

Effect of Anion-Solvent Interaction on the Anodic Stability of Electrolytes in Batteries

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In Li ion batteries, besides the reductive decomposition of solvents that dictates the formation of solid electrolyte interphase (SEI) on anode surfaces, these same solvents might also experience oxidative decompositions at cathode surfaces and eventually form some form of passivation thereon. However, little was known about the latter process.

In the wake of the efforts to develop Li ion batteries operating at higher voltages (> 4.5 V), it becomes imperative to understand the key factors that determine the cathode SEI chemistry.

In the current work we employed the combination of a series of techniques to coordinate the possible role of anion-solvent interaction with the electrochemical stability limits of the electrolytes on cathode surfaces.