

## Physico-chemical Properties of Ionic Liquid Analogous Based on Magnesium Chloride Hexahydrate and Dimethylformamide

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**Abstract:** A homogeneous, colorless ionic liquid analogous based on dimethylformamide and magnesium chloride hexahydrate is reported. The structure of the ionic liquid analogous is investigated by Fourier transform infrared spectroscopy (FTIR). It indicates that the Magnesium chloride hexahydrate bond via hydrogen bonds with dimethylformamide. The physico-chemical and electrochemical properties of the ionic liquid analogous such as viscosity, conductivity, density and cyclic voltammetry are measured as a function of temperature and composition. The thermal expansion coefficients ( $r$ ), the molar enthalpy of activation ( $\Delta H^*$ ), the molar Gibbs energy of activation ( $\Delta G^*$ ) for viscous flow, and the molar entropy of activation ( $\Delta S^*$ ) for viscous flow have been calculated.

Keywords: ionic liquid analogous; viscosity; conductivity; density