

Thermal behavior measurement of binary choline chloride solid solutions by differential scanning calorimetry

김혜영, 박병홍[†]

한국교통대학교

(b.h.park@ut.ac.kr[†])

Binary solid solution containing choline chloride usually has a lower melting point than the individual components which interact each other forming hydrogen bond. Its physico-chemical properties (viscosity, density, conductivity, solubility, and so on.) are similar those of ionic liquids. However there are advantages such as low toxicity, easy manufacture and low cost compared to the ionic liquid. In this study, choline chloride (ChCl) was mixed with urea or 1,3-dimethylurea (ChCl + urea and ChCl + 1,3-dimethylurea). Thermal behaviors of binary choline chloride solid solution systems were investigated by using a differential scanning calorimeter (DSC). A phase diagram of ChCl + urea system was successfully generated but not for ChCl+ 1,3-dimethylurea system. Further investigations for the structure of the binary solid solution would be proceeded and other binary solution systems would also be analyzed by DSC technique to understand phase changing characteristics.