

Functional Inorganic-Polymer Composite Particles for Electrophoretic Display Application

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Core/shell type charged inorganic-polymer hybrid particles were prepared in this study. To make white particles with negative charge, TiO_2 was used as core material and surface treatment for shell layer to incorporate the negative charge. The negative charged white particles ca. 200 nm in size were prepared and the effect of shell layer composition and dosage on charging performance was investigated. Carbon black as positive charged black particle was used. The treated carbon black having -OH on the surface was prepared and positively charged black particles were prepared using homogenized suspension polymerization with styrene and acrylonitrile. The electrophoretic properties of those charged particles were examined in terms of reflectivity, contrast ratio, and response time.