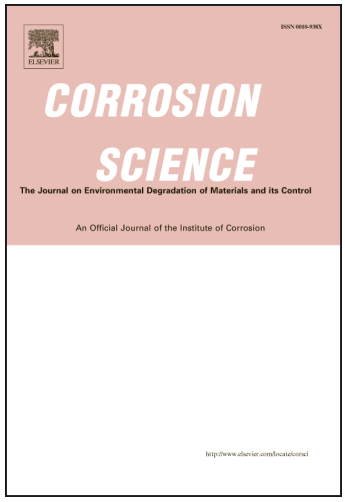

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Corrosion behaviour of stainless steel fibre-reinforced copper metal matrix composite with reference to electrochemical response of its constituents

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Abstract

The corrosion behaviour of stainless steel/copper composite has not yet been thoroughly investigated. In this study, the corrosion behaviour of stainless steel fibre-reinforced copper metal matrix composite was investigated in chloride media at different temperatures and pH values using electrochemical techniques. The results were demonstrated in terms of the electrochemical response of the composite constituents. Microstructure observations of free corroded samples showed that the corrosion initiated at the copper matrix. Galvanic current density measurements demonstrated equilibrium polarity in which copper acted as the cell anode. The corrosion behaviour of the composite was predominantly determined by copper.

Keywords: A. Metal matrix composite; A. Stainless steel; A. Copper; B. Polarisation; C. Galvanic corrosion.