

STARCERAM[®] Z

Chemical Formula	ZrO ₂ / Y ₂ O ₃
Chemical Name	Zirkonium oxide
Characteristic	Ytria-stabilized tetragonal zirconia
Description of Product	Parts made of zirconia
Colour	White

Chemical Characteristics

ZrO ₂ / HfO ₂ / Y ₂ O ₃	> 99.0	wt%
Y ₂ O ₃	5.25 ± 0.75	wt%
Al ₂ O ₃	< 0.3	wt%
SiO ₂	< 0.02	wt%
Fe ₂ O ₃	< 0.01	wt%
Na ₂ O	< 0.04	wt%

Mechanical and physical Properties

Density	> 6	g/cm ³
Flexural strength	> 800	MPa
Young's modulus	210	GPa
Fracture toughness	5	MPa.m ^{1/2}
Thermal conductivity	2	W/mK
Thermal expansion (RT-1000°C)	10.8	*10 ⁻⁶ /K ⁻¹
Hardness (HV10)	12	GPa
Thermal shock coefficient R1	280	K
Max. working temperature	800	°C

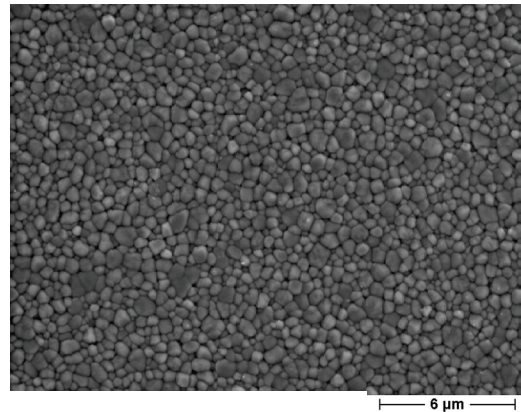
The data indicated relates to the test specimens from which it was obtained and is not unconditionally applicable to other forms of the same material. The data must, therefore, be regarded as indicative only.

Product Description and Applications

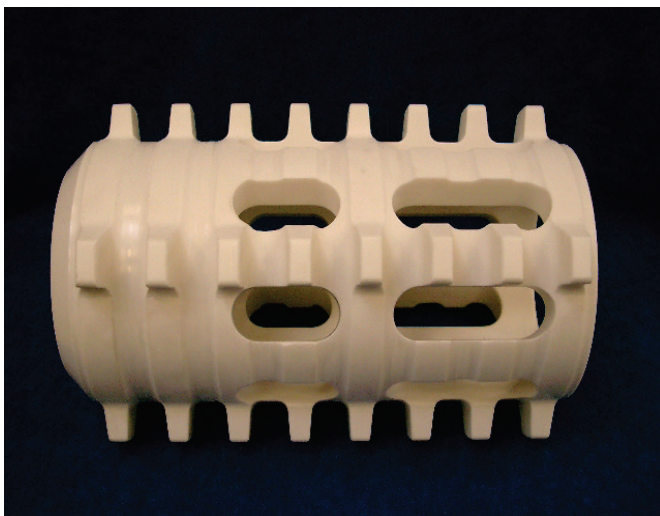
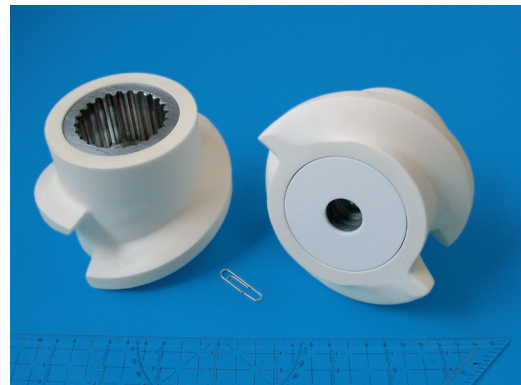
Yttria stabilised zirconia is favoured in wide range of mechanical and forming applications as it has the highest fracture toughness of the oxide ceramic materials. It also possesses very good high temperature properties and can be joined directly to steel due the compatible coefficients of expansion.

Another characteristic of zirconia is the electrolytic conductivity at higher use temperatures. Therefore we use zirconia for the production of sheets for fuel cells.

SEM Photomicrograph
scale see photograph
STARCERAM® Z



Example of products
STARCERAM® Z



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Packaging	STARCERAM® Z products are individually packed, depending on size Packaging according to transport regulations.
Storage and Handling	Handle with care! Ceramic products may break if not treated properly. Storage and handling are subject to the rules and regulations in the country of use.
Hazards identification in Advertising (REGULATION (EC) No 1272/2008 Article 48)	none.
Documentation	An inspection document in accordance with EN 10204 is supplied when requested.

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