

The Cathodic Process in Magnesium Chloride-Alkali Chloride Melts

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The rate of the electrode reaction on molten magnesium surfaces was studied in binary melts containing magnesium chloride and alkali chlorides, using impedance spectroscopy and galvanostatic relaxation. Studies were performed at different temperatures in melts with varying concentration of magnesium chloride in LiCl, NaCl, KCl and CsCl.

The process seems to consist of dissociation of a complex, of diffusion and of two subsequent charge transfer steps. Both the absolute and the relative rates of all these steps depend on the size of the alkali cation.

Interesting relations between kinetic parameters and thermodynamic and spectroscopic data have been observed.