Material Datasheet

Aluminum Nitride (AlN) – CeramAlum™ PCAN1000

Material webpage

Overview

Aluminum Nitride (AlN) is an excellent material to use if high thermal conductivity and electrical insulation properties are required; making it an ideal material for use in thermal management and electrical applications.

Primary Advantages

- 6x Alumina Thermal Conductivity
- Excellent Electrical Insulation
- Good Plasma Resistance
- Excellent Thermal Shock
- Good Mechanical Properties

Applications

- High Power Insulators
- Laser Components
- Power Electronics
- Water-Cooled Heatsinks
- Aerospace Components

	Properties	Units	PCAN1000
Mechanical	Compressive Strength	MPa	3000
	Density	g/cm^3	3.32
	Flexural Strength @25°C	MPa	350
	Fracture Toughness K_{Ic}	$MPa.m^{1/2}$	3
	Hardness	GPa	10
	Modulus of Elasticity	GPa	-
	Poisson's Ratio	-	0.22
Thermal	Thermal Conductivity	W/mK	170
	CTE @ 25°C – 400°C	$10^{-6}/K$	4.5
	Maximum Temperature (Air)	°C	1200
	Maximum Temperature (Inert)	°C	1200
Electrical	Dielectric Constant @ 1MHz	-	8.8
	Dielectric Loss @ 1MHz	-	$5x10^{-4}$
	Dielectric Strength @ 25°C	kV/mm	15
	Volume Resistivity @ 25°C	ohm-cm	$>10^{13}$

Disclaimer: The values presented are mean and typical of those resulted from test samples. They are provided as an indication only to serve as guidance in the design of ceramic components and are not guaranteed in any way. The actual values can vary according to the shape and size of the envisioned component.

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