

MATERIAL TECHNICAL DATA SHEET

TRADE NAME: BZ-1

I. Material Description
Chemical Name & Formula: Yttria Partially Stabilized Zirconia - Y ₂ O ₃ PSZ

II. Components <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">ZrO₂</td> <td style="width: 15%;">MIN %</td> <td style="width: 15%;">95</td> </tr> <tr> <td>Y₂O₃</td> <td>MIN %</td> <td>5</td> </tr> </table>	ZrO ₂	MIN %	95	Y ₂ O ₃	MIN %	5	III. Physical Data <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Physical form</td> <td>Polycrystalline Structure</td> </tr> <tr> <td>Boiling Temperature</td> <td>NA</td> </tr> <tr> <td>Melt Temperature</td> <td>2730 °C</td> </tr> <tr> <td>Vapor Pressure</td> <td>NA</td> </tr> <tr> <td>Evaporation Rate</td> <td>NA</td> </tr> <tr> <td>Specific Gravity</td> <td>NA</td> </tr> <tr> <td>Density</td> <td>6,00 g/cm³</td> </tr> <tr> <td>Water Solubility</td> <td>Insoluble</td> </tr> <tr> <td>Color</td> <td>White</td> </tr> <tr> <td>Odor</td> <td>None</td> </tr> </table>	Physical form	Polycrystalline Structure	Boiling Temperature	NA	Melt Temperature	2730 °C	Vapor Pressure	NA	Evaporation Rate	NA	Specific Gravity	NA	Density	6,00 g/cm ³	Water Solubility	Insoluble	Color	White	Odor	None
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IV. Mechanical Properties at Room Temperature			
Water Absorption	%		: 0
Vickers Hardness (HV 0.5)	Gpa		: 13
Flexural Strength	Mpa		: 1000
Compressive Strength	Mpa		: 2100
Young's Modulus	Gpa		: 200
Fracture Toughness	MPa*m ^{1/2}		: 10
Maximum Service Temperature	°C		: 1000
Thermal Conductivity at 20 °C	W/m*k		: 2
Thermal Expansion Coeff.	x10 ⁻⁶ / °C	20 ± 400 °C	: 9,6
		20 ± 800 °C	: 10,7
Thermal Shock Resistance	ΔT °C		: 300

V. Physical and Chemical Properties Excellent chemical and wear resistance. High mechanical loads value, with low tendency to weld. Eg: cutting tools, forming tools, plungers. Low resistance to HF (Hydrofluoric acid - highly concentrated solutions).
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VI. Fire and Explosion Data	
Flashpoint	: NA
Auto - Ignition Temperature	: NA
Flammability Limits in Air	: NA
Product is non - flammable Not an explosion hazard	

Please, note that all the above-mentioned values 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.