Short Communication

An Intelligent Corrosion Inhibitor Based on pH-sensitive poly(2-diethylaminoethyl methacrylate) Microspheres

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A low pH-triggered intelligent corrosion inhibitor based on BTA loaded poly(2-diethylaminoethyl methacrylate) (PDEAEMA) microspheres was designed to prevent metal corrosion in a variable pH environment. The average particle size of the microspheres was 3 μm . The microspheres swelled at low pH values and shrank at high pH values, which guarantees pH sensitivity. The BTA release from the intelligent corrosion inhibitor depends on the environment pH value. The electrochemical results revealed that the intelligent corrosion inhibitor exhibited smart and efficient corrosion inhibition performance on steel corrosion, which was attributed to the pH-dependent supply of BTA.

Keywords: intelligent, pH-sensitive, microsphere, inhibit

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