

Issues in IT Rheology

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Of many unit processes in IT technology, coating process is utmost important but has rarely been studied systematically, although it is even critical in the design of flat panel display and its productivity. In the coating process, it is very important to precisely control the flow behavior, which is dependent upon the rheology of the material. As the coating material consists of many components, monomer, binder, initiator, pigment, solvent, additives, for example, the material is a kind of complex fluids. In particular, as the material experiences very high shear flow due to the small gap of tens of micrometers and the dispersion of pigment is critical to the coating performance, the flow control of complex fluids of particulate system is very important in this process. Quantitative description of coating performance, thickness and stress distribution, has not yet been established (it will be guided by optical methods and image processing). Therefore, precise control of the process, high shear rheology, flow control of particles, quantitative description of coating performance will be the challenges of this area. In this talk, the current state of the art of the quantitative approaches for this process will be introduced.

Keywords: coating, complex fluid, flow