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Corrosion Protection of Structural Steel by Surfactant Containing Reagents

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Abstract : The anti-corrosion performance of fatty acid coated mild steel samples is studied. Samples of structural steel coated with collector reagents deposited from surfactant in ethanol solution and overcoated with an epoxy barrier paint. A quantitative corrosion rate was determined by linear polarization resistance method using biopotentiostat/galvanostat 400. Coating morphology was determined by scanning electronic microscopy. A test for hydrophobic surface of steel by surfactant was done. From the samples, the main component or high content iron was determined by chemical method and other metal contents were determined by Inductively Coupled Plasma-Optical Emission Spectrometry (ICP-OES) method. Prior to measuring the corrosion rate, mechanical and chemical treatments were performed to prepare the test specimens. Overcoating the metal samples with epoxy barrier paint after exposing them with surfactant the corrosion rate can be inhibited by 34-35 µm/year.

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