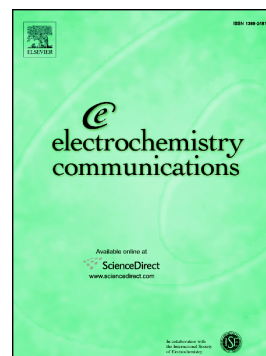


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Electrochemical evaluation of the rapid self-healing behavior of poly(borosiloxane) and its use for corrosion protection of metals

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Abstract

Self-healing of soft poly(borosiloxane) via reptile motion within only 30 seconds at 45 °C has been observed both visually and microscopically. A poly(borosiloxane) coating was utilized for corrosion protection of a metal surface (in this case Ti) and its behavior analyzed by electrochemical impedance spectroscopy. Even in a corrosive solution such as 3% NaCl aqueous solution, the polymer provided a high degree of corrosion protection, demonstrating self-healing of scratches in situ.

Keywords: inorganic polymers, self-healing, impedance, corrosion protection

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