

Corrosion Behavior of AISI 304 Stainless Steel in Aggressive Chloride Environment

Viera Zatkáliková, Lenka Markovičová, Tatiana Liptáková, Alan Vaško

Faculty of Mechanical Engineering, University of Žilina, Univerzitná 1, 01026 Žilina, Slovakia. E-mail: viera.zatkalikova@fstroj.uniza.sk, lenka.markovicova@fstroj.uniza.sk

Cr-Ni stainless steels are commonly used for construction of various equipments exposed to halides containing media, which can act aggressively and cause a serious local corrosion damage of these materials. This article focuses on the resistance of AISI 304 stainless steel to the pitting corrosion in 1 M acidified chloride solution represented by mixture 0.9M NaCl + 0.1M HCl, at the ambient temperature of 22 ± 3 °C. An evaluation of the pitting corrosion resistance was based on the cyclic potentiodynamic polarization tests performed on three types of steel surfaces: “as received“, electropolished and ground + electropolished surfaces. The pitting potentials were determined and compared. Pitted surfaces after potentiodynamic polarization tests were observed by the optical microscope.

Keywords: Cr-Ni stainless steel, Pitting corrosion, Electropolishing, Cyclic potentiodynamic test

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