

SYALON 501 – THE CONDUCTIVE

This Syalon is a composite grade developed to provide an electrically conducting ceramic. This allows Syalon 501 to be electro-discharge machined into significantly more complex shapes than other ceramics with any detrimental loss in the fundamental properties of strength and wear resistance associated with ceramics.

Applications:

Syalon 501 can be used in a wide range of applications where temperatures do not continuously exceed 800° C. These include such applications as

- Level sensors in molten metals
- Extrusion tooling for sections
- Complex moulds for metal and plastic forming
- Intricate and precise industrial wear parts

Room Temperature of Modulus of Rupture (M.pa):

Reaction Bonded SN	180
Alumina	350
SiC	459
Syalon 501	825
Syalon 101	945

Hardness (Hra):

Tungsten Carbide	92
Alumina	88
Zirconia toughened AlO	91
Syalon 501	91
Syalon 101	92

Properties	Unit	Value
3-point Room Temperature Modulus of Rupture Specimen 3 x 3 x 50 mm, span 19.05 mm	M.Pa	825
Density	[kgm ⁻³]	3.950 x 10 ³
Porosity	[%]	0
Weibull-modulus		14
Thermal conductivity λ (20° C)	[Wm ⁻¹ K ⁻¹]	19.1
Specific heat at 27°b0C	Jkg ⁻¹ K ⁻¹	630
Thermal Diffusivity	mm ² /sec	7.7
Volume Electrical Resistivity	ohm.m	7.24 x 10 ⁻⁶
fracture toughness K _{1C}	[MPam ^{1/2}]	5.7 – 5.8
max. use temperature		
- air	[°C]	1.200
- electrical conductivity	[°C]	800
Thermal shock resistance	ΔT°C quenched in cold water	400
thermal expansion coeff.	[K ⁻¹ from 20°C to 1100°C]	5.6 x 10 ⁻⁶

The given values are only valid for the tested samples and therefore only to be used as indication values.