

Advanced Ceramics

Datasheet of our oxide ceramics

MATERIAL	Alumina				Zirconia		Composites		Steatite		
Advanced ceramics - Glossary	A960-P	A997-C	A998-A	A999-A	PSZ-C	PSZ-A	ATZ-C	ZTA-C	S221-P		
Production Process	General Axial pressing		CIM	AM		CIM	AM	CIM	Axial pressing		
Specification	Al ₂ O ₃ 96,0%	Al ₂ O ₃ > 99,7%	Al ₂ O ₃ > 99,8% coarse grain	Al ₂ O ₃ > 99,9% fine grain	ZrO ₂ 3,7mol% Y ₂ O ₃ -PSZ	ZrO ₂ 3 Y ₂ O ₃ - PSZ	ATZ	ZTA	C221		
Density [g/cm ³]	3,8	3,92	3,92	3,96	6,05	6,05	5,5	4,1	2,7		
Hardness HV [GPa]	14	17	14	14	13	15	14	17	5		
Compressive Strength [MPa]	Mechanical 2800		2800	2600	2600	2400	2300	2300	2600	900	
Flexural Strength 4-Point [MPa]	400		440	395 (3-Point)		430	1100	930	1000	600	140
Fracture Toughness K _{1C} [MPa*m ^{1/2}]	4,2		4,3	5		5	10,5	10	6,5	5	n.a.
Modulus of elasty [GPa]	340		380	300		300	210	205	220	360	110
Surface Roughness [µm]	Rz 5,1*	Rz 3,6*	Ra 0,9	Ra 0,4	Rz 3,6*	Ra 0,6	Rz 3,6*	Rz 3,6*	Rz 13,0*		
Thermal Expansion Coefficient [10 ⁻⁶ /K]	Thermal 8		8	8	8	10	10	9	9	9	
Thermal Conductivity [W/mK]	24		30	37		37	3	3	6	25	3
Elect. Resistivity at 20°C [Ωm]	Electrical 10 ¹⁴		10 ¹⁴	10 ¹⁴		10 ¹⁴	10 ⁹	10 ¹⁰	10 ⁹	10 ¹⁴	10 ¹¹
Elect. Resistivity at 600°C [Ωm]	10 ⁶		10 ⁶	10 ⁶		10 ⁶	10 ⁴	10 ⁴	10 ⁴	10 ⁶	10 ⁵

* 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 the suitability of a material for your specific application.