

Effect of sulfate ions on the corrosion of rebars embedded in concrete

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Abstract: The corrosive action of sulfate ions on reinforcing steel has been studied and compared with that of chloride ions. Reinforced concrete specimens were made with equal dosages of sulfate and chloride ions (0, 0.6, 1.2 and 1.8 kg/m³ of concrete) and were immersed in potable water for a period of 808 days and then in 3% SO₄²⁻ and 3% Cl⁻ solutions for a period of 60 days. Half-cell potential and corrosion rate measurements were made during the entire exposure period of 868 days. The test results indicate that the sulfate ions are corrosive to reinforcing steel but their corrosivity is less than that of chloride ions.