Short Communication

Effect of Bagasse Ash Admixture on Corrosion Behavior of Low Carbon Steel Reinforced Concrete in Marine Environment

QingYan Zhang^{1,}, Hualei Li², Hongwei Feng¹, Tao Jiang¹*

¹ Xinxiang University, Xinxiang, Henan 453003, China

² Xinxiang Vocational and Technical College, Xinxiang, Henan 453003, China

*E-mail: qingyanzhang00@sina.com

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The effect of bagasse ash (BA) admixture in various concentrations into Portland cement on the electrochemical corrosion resistance of carbon steel reinforced concrete was evaluated by electrochemical impedance spectroscopy and polarization methods during immersion in 3.5 wt% NaCl solution as the marine environment. Reinforced concrete with 10 wt% BA was most effective for enhancing the corrosion resistance of the steel rebar due to the decrease of water absorptivity and chloride ion permeability. The surface morphology of the samples indicated that irregularity and separation structures on the steel rebar were improved by adding BA. The results indicate that the BA as an admixture increases concrete durability and prevents the corroding ions from reaching the surface of the steel rebars which can be an alternative material in the development of construction industry.

Keywords: Bagasse ash; Electrochemical corrosion resistance; Low carbon steel rebar; Electrochemical impedance spectroscopy; polarization

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