

BASIC PROPERTIES

- Very hard
- Resists to high temperature
- Low thermal conductivity
- Can be polished
- Relatively flexible

APPLICATIONS

Wear parts
Hot extrusions dies
Welding centring pins
Mechanical components for use at all temperature
Cutting tools, kitchen knives
Medical
Dental technician
Scrapers
Doctor rings for pad printing

| MATERIAL | | ZIRCONIA OXIDE YTTRIA (Y2O3-PSZ) | ZIRCONIA OXIDE MAGNESIA (MgO-PSZ) | ZIRCONIA OXIDE CUBIC (Y2O3-FSZ) |
|------------------------------------------------|----------------------|----------------------------------------|-----------------------------------------|---------------------------------------|
| Chemical formula | | ZrO2 | ZrO2 | ZrO2 + Y2O3 (10,5%) |
| Aspect / color | | White | Yellow | White |
| Porosity | | Impervious | Impervious | Impervious |
| Mechanical | | Measuring unit | | |
| Hardness Vickers | | 1300 | 1100 | - |
| Weilbull modulus at 20°C | | 11 | 20 | - |
| Young modulus | GPa | 220 | 200 | - |
| Mechanical resistance (3 pts flexion) at 800°C | MPa | 300 | 250 | - |
| Mechanical resistance (3 pts flexion) at 20°C | MPa | 540 | 360 | 276 |
| Crushing resistance at 20°C | MPa | 6000 | 3500 | 1772 |
| Crushing resistance at 800°C | MPa | 2100 | 1800 | - |
| Tenacity | MPa.m ^{1/2} | 10 | 8,5 | - |
| Physical | | | | |
| Max. use temperature in air | °C | 1000 | 1200 | 2200 |
| Density | g/cm ³ | 6 | 5,9 | 5,92 |
| Bulk density | g/cm ³ | 6 | 5,6 | - |
| Melting point | °C | 1000 | 1200 | - |
| Electrical | | | | |
| Electrical resistivity 20°C | Ohm, m | | >107 | - |
| Dielectric constant | - | | 2,4 (for 1MHz) | - |
| Dielectric strength | kV/mm | | >107 | - |
| Loss tangent for 1 GHz | Hz | | 8,8 | - |
| Thermal | | | | |
| Specific heat | J/Kg.°K | 550 | 680 | - |
| Thermal conductivity 1000°C | W/m.°K | 4,1 | 2,2 | 2 |
| Thermal conductivity 20°C | W/m.°K | 3 | 1,9 | 2 |
| Thermal conductivity 500°C | W/m.°K | 2 | 2,1 | - |
| Thermal choc resistance | °C | Weak | Medium | - |
| Linear expansion | x10 ⁻⁶ | 11 | 9 | 11,3 |

*These values are for informational purposes only and do not bind company's responsibility.