

Homogeneous dispersion and characterization of ultrafine ZnO powder by high shear apparatuses

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Ultrafine zinc oxide (ZnO) powders have been widely applied for the sunscreen agents. Importantly, the ZnO powders have usually strong coherence among the particles because the powders are surface-treated with dimethicone. Consequently, it is necessary to disintegrate the aggregated ZnO particles in silicone oil. In recent, the high shear apparatuses have been utilized for well-dispersion and particle size reduction of the ZnO powders in the medium. Here we report on the dispersion and size reduction of ultrafine ZnO particles by using the high shear apparatuses such as a ball mill, microfluidizer and three roll mill. In addition, the screening efficiency of the particles for ultraviolet ray were compared.