

عنوان مقاله:

A Multi-component Corrosion Inhibitor for Carbon Steel (N-80) in Hydrochloric Acid

محل انتشار:

دهمین همایش مشترک و پنجمین کنفرانس بین المللی انجمن مهندسی مواد و متالورژی و انجمن علمی ریخته گری ایران (سال: 1395)

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خلاصه مقاله:

Five blends namely BCPI (benzalkonium chloride 50 wt% solution + potassium iodide), COPI (caster oil polyethylene glycol ether + potassium iodide), EAPI (ethanoic acid + potassium iodide), MBPI (methylbenzene + potassium iodide) and CI-113 (a multi-component corrosion inhibitor comprising benzalkonium chloride 50 wt% solution, caster oil polyethylene glycol ether, ethanoic acid, methylbenzene, and potassium iodide) were evaluated as corrosion inhibitor for carbon steel (N-80) in hydrochloric acid (HCl) by using various chemical and electrochemical methods. CI-113 was found to be the best corrosion inhibitor at concentration of 5000 ppm. Our results demonstrate that percentage of inhibition efficiency (IE%) will be increased by increasing in concentration of CI-113 and temperature, and will be decreased by increasing in HCl concentration and immersion time. CI-113 behaves as a mixed-type inhibitor and its adsorption obeys Temkin's adsorption isotherm

کلمات کلیدی:

Corrosion, Carbon steel, Electrochemical impedance spectroscopy, Scanning electron microscopy

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