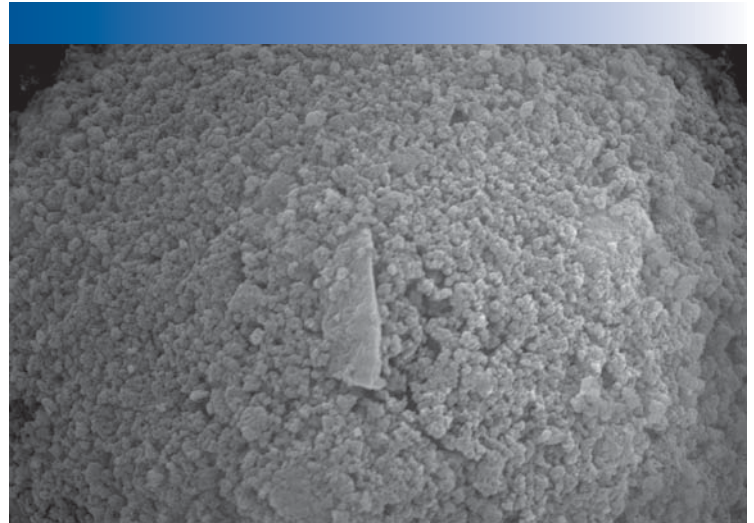


Aluminum Oxide Plus

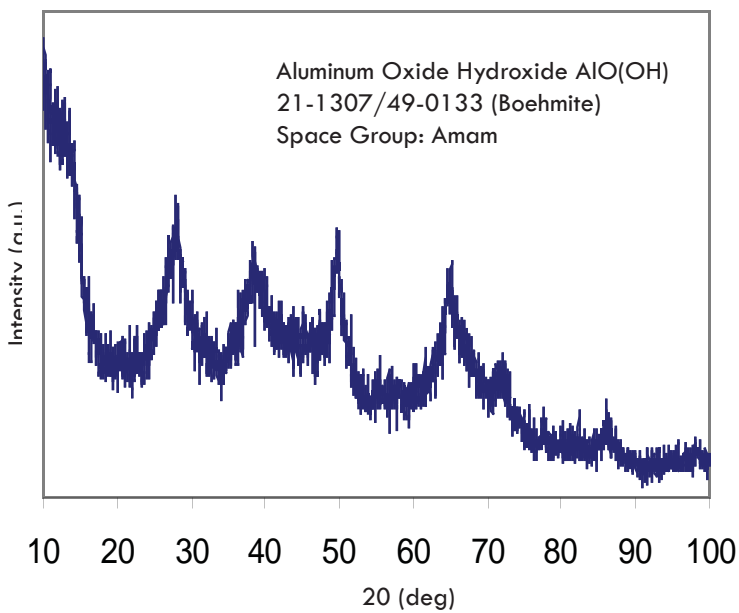
NanoActive Al₂O₃ Plus is produced using proprietary processes to obtain very high specific surface area, high porosity (over 75% are mesopores), low density, weakly aggregated material possessing high adsorption capacity and chemical reactivity.



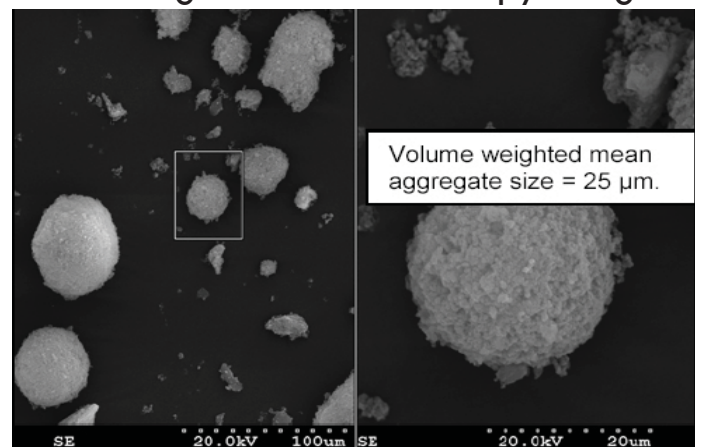
Typical Properties

Appearance/Color	White Powder
Specific Surface Area (BET)	≥ 550 m ² /g
Crystallite Size	Amorphous
Average Pore Diameter	110 Å
Total Pore Volume	≥ 1.5 cc/g
Bulk Density	0.20 g/cc
True Density	2.9 g/cc
Mean Aggregate Size, d0.5	5 μm
Loss on Ignition	≤ 13%
Moisture Content	≤ 12%
Al Content (Based on Metal)	> 99.2%

Powder X-ray Diffraction Spectrum



Scanning Electron Microscopy Image





NanoActive materials exhibit a wide array of unusual properties. One of the unusual features is enhanced surface chemical reactivity. Just a few grams of a NanoActive material can have the surface area equivalent to that of a football field. Our NanoActive-S (suspensions) and NanoActive-G (granules) series provide the ability to adjust density and flow characteristics without compromising the high chemical reactivity of our NanoActive products.

Potential Applications	Nanotechnology Benefit
Air cleaning • Adsorption of toxic chemicals	Improved capacity Faster kinetics
Catalysts supports • Petrochemical (cracking catalyst) and automobile (catalytic converters) industries	Higher loading and better dispersion of the active species due to the high surface areas of the support Increased selectivity due to defined pore structure of the support Increased wear resistance
Coatings and binders • Protective (abrasion resistant) electric, passivation coatings	Thinner coatings reducing the amount of required material Reduced light scattering haze due to small particle size Improved thermal and mechanical stability
Destruction of chemical warfare agents • Room temperature destruction of VX, GD and HD with the formation of much safer by-products	Higher capacity Faster kinetics
Heat transfer fluids (suspensions)	Greatly enhanced heat transfer coefficient due to smaller particle size Longer suspension in fluids due to lower bulk density and high porosity
Polishing materials • Ceramics, plastics, semiconductor and other electronic materials	Less material required due to smaller particle size Better finishing due to smaller particles Faster rate of surface polishing
Polymer nanocompositions for improved tribological performance	Less abrasive and more wear resistant lubricants due to smaller particle sizes of alumina filler
Smoke obscurant • Military applications	Higher obscurance due to smaller particle size and low density
Structural ceramics • Reinforcements for metal-matrix composites, porous membranes for gas filtration	Improved mechanical properties Reduced manufacturing cost due to lower sintering temperature

Depending on Customer-specific needs NanoScale can supply its products as dry unfunctionalized powders, compacted powders (granules) or dispersions in various carrier fluids. The custom designed materials can be tested and characterized to meet Customer requirements.

Order

Product	Catalog Number	Quantity
NanoActive Al ₂ O ₃ Plus	AC008-0025-00NS	25 grams
	AC008-0100-00NS	100 grams
	AC008-1000-00NS	1 kilogram
NanoActive-G Al ₂ O ₃ Plus	AC308-0025-00NS	25 grams
	AC308-0100-00NS	100 grams
	AC308-1000-00NS	1 kilogram