

ALUMINIUM NITRIDE PRODUCTS [AlN]

The Aluminium Nitride product is a new material having such characteristics as superior thermal conductivity, high electric insulation, and coefficient of thermal expansion similar to that of silicon (Si) and is drawing attention as a next-generation material with high thermal conductivity.

■ Features

- **Thermal conductivity** : High thermal conductivity about 7 times that of Alumina.
- **Coefficient of thermal expansion** : Having coefficient of thermal expansion similar to that of silicon, it realizes a high reliability against installation of a large Si chip and heat cycle.
- **Electrical characteristic** : High electric insulation, and low dielectric constant.
- **Mechanical characteristics** : Mechanical strength higher than that of Alumina.
- **Corrosion resistance** : Superior corrosion resistance against molten metal.
- **Purity** : Very small content of impurities, no toxicity, high purity.

■ Board, general tolerance

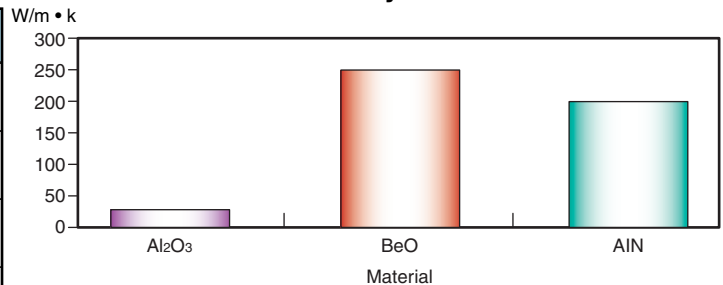
Item	Sheet formed product	Press molded product
Dimensions	Max 5" × 7"	Max □2"
Thickness	0.5~1.5mm (as-fired) 0.3~1.0mm (lapped)	1~8mm
Dimensional tolerance	±1% NLT ±0.1mm	±1% NLT ±0.1mm
Thickness tolerance ^{*1}	±10%	±10%
Warp tolerance ^{*2}	≦0.003mm/mm	≦0.003mm/mm

*1 Thickness tolerance of both-side polished product : ±0.05mm

*2 Warp of both-sided polished product : ±0.0015mm/mm

* Contact us for customized shapes, tolerance, etc.

■ Thermal conductivity



■ Physical properties (typical values)

Characteristic value		AN-170	AN-200	AN-230
Density	g / cm ³	3.34	3.28	3.25
Thermal conductivity	W / m · k (R.T.)	170	200	230
Coefficient of thermal expansion	×10 ⁻⁶ / °C (R.T.~400°C)	4.6	4.6	4.6
Dielectric strength	KV / mm (R.T.)	15	15	15
Volume resistivity	Ω · cm (R.T.)	10 ¹⁴	10 ¹⁴	10 ¹³
Dielectric constant	1MHz (R.T.)	9.0	9.0	9.0
Bending strength	MPa (R.T.)	450	250	200

■ Coefficient of thermal expansion

