

Copyright 2021, ICC & ABRACO

The work presented during 21st INTERNATIONAL CORROSION CONGRESS & 8th INTERNATIONAL CORROSION MEETING in the month of July of 2021.

The information and opinions contained in this work are of the exclusive right of the author(s).

Poster Oral

The final decision for oral or poster is at Technical Committee discretion.

Resistance to pitting in different chloride concentrations of AISI 316L steels modified with niobium additions

Vitor S. Rolin¹, Carlos A. Picone², Juno Gallego³, Sergio A. Spinola Machado⁴, Germano Tremiliosi Filho⁵ Luiz C. Casteletti⁶

Abstract

The present work aims to evaluate the influence of chloride concentration on pitting corrosion in modified AISI 316L steels with 0.1%, 0.2% and 0.4% niobium additions. The samples were submitted to electrochemical tests in deionized water and with small percentages of sea water (SW) up to 100% of SW, obtaining potentiodynamic polarization curves to observe the pitting potential (Ep). A potentiostat was used, coupled to a 3 electrode electrochemical cell (work, reference and auxiliary) transmitting the data to a microcomputer with Voltamaster4 software. It was concluded that in 10% of SW the appearance of pits is observed, the potential that is formed decreases with increasing chloride concentration, being the highest potentials in samples with 0.1% niobium.

Keywords: Chloride, 316L, Pite.

¹ MSc Student, Mechatronic Engineer – PPGEM, UNESP – Ilha Solteira

² Assistant Professor Doctor, Physicist, Department of Physics and Chemistry, UNESP – Ilha Solteira

³ Full Professor, Mechanical Engineer, Department of Mechanical Engineering, UNESP – Ilha Solteira

⁴Full Professor, Chemical - GEMEDE- IQSC-USP

⁵Full Professor, Chemist - GE-IQSC-USP

⁶ Full Professor, Material Engineering- DEMMA EESC-USP