

## Film formation of silica/PVA suspension: the effect of mixing control

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Film formation of particle/binder suspension can be tailored by process control without chemical manipulation. In this study, we investigated the film formation of the silica/ polyvinyl alcohol (PVA) suspension in terms of mixing time ( $t_{\text{mix}}$ ) and mixing intensity. As  $t_{\text{mix}}$  increased, the amount of adsorbed PVA on silica surface in suspension and film stress increased with a similar trend. Dried film displaying open microstructure initially became close-packed with increasing  $t_{\text{mix}}$ . Effect of mixing time on film formation is explained by the reinforced steric repulsion due to increasing adsorption which results in suppressing the flocculation during drying. We found that mixing intensity did not significantly affect the film formation, presumably because dispersion process was controlled by diffusion rather than convection.