

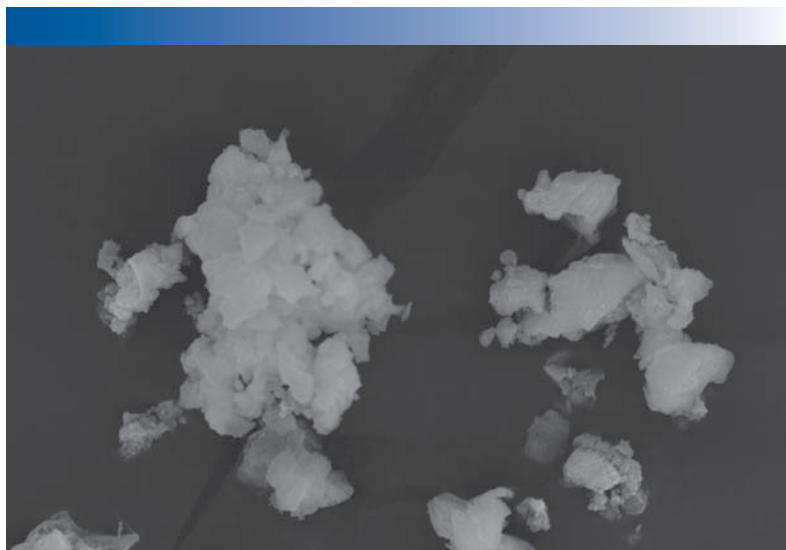
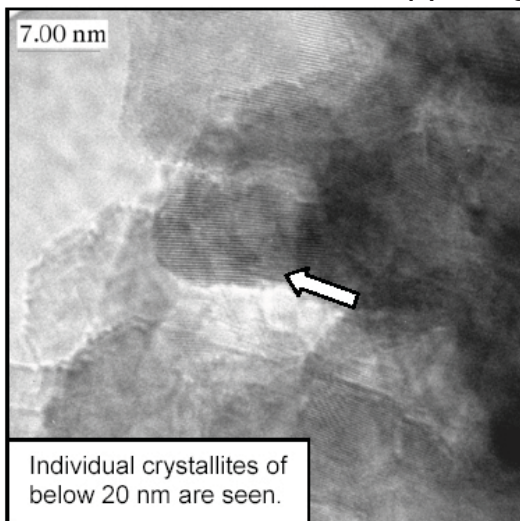
Calcium Oxide Plus

NanoActive CaO Plus is produced using proprietary processes to obtain very high specific surface area (over 90 m²/g vs. 1-2 m²/g for standard CaO), small crystallite size material possessing high chemical reactivity towards many chemical hazards including carbon dioxide and hydrogen sulfide.

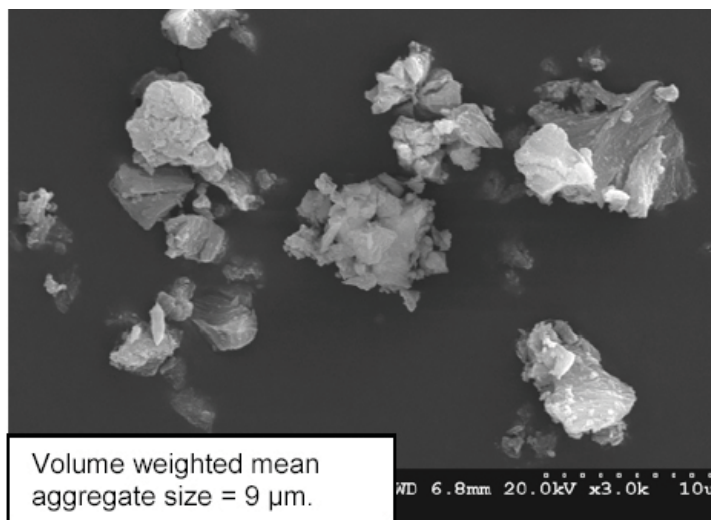
Typical Properties

Appearance/Color	White Powder
Specific Surface Area (BET)	≥ 90 m ² /g
Crystallite Size	≤ 20 nm
Average Pore Diameter	110 Å
Total Pore Volume	≥ 0.2 cc/g
Bulk Density	0.6 g/cc
True Density	3.1 g/cc
Mean Aggregate Size, d _{0.5}	4 μm
Ca Content (Based on Metal)	> 99.4%

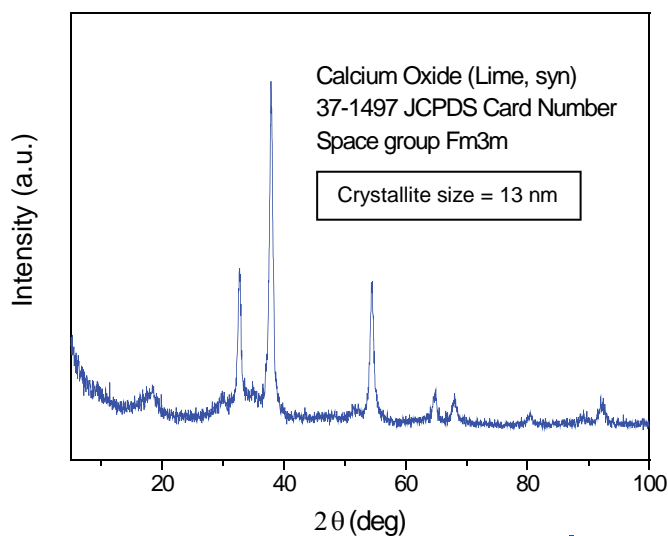
Transmission Electron Microscopy Image



Scanning Electron Microscopy



Powder X-ray Diffraction Spectrum



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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
Dosiccant	Faster water adsorption due to considerably higher surface area
Destruction of chemical warfare agents <ul style="list-style-type: none"> Room temperature destruction of VX, GD and HD with the formation of much safer by-products 	Higher capacity Faster kinetics
Elevated temperature hazardous waste treatment <ul style="list-style-type: none"> Destructive adsorption of halogenated, phosphorous and sulfur containing compounds 	Lower temperature needed for destruction Destruction capacity up to stoichiometric ratio
Flue gas treatment <ul style="list-style-type: none"> Sulfur dioxide removal Hydrogen sulfide removal Carbon dioxide adsorption 	Increased capacities (up to stoichiometric) over conventional materials Faster kinetics
Insecticide and fungicide	Enhanced biocidal characteristics due to higher surface area Enhanced coverage due to lower material density
Odor reduction	Long-term organic and inorganic (i.e., H ₂ S) odor control
Precursor <ul style="list-style-type: none"> Inorganics: calcium carbonate, calcium phosphates (mono, di, and tri), fluoride bromide ferrocyanide and nitrate Organics: calcium acetate stearate, oleate, tartrate, lactate, citrate, benzoate, and gluconate 	Synthesis of higher surface area materials products that have new uses (ex. Calcium carbonate in nanocomposites for improved impact strength)
Pulp and paper industry <ul style="list-style-type: none"> Coagulant in color removal from mill liquid wastes alcohol, calcium lignosulfonate, and yeast recovery 	Higher capacities
Water treatment <ul style="list-style-type: none"> Drinking water treatment (manganese, fluoride, organic tannins and iron removal) Water softening (carbonate removal) Sewage treatment (phosphate removal & pH adjustment) 	Increased kinetics (ex. removal of carbonates, phosphorous compounds) Enhanced capacity of contaminates removal

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 CaO Plus	AC309-0025-00NS	25 grams
	AC309-0100-00NS	100 grams
	AC309-1000-00NS	1000 grams