

Refractron Advanced Ceramics

Zirconia for severe service and high pressure systems

PUMP AND VALVE COMPONENTS

Enhance Operational Effectiveness

- ✓ Right Material with Proper Design
- ✓ Inventory Availability & Short Lead-times
- ✓ Traceability with Laser Marking

Improve Reliability
Increase Profitability

Lowest Total Cost

- ✓ Fair Market Pricing
- ✓ Direct Replacement Parts
- ✓ Longevity



Have you benchmarked the reliability of your critical components?

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PROPERTIES

	MgPSZ	Y-TZP		ATZ
	Izory® HD	Dark HIPed	HIPed	HIPed
COLOR	Ivory	Tan	White or Gray	White
CHEMISTRY: ZrO ₂ + HfO ₂ + MgO [%]	97.14			
ZrO ₂ + HfO ₂ + Y ₂ O ₃ [%]		99.50	99.70	79.95
Al ₂ O ₃ [%]		0.30	0.25	20
Other [%]	2.86	0.20	0.05	0.05
DENSITY [g/cm ³] ISO 18754	5.78	6.08	6.08	5.50
WATER ABSORPTION ASTM-373	nil	nil	nil	nil
GRAIN SIZE [µm] ASTM E-112	20	0.4	0.4	0.7
FRACTURE TOUGHNESS K _{IC} [MPa√m] ASTM C-1421	10	5.2	5.2	9.0
LOOP ABRASION [mm ³] ASTM G174 (d)	0.100	0.060	0.060	0.010
MODULUS OF ELASTICITY MOE [GPa] ASTM E1876-99	214	214	214	296
MODULUS OF RUPTURE 4pt MOR [MPa] ASTM C-1161	650	1550	1650	1360
HARDNESS VICKERS [HV1] ASTM C1327-08	1225	1550	1600	1730
POISSON RATIO ASTM E1876-99	0.31	0.32	0.32	0.27
COMPRESSIVE STRENGTH [MPa] ASTM C773	1760	2580	2580	2100
THERMAL CONDUCTIVITY RT [W/m K] ASTM C408	2.50	2.18	2.18	6.00
COEFFICIENT OF THERMAL EXP. x10 ⁻⁶ /°C [25-1000 °C] ASTM C372	10.2	10.7	10.7	9.0
MAXIMUM USE LIMIT [°C] ISO 18754	500	1500	1500	1500