Rheological properties of cathode slurries for the lithium-ion battery

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In this study, cathode slurries containing Li(Ni,Mn,Co)O2, carbon black, PVDF binder are prepared with or without polymeric dispersant. Their flow characteristics are examined by measuring rheological properties such as shear viscosity and dynamic viscoelastic modulus in order to investigate the coating phenomena in lithium-ion battery system. After the electrode fabrication, the cross-sectional images were obtained to compare the dispersion of solid materials in the composite electrodes. Optimization of the flow characteristics in the coating process helps prevent coating defects and leads to the improved cell performance such as charge capacity and cycle capability.