



## Syalon 501

**Syalon 501** is a composite grade sialon developed to provide an **electrically conducting** ceramic. This allows **Syalon 501** to be **electro-discharge machined** into more complicated shapes than other Syalons without any detrimental loss in its fundamental properties.

**Syalon 501** possesses many of the physical properties of Syalon 101, including **high strength, toughness** and **wear resistance**, where temperatures do not exceed around 700°C, making it suitable for applications in **industrial wear, metal forming** and **non-ferrous molten metal handling**, for example.

The table below lists typical mechanical, thermal and electrical property data for **Syalon 501**.



Property	Value	Units
Composition	β-Sialon/TiN	-
Density	4.01	g/cc
Porosity	0	%
3 point Modulus of Rupture at 20°C (Specimen 3 x 3 x 50, span 19.05mm)	825	MPa
Weibull Modulus	11	-
Young's Modulus of Elasticity	340	GPa
Poisson's Ratio	0.31	-
Hardness (HRA)	90.5	-
Hardness (Vickers Hv <sub>50</sub> )	13.24 (1370)	GPa (Kg/mm <sup>2</sup> )
Fracture Toughness K <sup>1</sup> C	5.7	MPam <sup>1/2</sup>
Thermal Expansion Coefficient (0-1200°C)	5.6×10 <sup>-6</sup>	K <sup>-1</sup>
Thermal Conductivity	19	W/(mK)
Specific Heat	630	J/kg/K
Thermal Shock Resistance	400	ΔT°C quenched in water
Maximum Use Temperature	700	°C
Electrical Resistivity	7.2×10 <sup>-4</sup>	Ohm cm

Typical physical property data obtained under test conditions. All properties have been measured by independent testing authorities. The values given only apply to the test bodies on which they were determined, and therefore can only be recommended values.

### Technical Support

The successful integration of ceramics into industrial and engineering systems requires close collaboration between you, the end-user, and us, the material suppliers. Our Technical Specialists are available to discuss your requirements in detail and assist in exploiting the significant advantages which **Syalon 501** has to offer.



Certificate No. 930359