**STARCELERAM® Z**

Chemical Formula: \( \text{ZrO}_2 / \text{Y}_2\text{O}_3 \)

Chemical Name: Zirkonium oxide

Characteristic: Yttria-stabilized tetragonal zirconia

Description of Product: Parts made of zirconia

Colour: White

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### Chemical Characteristics

- \( \text{ZrO}_2 / \text{HfO}_2 / \text{Y}_2\text{O}_3 > 99.0 \text{ wt\%} \)
- \( \text{Y}_2\text{O}_3 \quad 5.25 \pm 0.75 \text{ wt\%} \)
- \( \text{Al}_2\text{O}_3 < 0.3 \text{ wt\%} \)
- \( \text{SiO}_2 < 0.02 \text{ wt\%} \)
- \( \text{Fe}_2\text{O}_3 < 0.01 \text{ wt\%} \)
- \( \text{Na}_2\text{O} < 0.04 \text{ wt\%} \)

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### Mechanical and Physical Properties

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

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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.

Example of products
STARCERAM® Z
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.

Hazard 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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