Ionic Conduction and Molecular Structure of Molten $FeCl_3$

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Former experiments on molten $FeCl_3$ have shown that, as for $AlCl_3$, melting is accompanied by a transition from sixfold to essentially fourfold coordination. However, in contrast to $AlCl_3$, the $FeCl_3$ melt near freezing has an appreciable ionic conductivity. We propose a model for the structure of $FeCl_3$ melt as consisting of closely packed Fe_2Cl_6 bitetrahedral molecules in equilibrium with $(Fe_2Cl_5)^+$ and $(Fe_2Cl_7)^-$ ionised species.

Key words: Melting; Liquid Structure; Molecular Liquids

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