

Thermal behavior measurement of choline chloride + glycerol by differential scanning calorimetry

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Binary solid solution containing choline chloride usually has a lower melting point than those of the individual components due to interaction between them forming hydrogen bond. Its physico-chemical properties such as viscosity, density, conductivity, and solubility are similar those of ionic liquids when it is at a liquid phase. However there are advantages on low toxicity, easy manufacture, and low cost compared with the ionic liquids. In this study, choline chloride (ChCl) was mixed with glycerol to form a solid solution. Thermal behaviors of binary choline chloride solid solution systems were investigated by using a differential scanning calorimeter (DSC). The phase diagram was drawn by changing the composition of the solution and measuring melting points. 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.