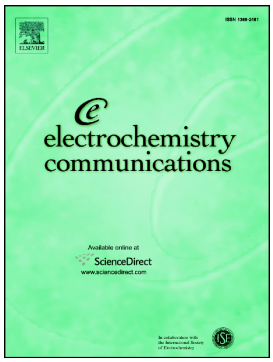

Revisiting the ASTM C876 standard for corrosion of reinforcing steel: On the correlation between corrosion potential and polarization resistance during the curing of different cement mortars

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Revisiting the ASTM C876 standard for corrosion of reinforcing steel: On the correlation between corrosion potential and polarization resistance during the curing of different cement mortars

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Abstract

This paper presents a probabilistic analysis of almost 700 potential and polarization resistance measurements of reinforcing steel embedded in 15 types of mortars of different nature and chloride contamination levels exposed to controlled conditions of temperature and relative humidity. Besides indicating that the ASTM C876 standard can be a robust and reliable commissioning tool for strategic assets in terms of effectiveness of reinforcing steel passivation, results show that the polarization resistance values follow different probability density functions at different potential levels, which means they do correspond to distinct interfacial processes.

Keywords: rebar corrosion; concrete; monitoring; probability density

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