

New Technologies for Characterizing Coagulation of Particles in Slurry

TSUBAKI JunIchiro*

Kona TSUBAKI Lab., Professor Emeritus of Nagoya University
(tsubaki@jhgs.jp*)

Generally fine particles are treated as slurry in many industries. Since the properties of slurry affect on the quality of the final productions, characterizing them is very important. The slurry behavior is so complicated then what has to be characterized is not clear. Right now the flow property of slurry can be characterized relatively easily, however, it is almost impossible to optimize the slurry conditions only based on the flow property, consequently the optimization has to be done by trial and error. The reason why the slurry behavior is so complicated is that the fine particles in slurry can change their assembling state from dispersion of the primary particles to solidified gel responding to the particle inter-force, even though the particle concentration is the same. We have developed two types of technique for characterizing the assembling state of micron/submicron particles. One is named as HYSTAP (hydrostatic pressure) that is available to dense slurry, the other one is a direct observation method. We are also developing other technique for nano-particle slurry by measuring osmotic pressure. In the lecture I will introduce mainly HYSTAP and its applications.