inhaling the dust
Fine-dust mask with category P2 filter must be used if fine dust limits are exceeded.
- Hand protection:..... Protective gloves are recommended
Eye protection:..... Safety glasses are recommended
General protection and hygiene measures:.. Observe standard industrial hygiene practice
- 8.2.2 Environmental exposure controls No special exposure controls required



**Calcium stabilised Zirconia (ZrO_2 , CaO)****9 PHYSICAL AND CHEMICAL PROPERTIES**

- 9.1 **Appearance:**
Form: **Grains, powder**
Colour: **White/Yellow/Orange/Grey**
Odour: **Odourless**
- 9.2 **Safety relevant basic parameters:**
Change in physical state: **melting point approx. 2500 °C**
boiling approx. 3800 °C
Flash point: **Not applicable**
Flammability: **Not flammable**
Ignition temperature: **Not applicable**
Auto flammability: **Not auto flammable**
Oxidizing properties: **Not applicable**
Explosive properties: **Not applicable**
Explosive limits: **Not applicable**
Vapour pressure: **Not applicable**
Specific gravity: **(5-6) g/cm³**
Bulk density: **(500- 4000) kg/m³**
Solubility in water: **Practically insoluble,**
pH value: **Not applicable**
Partition coefficient n-octanol/water: **Not applicable**

10 STABILITY AND REACTIVITY

- 10.1 **Conditions to avoid:** **None**
10.2 **Materials to avoid:** **None**
10.3 **Hazardous decomposition products:** **The material is stable, no hazardous reactions known**



**Calcium stabilised Zirconia (ZrO₂, CaO)****11 TOXICOLOGICAL INFORMATION**

11.1	Toxic kinetics:.....	No bio accumulating potential
11.2	Acute effects/toxicity tests)	
	oral :	Not applicable. Not a relevant exposure route
	Dermal :	Not applicable
	Inhalation :	Not applicable
	Skin corrosion:	Not corrosive
	Skin irritation :	Not irritating
	Eye irritation:.....	Not irritating
	Sensitisation:	Not sensitising
	Repeated dose Toxicity:	
	Oral:	Not applicable. Not a relevant exposure route.
	Inhalation:	Not applicable. Not a relevant exposure route.
	CMR effects:.....	There is no evidence of any CMR effects

12 ECOLOGICAL INFORMATION

12.1	Ecotoxicity:	No harmful effects on water organisms anticipated The substance is highly insoluble in water.
12.2	Mobility - distribution to terrestrial compartments:	Not applicable
12.3	Persistence and degradability:.....	Chemically inert and insoluble in water. Separation by mechanical processes (sedimentation, filtration etc.)
12.4	Results of PBT assessment:	Zirconium oxide is not a PBT substance.
12.5	Other adverse effects	None

13 DISPOSAL CONSIDERATIONS

13.1	Appropriate disposal:.....	Reuse or recycle when possible. Can be stored with domestic waste. Observe local bye-laws
13.2	Contaminated packaging:.....	Packaging has to be emptied entirely. Recycling of used packaging is recommended. Local bye-laws must be observed



**Calcium stabilised Zirconia (ZrO₂, CaO)****14 TRANSPORT INFORMATION**

- 14.1 Land transport:
GGVS / ADR - classification: Not classified as hazardous material
GGVE / RID: Not classified as hazardous material
- 14.2 Inland waterways:
GGVBis / ADNR - classification: Not classified as hazardous material
- 14.3 Maritime transport:
GGVSee / IMDG - classification: Not classified as hazardous material
- 14.4 Air transport:
ICAO-TI / IATA - classification: Not classified as hazardous material

15 REGULATORY INFORMATION

- 15.1 Classification according to EC guidelines:
Labelling EC No 1272/2008: The product is not classified. No hazard symbol is necessary.
Labelling (67/548/EEC or 1999/45/EC) None
Hazard symbols None
- 15.2 National regulations:
e.g.: (Germany) Classification according VbF: Not subjected to VbF
Water Pollution Category: Not water polluting (VwVwS (Germany) dated 27.07.2005, enclosure 1)



**Calcium stabilised Zirconia (ZrO_2 , CaO)****16 OTHER INFORMATION****16.1 Relevant R-and H-Phrases: None**

Zirconium Dioxide is a non-toxic, inert material, but does exhibit a very low level of natural radioactivity. UCM Advanced Ceramics GmbH products are not notifiable under the Ionising Radiation Regulations 1985 (typically 36 Bq/g compared to registration level of 100 Bq/g) except for dusty operations where the appropriate regulatory authority recommendations must be observed. Zirconium Dioxide powders containing lower levels of natural radioactivity are available; these conform to the U.S. Food and Drug Administration limit of 100 ppm of U + Th (typical values in product 25 ppm).

This information covers the safety requirements of the product(s) exclusively and is based on current knowledge and experience. It does not represent a guarantee for properties of the described product(s) in terms of the legal warranty regulations.

The product specification is contained in a separate product data sheet.

16.2 Issuer of MSDS UCM Zirconia Inc. Tech. Center**16.3 Annex Exposure Scenarios**

As a result of the hazard assessment and PBT/vPvB assessment it is found that the Substance Zirconium Dioxide (CAS# 1314-23-4) does not meet the criteria for classification as hazardous (according to the directives 67/548/EEC and 1272/2008/EC) nor it is considered to be a PBT/vPvB. An exposure assessment and the subsequent step of risk characterisation are not required.

