

Material selection guide

Durable materials, right design

| | | MgPSZ | | Y-TZP | | ATZ |
|--|--|--------|----------|------------|-------|-------|
| | | Izory® | Izory®HD | Dark HIPed | HIPed | HIPed |

| PROPERTY | TEST METHOD | Izory® | Izory®HD | Dark HIPed | HIPed | HIPed |
|---|-----------------------------|--------|----------|------------|---------------|-------|
| Color | | Ivory | Ivory | Tan | White or Gray | White |
| Chemistry (%) | ICP & EDS | | | | | |
| ZrO ₂ + HfO ₂ + MgO | | 99.50 | 97.14 | | | |
| Y ₂ O ₃ + HfO ₂ + ZrO ₂ | | | | 99.50 | 99.70 | 79.95 |
| Al ₂ O ₃ | | | | 0.25 | 0.30 | 20.00 |
| Other | 0.5 | 0.50 | 2.86 | 0.05 | 0.05 | 0.05 |
| Density [g/cm ³] | ISO 18754 | 5.75 | 5.78 | 6.08 | 6.08 | 5.50 |
| Water absorption | ASTM-373 | nil | nil | nil | nil | nil |
| Grain Size [μm] | ASTM E-112 | 70 | 20 | 0.4 | 0.4 | 0.7 |
| Fracture Toughness K _{IC} [MPa·m ^{1/2}] | ASTM C-1421 - Chevron Notch | 10 | 10 | 5 | 5 | 9 |
| Loop Abrasion [mm ³] | ASTM G-174 | 0.150 | 0.100 | 0.060 | 0.060 | 0.010 |
| Modulus of Elasticity MOE [GPa] | ASTM E-1876-99 | 214 | 214 | 214 | 214 | 296 |
| Modulus of Rupture 4 pt MOR [MPa] | ASTM C-1161 | 575 | 650 | 1550 | 1550 | 1900 |
| Hardness Vickers [HV 1] | ASTM C-1327-08 | 1050 | 1225 | 1550 | 1550 | 1730 |
| Poisson Ratio | ASTM E-1876-99 | 0.31 | 0.31 | 0.32 | 0.32 | 0.27 |
| Compressive Strength [MPa] | ASTM C-773 | 1760 | 1760 | 2580 | 2580 | 2100 |
| Thermal Conductivity RT [W/m·°K] | ASTM C-408 | 2.50 | 2.50 | 2.18 | 2.18 | 6.00 |
| Coefficient of Thermal Exp. X10 ⁻⁶ /°C (25-1000°C) | ASTM C-372 | 10.2 | 10.2 | 10.7 | 10.7 | 9.0 |
| Maximum Material Use Limit [°C] | No Load | 500 | 500 | 1500 | 1500 | 1500 |



NOTES: Typical values are not intended to be used as a specification. Contact Refractron for application suitability.

Contact:
 1.315.573.1134
 adamo@refractron.com
 www.refractron.com
 Newark, NY 14513, USA

follow us:  

