Desalination and Water Treatment
www.deswater.com
doi: 10.5004/dwt.2020.24755

175 (2020) 189–195
January

Electrochemical impedance spectroscopy study of copper corrosion inhibition by PASP in 3% citric acid

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Received 21 February 2019; Accepted 1 July 2019

ABSTRACT

The inhibitry action of polyaspartic acid (PASP) on copper in 3% citric acid was studied at a temperature range of 20°C–50°C using electrochemical impedance spectroscopy (EIS). The results revealed a good inhibitor efficiency of PASP within this concentration range. The inhibitor efficiency (η) reached 91.5% with the PASP concentration of 1 g/L. Data obtained from EIS were analyzed to model the corrosion inhibition process through an equivalent circuit. The adsorption of PASP on the surface of copper was found to be consistent with the Langmuir adsorption isotherm.

Keywords: Copper; Polyaspartic acid (PASP); Citric acid; Corrosion inhibition; Electrochemical impedance spectroscopy (EIS)

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