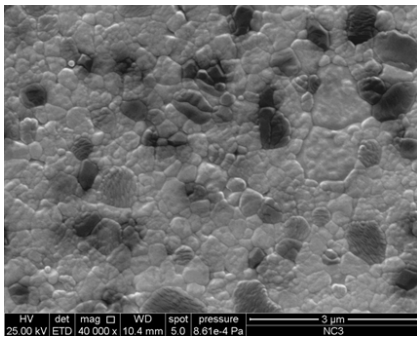




# NC3

## Ce-stabilized alumina toughened zirconia (ATZ) nanocomposite



Typical microstructure

### Main properties

- High strength
- Elastic-plastic behaviour
- Ultra-high toughness
- Low friction coefficient against metals
- No ageing (low temperature degradation)
- High wear resistance under sliding conditions

### Applications

- Structural parts for machinery
- Welding pins
- Tooling components
- Blades
- Shock resistance parts

### Physical properties

Parameters	Units	Value
Density	g/cm <sup>3</sup>	5.61
Young Modulus	GPa	254 ± 4
Flexural Strength	MPa	900 ± 69
Fracture toughness	MPa·√m	13.8 ± 0.39
Hardness	GPa	13.13 ± 0.27
Weibull modulus	-	13
Thermal Expansion Coefficient (20-500°C)	10 <sup>-6</sup> K <sup>-1</sup>	10.8
Diffusivity (@25/@500°C)	mm <sup>2</sup> /s	2.952/1.222
Heat capacity (@25/@500°C)	J/gK	0.5047/0.6780
Thermal conductivity (@25/@500°C)	W/m·k	8.36/4.65
Electrical resistivity	Ω·cm	>10 <sup>11</sup>

\*All properties measured at 20°C unless otherwise stated