

# Advanced Ceramics

## Datasheet of our Oxide Ceramics

Material		Alumina				Zirconia		Composites	
Advanced Ceramics – Glossary		<b>A960-P</b>	<b>A997-C</b>	<b>A998-A</b>	<b>A999-A</b>	<b>PSZ-C</b>	<b>PSZ-A</b>	<b>ATZ-C</b>	<b>ZTA-C</b>
Production process	General	Axial pressing	CIM	AM		CIM	AM	CIM	
Specification		Al <sub>2</sub> O <sub>3</sub> 96,0%	Al <sub>2</sub> O <sub>3</sub> 99,7%	Al <sub>2</sub> O <sub>3</sub> 99,8% coarse grain	Al <sub>2</sub> O <sub>3</sub> 99,9% fine grain	ZrO <sub>2</sub> 3,7 Y <sub>2</sub> O <sub>3</sub> -PSZ	ZrO <sub>2</sub> 3 Y <sub>2</sub> O <sub>3</sub> -PSZ	ATZ	ZTA
Density [g/cm <sup>3</sup> ]	Mechanical	3,8	3,92	3,92	3,96	6,05	6,05	5,5	4,1
Hardness HV [GPa]		14	17	14	14	13	15	14	17
Compressive strength [MPa]		2800	2800	2600	2600	2400	2300	2300	2600
Flexural strength 4-Point [MPa]		400	440	395 (3-Point)	430	1100	930	1000	600
Fracture Toughness K <sub>1C</sub> [MPa*m <sup>1/2</sup> ]		4,2	4,3	5	5	10,5	10	6,5	5
Young's modulus [GPa]		340	380	300	300	210	205	220	360
Surface roughness [µm]		Rz 5,1*	Rz 3,6*	Ra 0,9µm	Ra 0,4µm	Rz 3,6*	Ra 0,6	Rz 3,6*	Rz 3,6*
Max. operating temperature (°C)	Thermal	1600	1650	1650	1650	1500	1500	1200	1500
Thermal expansion coefficient [10 <sup>-6</sup> /K]		8	8	8	8	10	10	9	9
Thermal conductivity [W/mK]		24	30	37	37	3	3	6	25
Electr. resistivity at 20°C [Ωm]	Electrical	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>9</sup>	10 <sup>10</sup>	10 <sup>9</sup>	10 <sup>14</sup>
Electr. resistivity at 600°C [Ωm]		10 <sup>6</sup>	10 <sup>6</sup>	10 <sup>6</sup>	10 <sup>6</sup>	10 <sup>4</sup>	10 <sup>4</sup>	10 <sup>4</sup>	10 <sup>6</sup>

\*depending on the processing status of the injection molding or pressing tool

The present characteristic value tables are to be understood as general guide values which can only be transferred to real components to a limited extent. A binding nature of these values cannot therefore be guaranteed for specific applications. The characteristic value table on the real product depend on the manufacturing process, component geometry and powder particle size. We would be pleased to provide you with our expertise to assess of a material for your specific application.