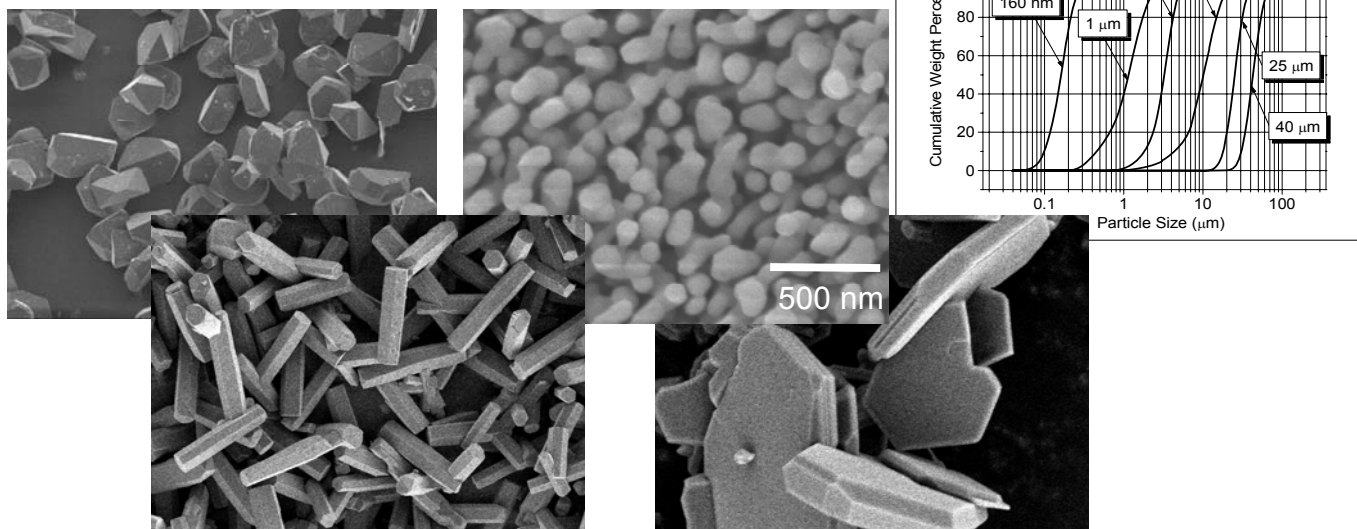


ALPHA ALUMINA POWDERS WITH TAILORED MORPHOLOGY AND CHEMICAL COMPOSITION

- APPLICATIONS:**
- ◆ Corrosion resistant thermal insulation
 - ◆ Composite reinforcements (metals, plastics, ceramics)
 - ◆ Refractories, membranes, filters (for molten metals, hot gases)
 - ◆ Porous/textured alumina ceramics
 - ◆ Catalyst supports/carriers
 - ◆ Lapping, polishing, CMP



Hydrothermal method is very useful to produce a variety of advanced α - Al_2O_3 (corundum) powders for a variety of applications, including nanosized powders, range of micron size equiaxed powders with very sharp edges and corners, whiskers, and platelets. Sawyer's alpha alumina powders exhibit very narrow particle size distributions, low aggregation/agglomeration, high chemical purity, and high level of lattice perfection. Moreover, various dopants can easily be introduced into the corundum lattice.

Properties of α - Al_2O_3 (corundum) powders synthesized by the hydrothermal method*

Property	Equiaxed rough	Equiaxed submicron	Whiskers	Platelets
Crystal form	100% α - Al_2O_3	100% α - Al_2O_3	100% α - Al_2O_3	100% α - Al_2O_3
Aspect ratio (-)	1.0	1.0	2-12	2-10
Diameter (μm)	1-40 μm	100-250 nm	0.5-7.0	1-5
Length (μm)	N/A	N/A	1-30	N/A
BET surface area (m^2/g)	0.1-1.5	7-15	0.1-1.5	-
Chemical purity (%)	99.9-99.98	>99.8	99.8-99.9	>99.9
Typical impurities (ppm)	Si (20), Na (50-150), Fe (40), Mg (<10), Ca (20)			
Available dopants (ppm)	Mn (150-500), V (50), Fe (90-120), Ti (100-300), B (40-730), Y (50-1,000), Sc (20), Li (500-4,000), Zr (500), Sn (460), Nb (760), Si (340-780)			

*Powders with other sizes, morphologies, purity levels, and dopants may be available upon request.