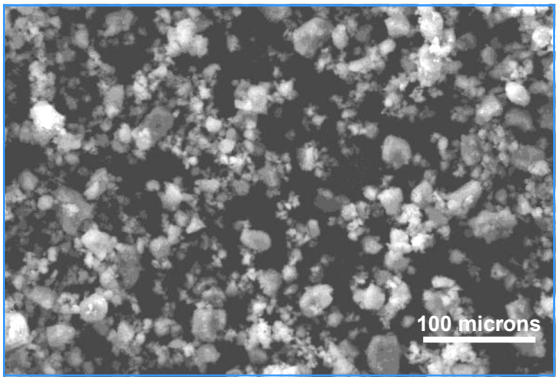
Aluminum Nitride (AlN) Powders

Engineering Better Material Solutions™

Surmet's AlN Features

- Good sinterability and thermal conductivity
- Very low oxygen and carbon contents
- Low iron and other metallic impurities
- Multiple grades for various applications
- Available in both uncoated and water-resistant grades
- Available in tonnage quantities
- Competitive price



Commercial Grades

A100: Lowest amount of impurities, finest particle size distribution. Typically used for applications requiring high purity, good thermal conductivity and good sinterability.

A500: Available in two particle size distributions. Coarser grades allow higher filler loading.

WR: Water resistant coating suppresses and prevent AlN particles from hydrolysis (AlN is hygroscopic and reacts readily with water/moisture)

WRS: Greater water resistance, more expensive.

Note: Surmet also has capability to produce AlN powders with particle sizes and purity other than specified. Contact us to find out what can Surmet do for you.

Specifications		Grade		
		A100	A500	
			20	150
Particle Size (microns)	Mean/D_{50}	2 to 4	6 to 10	14 to 23
	D_{97}	<10	<20	<150
Specific Surface Area (m^2/g)		2.3 to 3.5	-	-
Impurities*	Fe	<100ppm	<600ppm	
	Si	<200ppm	<500ppm	
Carbon content		<0.15%	-	-
Oxygen content		<1.5%	-	-
Availability with WR coating		Yes	Yes	Yes
Availability with WRS coating		No	Yes	Yes

*Based on ICP Chemical Analysis

Properties

Chemical: Good resistance to several corrosive materials. Compatible with most metals, including Al, Cu, Li, U and ferrous and some superalloys. Resistant to many molten salts including carbonates, chlorides and cryolite.

Thermal: 8-10 times more thermally conductive than alumina. Conductivity does not significantly deteriorate with temperature. A relatively low thermal expansion coefficient, which lets AlN meet thermo-mechanical requirements for many electronic device components.

Electrical: High dielectric strength and low loss tangent makes AlN a high-performance insulator for many semiconductor, power electronics and thermocouple applications.

Mechanical: Hard and durable. Can be fabricated into thin sections with good surface finish.

Applications

Thermal management/Heat extraction: High power LED substrate, electronic packages, fillers for thermally conductive epoxies/adhesives, metal bonded micro-channel coolers, power transformers and transistors, laser diodes, etc.

Dielectric and Microwave: RF output windows, loss buttons, collector and support rods, chip resistors, etc.

Semiconductor: Susceptors and heaters for CVD and dry etching, Crucibles and Evaporation boats for semiconductor crystal growth, Thermocouple shields, etc.

Other applications: High temperature refractories (furnace tooling and components), insulators, etc.

Visit our website www.surmet.com for more information.

Contact us: Email: **sales@surmet.com** Phone: **+1 (781) 272-3969**