

Ceramic material data AD-85

Parameter	Specification	Units	Test	AD 85
Specific weight			ASTM C20-70	3.41
Hardness	Rockwell 45N	[Gpa]	ASTM E18-67	73
	Knoop		1000g-load	9.8
Surface	like burned	[μm]	Profilometer	1.6
	ground			1
	polished			0.2
Crystal size	avarage bandwidth	[μm]		2 to 12
Water absorption /			ASTM C373-72	no
Gas permeability** /				no
Color				white
Compressive strength	25°C	[MPa]	ASTM C773-74	1930
Flexural strength	25°C	[MPa]	ASTM f417-75T	296
	1000°C	[MPa]		172
Tensile strength	250°C		ACMA TEST #4	155
Elasticity		[GPa]		221
Poisson number				0.22
Max. operation temperature	(without load)	[°C]		1400
Linear thermal expansion	25-25°C	[10 ⁻⁶ /°C]	ASTM C372-56	3.4
	25-200°C			5.3
	25-500°C			6.2
	25-800°C			6.9
	25-1000°C			7.2
	25-1200°C			7.5
Thermal conductivity	20°C	[W/m*K]	ASTM C408-58	14.6
	100°C			12.1
	400°C			6.7
	800°C			4.2
Spezific heat capacity /	(100°C)	[J/kg*K]	ASTM C351-61	920
Dielectric strength	6,35 mm	[ac-kv/mm]	ASTM D116-69	9.4
	3,18 mm			13.4
	1,27 mm			17.3
	0,64 mm			21.6
	0,25 mm			28.3
Permittivity	1 kHz		ASTM D150-70	8.2
	1 MHz		ASTM D2520-70	8.2
	100 MHz			8.2
Electrical loss	1 kHz		ASTM D150-70	0.011
	1 MHz		ASTM D2520-70	0.007
	100 MHz			0.007
Volume resistivity	25°C	[ohm*cm ² /cm]	ASTM D1829-66	>1014
	300°C			4.6*1010
	500°C			4,0*108

Parameter	Specification	Units	Test	AD 85
	700°C			7.0*106
	1000°C			----

1. Measurement recording:

The measurements were carried out using customary measuring methods and, unless otherwise stated, at room temperature.

2. Composition monitoring:

All Coorstek ceramic components are manufactured and controlled using the latest chemical, spectrographic and radiographic methods.

3. Chemical Resistance:

Although Coorstek components have high chemical resistance, we recommend to submit specific data on this to Coorstek to optimize design and material selection.

- * The properties of ceramic molded parts vary in part with the way they are manufactured, their shape and size. A specification allows the majority of the required characteristic data to be met in the long term.
- ** No helium penetration through a 25.4 mm diameter and 0.25 mm thick plate, measured at 3×10^{-7} Torr vacuum against 1 bar helium, 15 sec. at room temperature.