



# BZ-1 – Yttria Stabilized Zirconia

## MATERIAL TECHNICAL DATA SHEET

**TRADE NAME:** BZ-1

### **MATERIAL DESCRIPTION**

**Chemical Name & Formula:** Yttria Partially Stabilized Zirconia ( $Y_2O_3$  PSZ) –  $ZrO_2 + Y_2O_3$

### **MAIN COMPONENTS**

ZrO<sub>2</sub>: 94% min

Y<sub>2</sub>O<sub>3</sub>: 5% min

### **PHYSICAL DATA**

Physical Form: Polycrystalline structure

Boiling Temperature: N.A.

Melt Temperature: 2730°C

Vapour Pressure: N.A.

Evaporation Rate: N.A.

Specific gravity: N.A.

Density: 6,00g/cm<sup>3</sup>

Water solubility: Insoluble

Colour: White

Odour: None

### **MECHANICAL PROPERTIES AT ROOM TEMPERATURE**

Water Absorption	%	0
Vickers Hardness	(HV 0,5)	1250
Flexural Strength	MPa	1000
Compressive Strength	MPa	2100
Young's Modulus	GPa	200
Maximum service temperature	°C	1000
Thermal Conductivity @20°C	W/(m·K)	2
Thermal Expansion Coefficient (RT-800°C)	10 <sup>-6</sup> /°C	10,7
Thermal Shock Resistance (ΔT)	°C	300

### **PHYSICAL AND CHEMICAL PROPERTIES**

Excellent chemical and wear resistance. High mechanical load value, with low tendency to weld.

Low resistance to HF (Hydrofluoric acid – highly concentrated solution).

Please, note that all values quoted are based on test pieces and may vary according to component design. These values are not guaranteed in any way and should only be treated as indicative values. They should be used for guidance only and for no other purpose.

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