

Relationships between Surface Chemistry and Rheology in Highly Concentrated Suspensions of Nano-ceramic Composites

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ABSTRACT

The rheological behaviour of concentrated ceramic suspensions using high purity nano-particle size powders can be controlled by understanding and regulating the net particle-particle interaction force. This poster focuses on the experimental results from studies showing how the yield stress of concentrated aqueous suspensions of alumina, zirconia and alumina/zirconia composite can be controlled through regulation of pH and the addition of inorganic electrolytes and anionic polyelectrolytes (polymers).

An advanced electroacoustic technique called “ESA” applied for prediction and monitoring of the particle-particle interaction forces of electrokinetic properties of highly concentrated suspensions. The various kinds of interparticle forces acting in aqueous suspensions of fine particles are reviewed and used to interpret the experimental results.