Ionic Conductivities of Plasticized Polymer Electrolyte/Salt systems for Lithium Secondary Battery : Elastic Contribution

이승석, 배영찬*
한양대학교
(ycbae@hanyang.ac.kr*)

We establish a group contribution model of ionic conductivities for plasticized polymer electrolyte/salt systems based on the Nernst-Einstein equation in which the diffusion coefficient is derived from the modified double-lattice model and the elastic potential.
The model includes three contributions: the combinatorial contribution which is responsible for entropy of mixing, the van der Waals energy contribution from dispersion and the polar forces, and the specific energy contribution.
The proposed model takes into account both the mobility and the elastic interactions of the salt and the polymer for given systems.
Our model shows improved results for prediction when compared with those of other models.