



# ALUMINIUM OXIDE

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PROPERTIES		Unit	Sialox 96	Sialox 98	Sialox 99	Sialox 99 VS
Al <sub>2</sub> O <sub>3</sub> Content		%	96	98	99.7	99.9
Color			white	white	ivory	translucent
Specific weight		g/cm <sup>3</sup>	>3.75	>3.80	>3.85	>3.95
Porosity		%	0	0	0	0
Elasticity module		Gpa	300	300	375	390
Flexural strength		MPa	330	345	380	400
Compressive strength		MPa	2000	2200	2600	3000
KIC fracture strength		MPam <sup>1/2</sup>	3.5	3.5	4	4
Abrasion resistance		GPa	13.7	15.2	16	17
Volume resistivity	25 °C	Ohm cm	>10 <sup>14</sup>	>10 <sup>15</sup>	>10 <sup>15</sup>	>10 <sup>16</sup>
	300 °C		>10 <sup>11</sup>	>10 <sup>12</sup>	>10 <sup>12</sup>	>10 <sup>13</sup>
	700 °C		>10 <sup>8</sup>	>10 <sup>9</sup>	>10 <sup>9</sup>	>10 <sup>10</sup>
Electrical resistance	25 °C	kV/mm	>12	>14	>16	>18
	500 °C		> 4	> 5.5	> 7	> 9
	1000 °C		> 0.8	> 1	> 3	> 5
Electrical permittivity Dielectric constant		100 MHz	9.0	9.0	10.0	100.0
Specific heat	25-700 °C	J/kg K	880	880	880	880
Thermal conductivity	25 °C	W/m K	35	35	35	40
	300 °C		40	40	40	50
	500 °C		80	80	80	80
	800 °C		90	90	90	100
Coefficient thermal expansion	25- 200 °C	10 <sup>-6</sup> / °C	6.5	6.5	6.6	6.6
	25- 700 °C		7.8	7.9	7.39	7.9
	25-1000 °C		8.25	8.35	8.40	8.40
Max working temp.		°C	1500	1600	1600	1700
Res. abrupt temp. variations			good	good	good	good

### Characteristics:

readily available with purities from 96 to 99.9% - high temperature applications - good thermal conductivity - chemical inertness to acids and alkalis at high temperatures - biocompatibility - high hardness - excellent - dielectric properties - excellent wear resistance - good resistance to thermal jumps