Particle Size Measurement by using the Light scattering and Dielectric Spectroscopy Methods

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The size of colloidal particles (Ludox AM, Grace, Colombia) were measured by using the light scattering (PCS, Raman) and dielectric spectroscopy (Impedance Analyzer) methods. Ludox colloidal silica particles are formed after the sol state has been converted to a dry solid state by a gelation process. We measured the Ludox colloidal particle size during the gelatin process by using the light scattering and dielectric loss spectroscopy methods. We found that the particle size measured from different method were consistent each other and that light scattering and dielectric loss spectroscopy methods are efficient method to characterize the nano-sized colloidal particles.

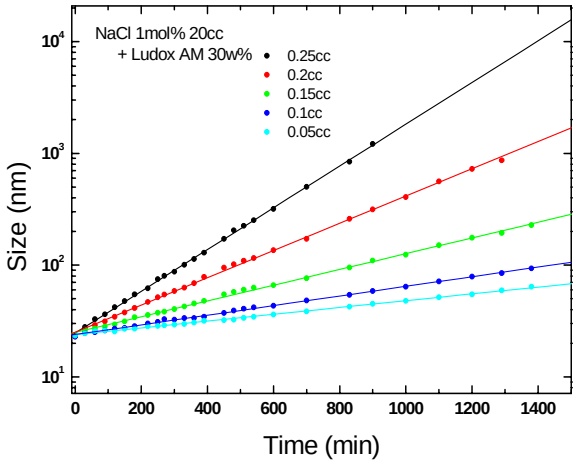

Fig. 1 Particle size measurements by using the Photon correlation spectroscopy. The close circles represent experimental results and the straight lines represent fitted results. The black, red, green, blue and sky blue line represents the Ludox AM 30wt% 0.05cc, 0.1cc, 0.15cc, 0.2 cc and 0.25cc with 1 mol% NaCl 20cc, respectively.

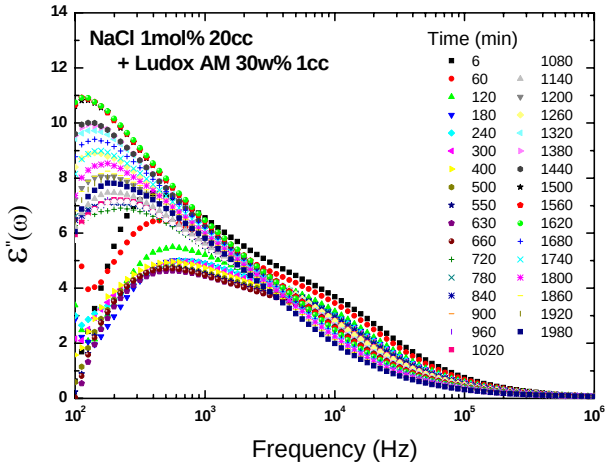

Fig. 2 The frequency dependent dielectric loss spectra of colloidal silica in room temperature of the Ludox AM 30 wt% 1cc with 1 mol% NaCl water 20cc.

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