PixClear™-PM in Propylene Glycol Monomethyl Ether Acetate (PGMEA) at 50 wt% nanocrystal loading

PixClear™-PM is a zirconia nanocrystal dispersion that is compatible with various acrylic monomers and polymers. It is functionalized to improve dispersion in acrylic monomers and polymers and to crosslink when cured.

SPECIFICATIONS	
Nanocrystal Composition	ZrO_2
Solvent	Propylene Glycol Methyl Ether Acetate
Typical Particle Size, Inorganic Core	4-6 nm (TEM)
Particle Size, including organic capping and solvent shell	7-10 nm (mean diameter by volume, from DLS)
D(99.99) by volume	< 30 nm
% Solids (wt%)	50.0±1.0
% Inorganics (wt%)	43.0±2.0
Filter	200 nm PTFE
Optical Density (UV-Vis, 1 cm path length)	< 0.8 @ 400 nm < 1.4 @ 350 nm
Shelf life	Minimum 3 months at 20°C

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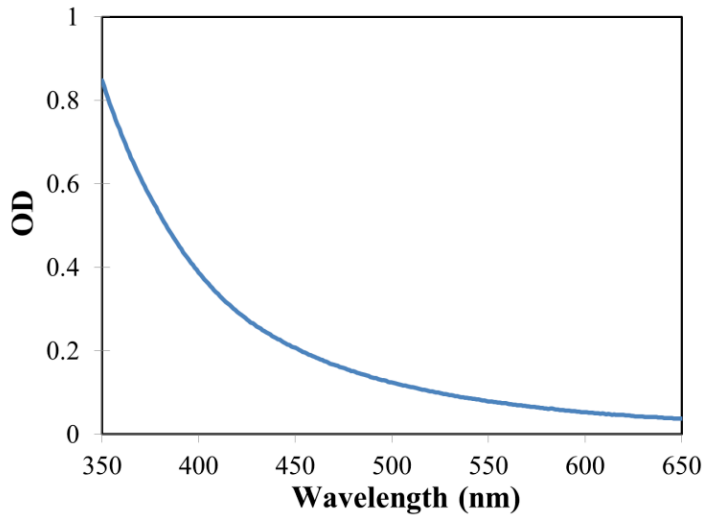
Typical Physical Properties

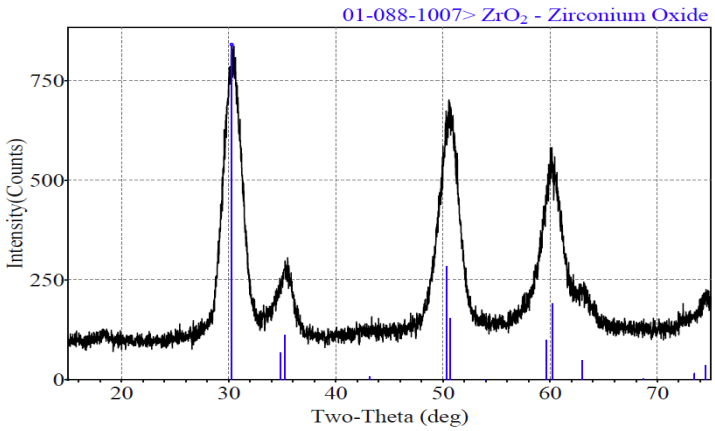
UV-Vis Spectrum

A typical UV-Vis spectrum of PixClear™ shows low absorbance and scattering in the suspension through a 1 cm path length even at 50 wt% loading in a solvent.



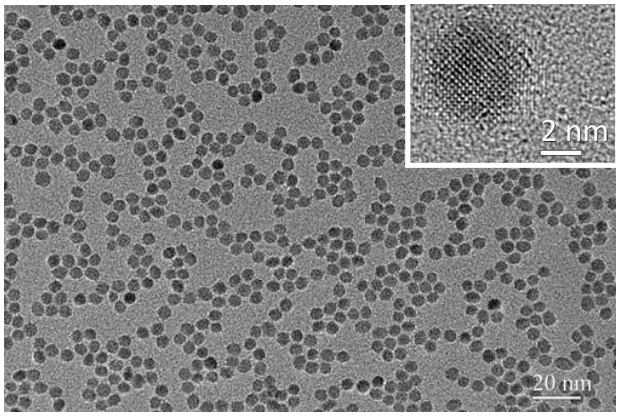
XRD Pattern

A typical XRD pattern shows highly crystalline particles.



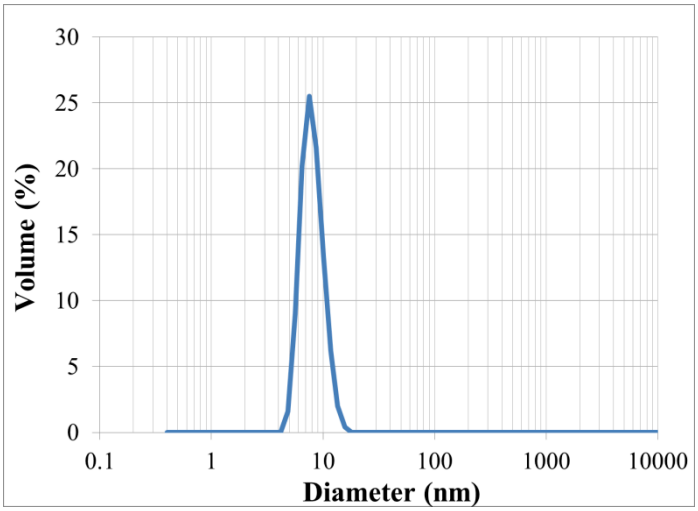
Particle Size

A typical TEM image of PixClear™ shows spherical nanocrystals with 5 nm size and narrow size distribution.



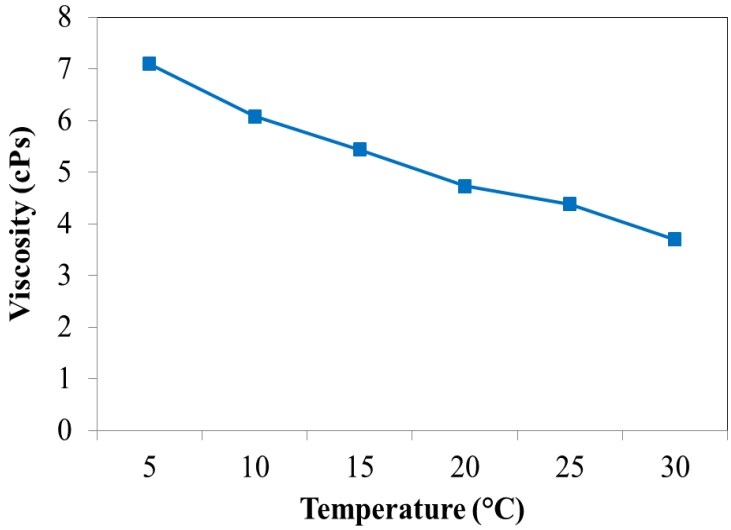
Particle Size Distribution

The dispersions are aggregate free with 99.99% (by volume) of the zirconia contained in nanocrystals with a diameter < 30 nm as measured by Dynamic Light Scattering (DLS)



Viscosity

The viscosity of 50 % dispersion in PGMEA does not significantly change with temperature.



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