

Ionic conductivity increase of tetrabutylammonium carboxylate hydrate inducing metal ion

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Ionic clathrate hydrate is a kind of clathrate hydrate which is composed of guest ion and its counter ion occupying the position of host water molecules. Ionic clathrate hydrate is stabilized by ionic interaction between guest-host compound rather than Van-der Waals interaction. Ionic clathrate hydrates generally show relatively higher conductivity than non-ionic clathrate hydrates due to their incorporated ions into host lattice. Focusing this property, ionic clathrate hydrate is applied to solid electrolyte. In this study, we examined the ionic conductivity of tetrabutylammonium carboxylate hydrate inducing metal ions, also checked the melting point and crystal structure. Ionic conductivity shows 200–500 times higher value than reference. Crystal structure and melting-point did not change remarkably as ionic conductivity did.