

Characterization of Electrokinetic properties of highly concentrated ceramic suspensions by Electrokinetic Sonic Amplitude (ESA) Measurement

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The aim of the present work was the application of a developed electroacoustic technique which is called: “Electrokinetic Sonic Amplitude (ESA)”, is measured the devices (ESA-8000, Matec, USA) for monitoring and characterization of the electrokinetic properties of different high solids concentrated slurries by nano particle-sized alumina-toughened zirconia (TZ-3Y20A, Tosoh, Japan) and submicron-sized α -alumina (AA04, Sumitomo, Japan) powders and by using anionic polyelectrolyte dispersant (Dolapix CE64, Zschimmer Schwarz, GmbH, Germany), as well as to compare with the rheological properties for producing of the slip-cast objects with improved properties of the final objects. In this present work, from the ESA values mobility, zeta potential and PH were calculated to compare different high solids concentrated slurries and also with the results received from rheological properties. The major part of this work deals with influence of dispersant concentration on the measured ESA value and stability of slurries. The ESA value decreases with increasing concentration. The especial efforts of ESA 8000 lies in the possibility of on-line observation of ceramic processing steps. Results from this work show how important knowledge about the electrokinetic properties is for practical applications.