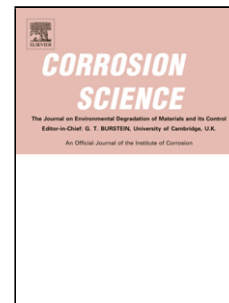


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Corrosion protection by hydrophobic silica particle-polydimethylsiloxane composite coatings

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Highlights ►

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Highlights

- Corrosion protection of steel substrates is achieved by a one-layer organic coating
- Corrosion protection during almost 80 days of exposure to 3 wt% NaCl solution
- The corrosion protective properties depend on particle concentration
- Increase in diffusion path and hydrophobicity can explain the good properties

Abstract

In this study, the time-dependent corrosion protection ability of 10-15 μm thin polydimethylsiloxane-nanoparticle composite coatings was evaluated using mainly open circuit potential and electrochemical impedance spectroscopy measurements. The best result was obtained for the coating containing 20 wt% hydrophobic silica nanoparticles, where it was possible to achieve

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