

Film squeezing process to prepare disc-shaped ellipsoidal particles with high yield

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Particle shape is one of the most important parameters that can influence the characteristics and properties of dispersion systems. Monodisperse microspheres have been employed as model particles and have been essential for comparing experimental findings on the effect of particle size with theoretical developments. However, it is not an easy task to create ellipsoidal particles with uniform sizes and controlled shapes. One of the versatile strategies is to make use of monodisperse polymer microspheres embedded in polymer matrix. Unlike the rod-shaped (prolate) ellipsoids produced by the well-established uniaxial stretching method, represented methods to prepare disc-shaped (oblate) ellipsoids still have serious problems. In this study, we introduce a facile method for preparing the oblate ellipsoidal particles via a film squeezing process. The advantages of our new method are easy access, high yield, and uniform sizes and shapes.