

## StarCeram<sup>®</sup> Z-Al-Med HD

<b>Chemical Formula</b>	ZrO <sub>2</sub> / Y <sub>2</sub> O <sub>3</sub> / Al <sub>2</sub> O <sub>3</sub>
<b>Chemical Name</b>	Yttria-stabilized tetragonal Zirconia
<b>Colour:</b>	White opaque
<b>Description of Product</b>	Pre-sintered blanks from Zirconium Oxide for dental applications

### Chemical Characteristics

ZrO <sub>2</sub> / HfO <sub>2</sub> / Y <sub>2</sub> O <sub>3</sub>	> 99.0	wt%
Y <sub>2</sub> O <sub>3</sub>	5.15 ± 0.2	wt%
HfO <sub>2</sub>	< 5	wt%
Al <sub>2</sub> O <sub>3</sub>	0.25 ± 0.10	wt%
Fe <sub>2</sub> O <sub>3</sub>	< 0.1	wt%
Na <sub>2</sub> O	< 0.04	wt%

### Physical Properties (after final sintering)

Density	> 6.05	g/cm <sup>3</sup>
Flexural strength	1.200 ± 200	MPa
Weibull modulus	> 8	
Young's modulus	210	GPa
Thermal expansion	11	10 <sup>-6</sup> 1/K
Open porosity	none	

### Radio Activity

Activity <sup>238</sup> U, <sup>226</sup> Ra, <sup>232</sup> Th	< 0.2	Bq/g	according ISO 13356.2
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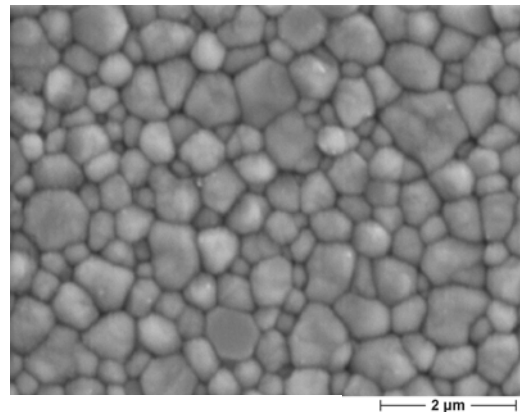
### Biocompatibility and Chemical Solubility

Cytotoxicity ISO	inoffensive	DIN EN ISO 10993 / DIN EN ISO 9363
Chemical analysis	under detection limit (< 1 µg/cm <sup>2</sup> )	DIN EN ISO 10903 / DIN EN ISO 6872

## Product Description and Applications

Pre-sintered blanks from tetragonal stabilized Zirconium Oxide StarCeram<sup>®</sup> Z-Al-Med HD are a semi-finished ceramic product with special properties for medical applications, especially for machining of crowns and bridges with CAD/CAM milling systems. The high fracture toughness, high strength and the good biocompatibility are leading to outstanding properties for medical applications.

StarCeram<sup>®</sup> Z-Al-Med HD Zirkonium Oxide  
photomicrograph  
scale see photograph



StarCeram<sup>®</sup> Z-Al-Med HD Zirkonium Oxide  
Examples of presintered products



The properties of StarCeram<sup>®</sup> Z-Al-Med HD meet the requirements of DIN EN ISO 6872.

<b>Packaging</b>	StarCeram® Z-Al-Med HD products are individually packed, depending on size Packaging according to transport regulations.
<b>Storage and Handling</b>	Handle with care! Ceramic products may break if not treated properly. Store cool and dry. Storage and handling are subject to the rules and regulations in the country of use.
<b>Hazards identification in Advertising (Directive 67/548/EEC Article 26 and Directive 1999/45/EC Article 13)</b>	none.
<b>Documentation</b>	An inspection document in accordance with EN 10204 is supplied when requested.

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