

Raman Spectroscopic Study of a New Type of Room Temperature ZnCl₂-DMSO₂ Molten Salts

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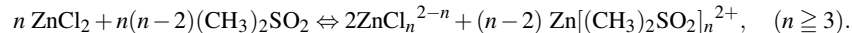
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Z. Naturforsch. **65a**, 745 – 748 (2010); received February 27, 2009 / revised October 24, 2009

In this study, Raman spectra of binary zinc chloride-dimethylsulfone (ZnCl₂-DMSO₂) melts have been measured. The intra-molecular vibrations of group and ionic species have been confirmed and discussed. From the Raman spectrum analysis and discussions, the equilibrium reaction equation about the complex ions forming in the ZnCl₂-DMSO₂ melt is submitted, such as



However, the Raman spectra reveal that the ZnCl₄²⁻ (375 cm⁻¹) and ZnCl₃⁻ (290 cm⁻¹) complexes are the major ions for the 40 – 90 mol% ZnCl₂ melts; furthermore, as the DMSO₂ content is increased, the binary melt advantage the forming of Zn[(CH₃)₂SO₂]_n²⁺ complex ion and promote its transport characteristic.

Key words: Raman Spectra; ZnCl₂-DMSO₂; Complex Ion.