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Electro-elastoviscous response of polyaniline functionalized nano-porous zeolite based colloidal dispersions

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Abstract

The present article discusses the typical influence of grafted conducting polymers in the mesoscale pores of dielectric particles on the static and dynamic electrorheology and electroviscoelastic behavior of corresponding colloids. Nanocrystalline meso-nanoporous zeolite has been prepared by chemical synthesis and subsequently polyaniline (PANI) coating has been implemented. Electrorheological (ER) suspensions have been formed by dispersing the nanoparticles in silicone oil and their viscoelastic behaviors are examined to understand the nature of such complex colloidal systems under electric fields. PANI-Zeolite ER fluids demonstrate higher static electroviscous effects and yield stress potential than untreated Zeolite,

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