

Thermophysical Properties and Structure of [C₂mim][CH₃SO₃]+ Water Mixtures

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Thermophysical properties of the binary system water and 1-ethyl-3-methylimidazolium methanesulfonate, [C₂mim][CH₃SO₃], with an assay $\geq 95\%$, were studied to analyze its possible use as a heat transfer fluid in industrial processes. Data obtained includes density, speed of sound, viscosity, electrical conductivity, thermal conductivity and refractive index (and derived excess properties), for all the composition range, and temperatures 293 to 353 K. Methods of measurement used were described in recent publications [1,2], for pure [C₂mim][CH₃SO₃] and [C₂mim][CH₃CO₂] + water mixtures.

Discussion about the structure of these mixtures will be done, based on correlation spectroscopy and computer simulations for similar mixtures of hydrophilic ionic liquids with water, like, [C₂mim][C₂H₅SO₄], [C₂mim][CH₃SO₃], and [C₄mim][BF₄], [3-7].

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