Hot Corrosion Resistance of Al₂O₃ Coating Produced by Thermal Spray

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In this paper the corrosion rates of the aluminum oxide (Al₂O₃) coatings were determined, obtained through technical produced by thermal spray, using as substrate 316. The coatings were studied by potentiodynamic polarization curves Tafel and Electrochemical Impedance Spectroscopy (EIS), in an exposure time of 150 hours and three temperatures of evaluation 600 ° C, 650 ° C and 700 ° C. Subsequently the samples were cooled to room temperature to avoid the thermal shocks. The methods used X-ray diffraction and electron microscopy applied to define surface showing the attack of the molten salt. It was found increased corrosion rate as the test temperature rises. The values of the polarization resistance are greater than the substrate.

Keywords: thermal spray, Hot corrosion, molten salts, aluminum oxide.

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