

Measurements of excess enthalpies for binary systems of carbon dioxide + 1-butyl-3-methylimidazolium nitrate using a high-pressure microcalorimeter

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Ionic liquids (ILs) represent by now an established green chemistry research field with many different facets including chemical synthesis, catalysis and applications in electrochemistry and separations analytical chemistry in general. In this work, a high pressure isothermal calorimeter has been built to make the measurements of excess enthalpies for the binary system of carbon dioxide + 1-butyl-3-methylimidazolium nitrate at 298.15K and various pressures. In entire composition range, excess enthalpies show exothermic character. Excess enthalpies from this work were compared with experimental data from literature and calculated using the electrolyte NRTL model. The values of the standard deviation indicate good agreement between the experimental results and those calculated from the equation.

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