

SYALON 050 – THE WEAR RESISTANT

Syalon 050 is a member of the Si-Al O-N family and belongs to the group of the α -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 ^{1/2}		7.7
Poisson's Ratio	-	0.23
Density	kgm ⁻³	3.23x10 ³
Open Porosity	%	0
Particle Size	µm	1-10

Thermal Properties

	Units	Value
Maximum Temperature (air)	°C	1.400
Thermal Conductivity λ (20° C)	Wm ⁻¹ K ⁻¹	20
Thermal Expansion Coefficient (0-1200°C)	K ⁻¹	3.2x10 ⁻⁶
Room Temperature Electrical Resistivity	Ohm.m	10 ¹⁰
Thermal Shock Resistance (quenched in cold water)	ΔT°C	600
Coefficient of Friction Syalon on Syalon 10 W 40 engine oil at 80° C	-	0.04

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.

