

### **BASIC PROPERTIES**

- High mechanical strength
- High thermal stability
- High heat transmission
- Chemically inert
- Very high electrical insulation
- Very high hardness
- Very good wear resistance
- Low friction coefficient
- High temperature resistance
- Good optical properties
- Good resistance to acids
- UV transparent, infrared and visible radiation.

### **APPLICATIONS**

Semi-conductor wafers  
Watch windows  
Electronical applications  
Measuring tools.  
Optical prisms and lenses  
Pistons

<b>MATERIAL</b>		<b>SAPPHIRE</b>
Chemical Formula		$\alpha$ -Al <sub>2</sub> O <sub>3</sub>
Aspect / color		White / transparent
Porosity		Impervious
<b>Mechanical</b>		<b>Measuring unit</b>
Poisson's ratio	-	0,29
Hardness Mohs	Mohs	9
Hardness Knoop		2200
Young modulus	GPa	250/400
Compression resistance	MPa	2000
Tensile resistance	MPa	250/400
Flexion resistance	MPa	760-1035
Fracture resistance	MPaxm <sup>1/2</sup>	1,89
<b>Physical</b>		
Maximum temperature use in neutral atmosphere	°c	2000
Crystalline structure		
Density	g/cm <sup>2</sup>	3,97
Water absorption	%	0
<b>Electrical</b>		
Electrical resistivity	Wcm	10 <sup>17</sup>
Dielectric strength	kV/mm	15-50
Dielectric constant at 25°C and 1 MHz	kV/mm	9,3-11,4
<b>Thermal</b>		
Specific heat at 25°	cal/g.°c	0,18
Thermal conductivity at 20°	W/m.°K	400
Thermal shock resistance	Δ T°c	200

*\*These values are for informational purposes only and do not bind company's responsibility.*