BT03

Influence of Tris(pentafluorophenyl) Borane as an Anion Receptor on Ionic Conductivity of $LiClO_4$-Based Electrolyte for Lithium Batteries

음이온 고정화 물질이 액체전해질의 이온전도특성에 미치는 영향

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The effect of tris(pentafluorophenyl) borane (TPFPB) as an anion receptor on the ionic conductivities of the liquid electrolyte, EC/DMC (1/2.5, v/v)/1M $LiClO_4$, was investigated. It is found that the dissociation degree of lithium salts, the viscosity of the conducting medium, and the mobility of anions were changed by introducing TPFPB into the liquid electrolyte. The transference number of the liquid electrolyte was enhanced with increasing the TPFPB content, but its ionic conductivity was decreased owing to the anion trapping effect by TPFPB under the electric field. The ionic conductivities of the separators soaked in the liquid electrolyte were much lower than that of the liquid electrolyte. The leakage of the liquid electrolyte from the separator could be suppressed by the interaction between TPFPB and DMC. The electrochemical stability of the liquid electrolyte was also enhanced by addition of TPFPB.