

International Ceramic Engineering

Aluminum Nitride Ceramics

Property Comparison*

Property	AIN 1 Aluminum Nitride	AIN 2 Aluminum Nitride	AIN 3 Aluminum Nitride	AIN 4 Aluminum Nitride
<i>Grade</i>	Hot Press	Sinter	Hot Press	Hot Press
<i>Process</i>	Hot Press	Sinter	Hot Press	Hot Press
<i>Density (g/cc)</i>	3.26	3.30	3.26	3.26
<i>Density (Theoretical)</i>	>99.8	>98.0	>99.5	>99.5
<i>Mechanical</i>				
Flexural Strength (MPa) @ RT	330	260	260	200
Weibull Modulus	10	10	24	37
Elastic Modulus (GPa)	320	315	334	320
Poisson's Ratio	0.22	.023	0.24	0.22
Hardness HV(0.3) Kg/mm ²	1100	1110	1000	1000
Fracture Toughness (MPam ^{1/2})	2.5	3.1	3.0	2.9
<i>Thermal</i>				
Thermal Expansion Coeff. 10 ⁻⁶ /°C; (RT - 1000 °C)	4.9	6.2	6.0	5.6
Thermal Conductivity (W/mK) @ 25 °C	80	170-190	180-200	180-200
Thermal Shock Parameter (°C)	180		210	
<i>Electrical</i>				
Electrical Resistivity (ohm-cm)	10 ¹⁴	10 ¹⁵	10 ¹⁵	10 ¹⁵
<i>Dielectric Constant</i>	8.9	8.7	8.6	8.9
<i>Applications</i>	Electrical Components, Semiconductor Components, Windows, Heaters, Chucks, Clamp Rings, Gas Distribution Plates	Microwave Components, Collector Rods, Helix Support Rods, Windows, Electronic Components, Semiconductor Components, Chucks, Heaters	Electrical Components, Semiconductor Components, Windows, Heaters, Chucks, Microwave Components, Collector Rods, Helix Support Rods, Windows	Semiconductor Components, Windows, Heaters, Chucks
<i>Key Features</i>	Thermal Conductivity, Electrical Insulator	High Thermal Conductivity	Corrosion Resistance, High Thermal Conductivity, Electrical Insulator, High Purity	High Thermal Conductivity

Note: *Property values are typical and should not be considered specifications.

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