

Effect of latex binder on the microstructure and adhesion properties of battery slurry based on capillary suspensions

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Li-ion batteries generated substantial research interest as a promising alternative for energy storage system. Several studies showed that battery performances are closely related to mechanical properties of battery electrode. In the previous study, a new concept named capillary suspensions was adapted to control flow properties of the battery slurries. Capillary suspensions use a small amount of the secondary fluid which is immiscible with a bulk fluid to change the flow behavior of suspensions forming a sample-spanning network structure within a suspension. The structure created by the secondary fluid changes not only flow behavior but also adhesion characteristics. The adhesion was affected by latex binder which is an essential binder for the adhesive characteristics of the battery. Therefore, interaction between the latex binder and the secondary fluid needs to be studied before we apply this concept to industrial slurries such as battery slurries. In this study, we investigated the effect of latex binder on rheological and adhesion properties of battery slurry based on the capillary suspension.