Pengaruh konsentrasi natrium klorida terhadap ketahanan korosi pada baja tahan karat duplex dan feritik menggunakan metode electrochemical impedance spectroscopy = The use of electrochemical impedance spectroscopy method for corrosion resistance evaluation of duplex and ferritic stainless steels in aqueous sodium chloride solutions

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Abstrak

Perilaku korosi dari baja tahan karat duplex 2205 dan feritik 410s diamati dalam berbagai konsentrasi larutan sodium klorida. Rangkaian pengujian dilakukan dengan menggunakan metode Electrochemical Impedance Spectroscopy pada suhu ruang. Metode ini dilakukan untuk mengamati impedansi dari material uji. Konsentrasi larutan klorida disiapkan dengan variasi 1, 2, 3, 4 dan 5 w.t. Hasil pengujian terhadap kedua sampel menyatakan bahwa sistem dengan ketahanan korosi paling rendah adalah sistem yang menggunakan 3,5 w.t sodium klorida, yang serupa dengan kandungan klorida air laut. Hasil pengujian juga menyatakan bahwa baja tahan karat duplex 2205 secara umum lebih tahan korosi dibandingkan dengan feritik 410s pada setiap konsentrasi klorida.

.....Corrosion behaviour of SS 2205 and SS 410s were investigated in various concentrations of aqueous sodium chloride solutions. Experimental work was carried out by using electrochemical impedance spectroscopy method at room temperature to evaluate the impedance of the system. Sodium chloride solutions were prepared with various concentration i.e. 1, 2, 3.5, 4 and 5 w.t. The testing results were represented by Nyquist plot for both alloys. It was observed that the lowest corrosion resistance of both alloys was at 3,5 w.t NaCl which was similar to typical seawater solution. It was also observed that SS 2205 had better corrosion resistance along with greater impedance than the SS 410s in every NaCl concentration.