

## SYALON 050 – THE WEAR RESISTANT

**Syalon 050** is a member of the Si-Al O-N family and belongs to the group of the  $\alpha$ -Syalons. It has been specifically designed for high performance under arduous wear conditions. **Syalon 050** is a speciality material which is intended for applications in which high hardness and excellent wear resistance are required. The material uniquely combines a degree of toughness which normally is not associated with high strength and hardness.

### Typical applications being served by Syalon 050:

- Grinding and milling vessels
- Shot blasting nozzles
- Valves, valve seats
- Seals

### Hardness (Hra)

Alumina	88
Zircona toughened Alumina	91
Syalon 101	92
Syalon 050	94

### Mechanical Properties

	Unit	Value
3 point Room Temperature Modulus of Rupture Specimen 3x3x50 mm, span 19.05mm	MPa	800
Weibull Modulus	-	13
Room Temperature Unit Tensile Strength	MPa	450
Room Temperature Hardness – (HRA)	-	94
Fracture Toughness $K_{1C}$ MPam <sup>1/2</sup>		7.7
Poisson's Ratio	-	0.23
Density	kgm <sup>-3</sup>	3.23x10 <sup>3</sup>
Open Porosity	%	0
Particle Size	µm	1-10

### Thermal Properties

	Units	Value
Maximum Temperature (air)	°C	1.400
Thermal Conductivity $\lambda$ (20° C)	Wm <sup>-1</sup> K <sup>-1</sup>	20
Thermal Expansion Coefficient (0-1200°C)	K <sup>-1</sup>	3.2x10 <sup>-6</sup>
Room Temperature Electrical Resistivity	Ohm.m	10 <sup>10</sup>
Thermal Shock Resistance (quenched in cold water)	ΔT°C	400
Coefficient of Friction Syalon on Syalon	-	0.04
10 W 40 engine oil at 80° C		

*Typical physical property data obtained under test conditions.*

*All properties have been measured by independent test authorities.*

*The values given only apply to test bodies on which they were determined, and therefore can only be recommended values.*

