



# INTERNATIONAL CERAMIC ENGINEERING

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**Engineering Answers in Advanced Ceramics**

## Zirconia (ZrO) Property Data Sheet

<i>Material Properties</i>	<i>Units of Measure</i>	<u>ZTA</u>	<u>TTZ</u>	<u>YTZP</u>
<u>PHYSICAL</u>				
<i>Color</i>		White	Ivory	White
<i>Hardness</i>	GPa	85	77	83
<i>Water Absorption</i>	%	0	0	0
<i>Specific Gravity</i>	g/cc	---	---	---
<u>MECHANICAL</u>				
<i>Elastic Modulus</i>	GPa	360	200	200
<i>Compressive</i>	MPa	2900	1750	2500
<i>Flexural</i>	MPa	450	620	900
<i>Fracture Toughness</i>	MPa x m <sup>1/2</sup>	5-6	11	13
<u>THERMAL</u>				
<i>Thermal Conductivity</i>	W/m °K @ 25 °C	27	2.2	2.2
<i>Coefficient of Thermal Exp.</i>	25-600 °C x 10 <sup>-6</sup> per °C	8.2	10.1	10.3
<i>Specific Heat</i>	J/kg-K	885	600	400
<u>ELECTRICAL</u>				
<i>Volume Resistivity</i>	25 °C 500 °C 1000 °C	>10 <sup>13</sup> 10 <sup>9</sup> 10 <sup>6</sup>	>10 <sup>13</sup> 5 x 10 <sup>4</sup> <10 <sup>2</sup>	>10 <sup>13</sup> 1 x 10 <sup>3</sup> <10 <sup>1</sup>
<i>Dielectric Loss</i>	1 MHZ @ 25 °C	0.0005	0.001	0.001
<i>Dielectric strength</i>	ac-kv/mm	9.0	9.4	9.0

\*The information set forth herein is offered by comparison only, and is not to be construed as absolute engineering data or constituting a warranty or representation for which we assume legal responsibility.

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