



INTERNATIONAL
Syalons

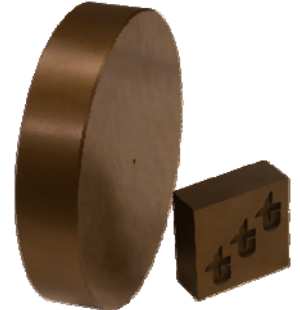
**HIGH PERFORMANCE
ADVANCED CERAMICS**

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
3 point RT Modulus of Rupture (Specimen 3 x 3 x 50, span 19.05mm)	825	MPa
Weibull Modulus	11	–
RT Unit Tensile Strength	350	MPa
RT Young's Modulus of Elasticity	341	GPa
RT Hardness (HRA)	91	–
RT Hardness (Vickers Hv _{0.3})	1370	Kg/mm ²
Fracture Toughness K ¹ C	5.7	MPam ^{1/2}
Poisson's Ratio	0.31	–
Density	3.95	g/cc
Porosity	0	%
Thermal Expansion Coefficient (0-1200°C)	5.6×10 ⁻⁶	K ⁻¹
Specific Heat	630	J/kg/K
RT Thermal Conductivity	19.1	W/(mK)
Thermal Shock Resistance	400	ΔT°C quenched in water
Electrical Resistivity	7.24×10 ⁻⁶	Ohm m

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.

Applications

Syalon 501 has found application for example as **extrusion dies, complex moulds for metal and plastic forming and for die pressing** and as a **level sensor** in the non-ferrous molten metal industry.

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.



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