CeramTec

MATERIAL DATA

ELECTRONICS

Advanced Ceramics for
Electronics Applications

Rubalit 710 C
99,6% Al_2O_3

THE CERAMIC EXPERTS

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The measured values mentioned before were determined for test samples and are applicable as standard values. The values were determined on the basis of DIN-/DIN-VDE standards and if these were not available, on the basis of CeramTec standards. The values indicated must not be transferred to arbitrary formats, components or parts featuring different surface qualities. They do not constitute a guarantee for certain properties. We expressly reserve the right to make technical changes.

Rubalit® 710 C Al_2O_3 with 99,6% Aluminium Oxide

Rubalit® 710 C 99,6 % Al_2O_3 represents the next performance level in alumina substrate materials. Building on CeramTec's proven Rubalit® alumina portfolio, this high-purity aluminium oxide combines excellent electrical insulation with enhanced mechanical strength and superior surface quality.

Characterized by its very fine microstructure and high ceramic purity, Rubalit® 710 C is ideally suited for high-frequency applications in the gigahertz range. Its stable electrical properties and precise surface quality make it a proven choice for antennas and RF components, as well as for demanding applications such as lambda sensors, lighting systems and components used in the food industry.

As a premium alumina substrate, Rubalit® 710 C 99,6 % Al_2O_3 bridges the gap between cost-efficient standard materials and advanced ceramic solutions - delivering enhanced reliability without compromising proven alumina versatility.

Key advantages

- **Lower surface roughness:** ≤ 0.1 µm
- **Highly biocompatible**
- **Mainly used in high-frequency, sensor and industrial applications**
- **Finest structures with low tolerances possible**
- **Good thermal conductivity ≥ 25 W/(m·K)**

Standard Specification for Rubalit® 710 C

Physical Parameters		Unit	Range	Values*	Measurement Method
Surface roughness	R_a	µm	≤	0.1	Based on DIN EN ISO 4288
Density	-	g/cm³	≥	3.80	Based on DIN EN 993-1
Bending strength sigma 0		MPa	≥	420	Based on ASTM C1499-08, typical value
Young´s modulus	-	GPa	≥	300	Based on ASTM C1250-15, typical value
Thermal conductivity	RT	W/(m x K)	≥	25	According to DIN EN 821-2, typical value
Coefficient of thermal expansion (CTE)	100 - 800 °C	10^{-6}/K	+/–	7.0 – 9.0	According to DIN 51045-1, typical value
Specific heat capacity	20 °C	J/(g x K)	≥	0.65	Based on DIN EN 821-3, method B, typical value
Dielectric constant	RT, 1 MHz	-	+/–	8.5 – 11.5	Based on ASTM D150, typical value
Dielectric loss factor (@ R_a ≤ 0.4 µm)	RT, 1 MHz	[10^{-3}]	≤	10	Based on ASTM D150
Volume resistivity	RT	Ωcm	≥	10^{14}	Based on IEC 62631-3, typical value
Breakdown strength	20 °C	kV/mm	≥	AC 15 DC 15	Based on DIN EN 60243-1
Maximum size	-	inch		115 mm x 138 mm (4,5" x 5,5") +/- 1.2 %	Based on DIN EN 60243-1
Thickness**	-	mm		0.25 to 0,635 +/- 10%	
Warpage/camber***	-	%		0.3 - 0.6	
Fracture toughness	IF method	MPa*√m	≥	3.0	Typical value

* *+/- 10% measurement tolerances*
** *Other thicknesses on request*
*** *Depends on substrate thickness*

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