

ST-100 AlN

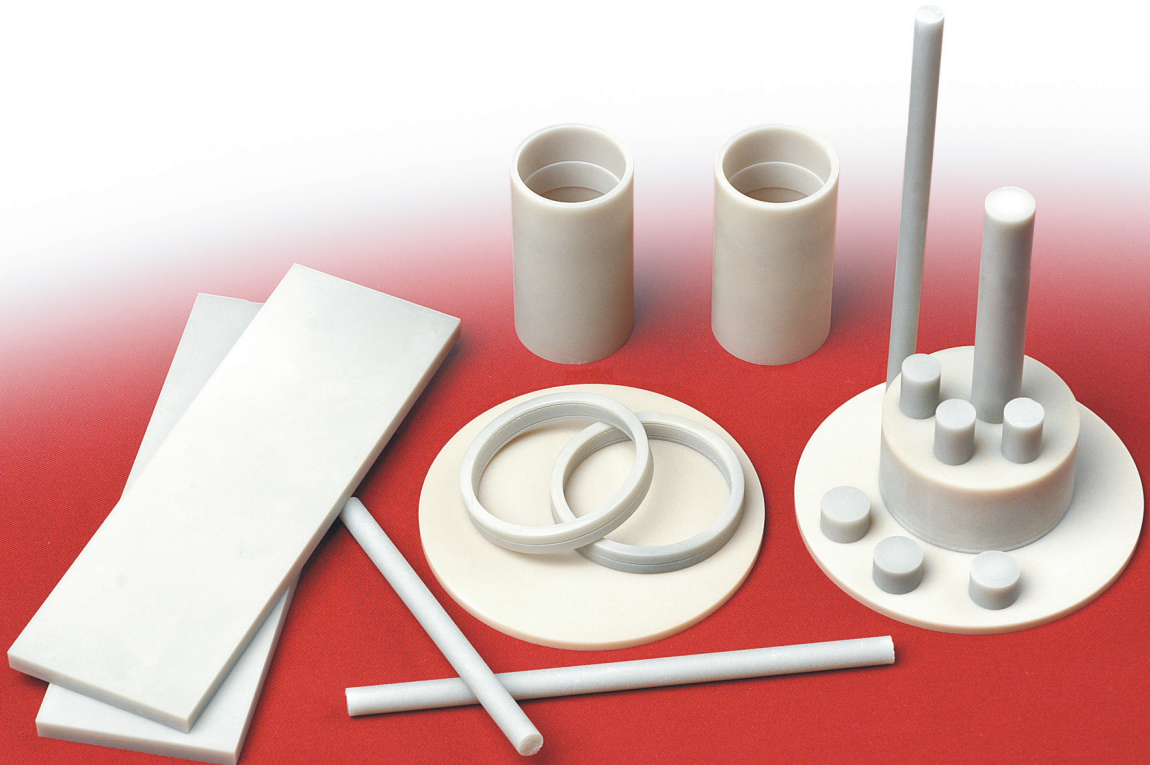
ALUMINUM NITRIDE

Aluminum nitride (AlN) provides the high performance electrical and thermal properties of beryllia (BeO) at a more economical cost and without BeO's toxicity concerns.

Sienna ST-100 AlN offers:

- High purity without sintering additives
- High dielectric strength that does not degrade at high temperature
- Excellent high temperature stability
- Thermal conductivity that is over five times that of alumina
- Excellent thermal expansion match to that of SiC and Si over a wide temperature range
- No toxicity - Aluminum Nitride poses no special disposal requirements
- Reliable metallization performance
- Significant cost/performance advantage

These attributes make Sienna ST-100 AlN the best choice for high temperature electrical insulation. ST-100 AlN is ideal for packaging high power SiC, Si, and GaN devices that operate at high temperatures.



Sienna's technical team is ready to help you implement Aluminum Nitride in your current and next generation of products. Contact us for applications assistance, and for fast prototyping and production needs.

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 **SIENNA**
TECHNOLOGIES Inc.®
providing solutions through advanced materials

ST-100 and ST-200

AlN PROPERTIES

	ST-100	ST-200
Color	Light Gray	Light Gray
Purity, %wt (min)	99	95
Density, g/cm³	3.20	3.30
Thermal Conductivity, W/m•K	90±10	200±20
Heat Capacity @ RT, J/g•K	0.736	0.736
Thermal Expansion Coefficient, X10⁻⁶/°C 25°C 300°C 600°C	3.38 4.22 4.80	3.53 4.55 5.07
Dielectric Strength, kV/mm	>15	≥70
Volume Resistivity, Ohm-cm	>10 ¹⁴	>10 ¹⁴
Dielectric Constant 1 MHz 2.6 GHz 10 GHz	8.8 8.0 8.0	8.5 8.38 8.35
Loss Tangent 1 MHz 2.6 GHz 10 GHz	0.001 0.01 0.007	0.001 0.007 0.005
Flexural Strength, MPa	275-300	300-350
Elastic Modulus, GPa	320	320
Poisson's Ratio	0.22	0.22
Hardness, GPa	12	12
Fracture Toughness, MPa•m^{1/2}	2.0	2.5
Application	High purity AlN, High temperature insulator, Excellent CTE match to SiC and Si die	High thermal conductivity, thermal management products, good CTE match to SiC and Si die

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