

# EVALUATION OF THE ELECTROCHEMICAL BEHAVIOR OF NIOBIUM THIN FILMS DEPOSITED BY MAGNETRON SPUTTERING ON AISI 316 STAINLESS STEEL

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AISI 316 stainless steels are used in various industrial applications such as pumps, condensers and many aggressive atmospheres. However, the presence of chloride ions increases their susceptibility to pitting corrosion and cracks. Improvements in corrosion resistance of the alloys can be obtained by the use of coatings. This paper addressed the electrochemical behavior of niobium thin films deposited by magnetron sputtering on AISI 316 stainless steel substrates. The coatings were obtained at room temperature and 60 ° C for 3, 5 and 10 minutes. The corrosion behavior of the specimens was evaluated by means of electrochemical impedance spectroscopy and potentiodynamic polarization using a 3.5 wt.% NaCl solution at room temperature as the electrolyte for an immersion period of 19 days. The results indicated a higher corrosion resistance when the film is deposited on the heated substrate, and that a longer deposition time produces more protective films.