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Solid Potential Reference Electrode for Concrete Corrosion Monitoring

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The introduction of sensors in reinforced concrete structures is nowadays the most promising methodology to monitor the corrosion of those structures in real time. The need for reliable, solid and low-cost reference electrodes is a specific need in this type of monitoring. In this work, graphite pseudo-references were studied and prepared with graphite powder immobilized within a cement matrix. The electrodes exhibit stability in saturated calcium hydroxide solutions and concrete specimens aged in environments with sodium chloride for several months. The behaviour of graphite pseudo-references in terms of polarization was studied in saline environments. The results obtained allow us to conclude that the electrodes exhibit stability and do not respond to variations in the concentration of chlorides, showing their possible use in reinforced concrete structures subject to marine environments.

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