Nilcra® Zirconia 3Y-TZP Grade

Description
- Yttria-Tetragonal Zirconia Polycrystal (Y-TZP) with excellent transformation toughening properties.
- Comprising 3 mol% (5.2 wt%) Y₂O₃ in ZrO₂.

Prime Features:
- Very high mechanical strength
- Excellent wear and abrasion resistance
- High impact resistance and toughness
- Good thermal shock resistance

Specifications
- Quality Assurance to ISO 9001

Physical Properties

<table>
<thead>
<tr>
<th>Colour</th>
<th>Density g/cm³</th>
<th>Flexural Strength MPa</th>
<th>Compressive Strength MPa</th>
<th>Modulus of Elasticity GPa</th>
<th>Poisson’s Ratio</th>
<th>Hardness HV0.3 kg/mm²</th>
<th>Fracture Toughness MPaVm</th>
<th>Average Grain Size µm</th>
<th>Electrical Resistivity ohm-cm</th>
<th>Maximum Use Temperature °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>6.05</td>
<td>1000</td>
<td>2300</td>
<td>205</td>
<td>0.3</td>
<td>1300</td>
<td>10</td>
<td>0.4</td>
<td>&gt;10¹¹</td>
<td>800</td>
</tr>
</tbody>
</table>

Production Capabilities
- Sintered components
- Precision ground components
- Ceramic / Metal assemblies
- Ceramic design assistance
- Prototyping, batch and volume production

Typical Applications:
- Typically used for blades and cutting edges where the fine grain structure is an advantageous.
- Gas and Oil field applications
- Pump and Valve components
- Canning and Metal Packaging
- Solids Handling
- Automotive (eg Weld Pins)

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- A high purity, fine grain (sub-micron) tetragonal, transformation toughened zirconia (3Y-TZP).

Please note that all values quoted are based on test pieces and may vary according to component design. These values are not guaranteed in anyway whatsoever and should only be treated as indicative and for guidance only.