

### **BASIC PROPERTIES**

- Excellent workability
- Can be used to make precision parts
- Airtight in vacuum.
- Very high thermal conductivity ( approx. five times higher than Alumina)
- Very good mechanical resistance (Resistance to flexion = 30 kg/mm<sup>2</sup>) comparable to Alumina
- Excellent electrical insulator
- Low expansion coefficient
- Resists to high temperatures
- Low dielectric loss
- Very high purity

### **APPLICATIONS**

Prototypes and small series  
Parts for vacuum  
Parts for electronics requiring electrical insulation and heat dissipation  
Crucible for vapour deposition

**MATERIAL**

Chemical formula	AIN+BN	SHAPAL M SOFT®	SHAPAL HI M®
Aspect / color			
Porosity		No	No
<b>Mechanical</b>		<b>Measuring unit</b>	
Poisson's ratio		0,31	0,32
Hardness Vickers		390	380
Young modulus	N/mm2	1,9 x 10 <sup>4</sup>	1,8 x 10 <sup>4</sup>
Compression resistance	Kg/mm2	120	
Flexion resistance at 25°	MPa	273	300
<b>Physical</b>			
Max. use temperature in air	°c	1000	1000
Max. use temperature in neutral atmosphere	°c	1900	1900
Corrected density at 4°c	g/cm4	2,88	2,88
<b>Electrical</b>			
Dielectric strength	kV/mm	56	65
Dielectric constant at 25°c and 1 MHz	Hz	6,9	6,8
Dissipation factor (tan δ) 25°c and 1 MHz		9,1 x 10 <sup>-4</sup>	10 x 10 <sup>-4</sup>
Volume resistivity	Ohm x cm	1,4 x 10 <sup>12</sup>	1,0 x 10 <sup>15</sup>
<b>Thermal</b>		<b>Hz</b>	
Thermal expansion coefficient at 400°c	/°C	4,4 x 10 <sup>-6</sup>	4,8 x 10 <sup>-6</sup>
Thermal expansion coefficient at 600°c	/°C	4,8 x 10 <sup>-6</sup>	4,9 x 10 <sup>-6</sup>
Thermal expansion coefficient at 800°c	/°C	5,1 x 10 <sup>-6</sup>	5,0 x 10 <sup>-6</sup>
Thermal conductivity at 25°c	W/m.°K	96	92
Thermal shock resistance (ΔT cooling water)	°C	400	400
<b>Chemical</b>			
Acid resistance 10% HCl 24h at 25°c	mg/cm2 lose weight	0,2	0,2
Resistance to basic substrates 10% NaOH 24h at 25°c	mg/cm2 lose weight	60	60

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