Effet de l'application d'une peinture anti-corrosion sur le comportement électrochimique de l'acier au carbone en milieu acide

M. BOUKANDOURA, O. NACHI

Soutenue en: 2019

Abstract: In this work, we are interested in the evolution of the surface roughness of steel (mechanically polished (A2, A3) and shot-blasted (A2G, A3G)) and the thickness of the paint applied to different surface states (mechanically polished (A2P, A3P) and shot blasted (A2GP, A3GP)). Shows that the roughness of grit-carbon steel surfaces is greater than the mechanically polished ones. Although the evolution of the thickness of the paint deposited on mechanically polished and shot-blasted carbon steel, depending on the grade of polishing paper,), shows that the thicknesses of paint deposited on carbon steel surfaces shot blasted are larger than those polished mechanically. The characterization of the samples was determined by scanning electron microscopy (SEM), showing that the surface state of mechanically polished steel (A3) is much better than that of shot-blasted steel (A3G). The surface analysis by SEM also shows that the coatings applied on the shot-blasted steel (A3GP) have a much better morphology than those applied on mechanically polished steel (A3P), and the metallographic micrographic analysis shows that the thickness of the coatings of paints obtained on shot-blasted steel are superior than that obtained on mechanically polished steel, The effect of mechanical polishing and shot blasting on the behavior of carbon steel with respect to corrosion by the use of two electrochemical techniques: potentiodynamic method and electrochemical impedance spectroscopy (EIS). mechanically polished and shot-blasted steel with and without coating for better resistance to corrosion in hydrochloric acid medium. Spectral analyzes by FTIR, shows the evolution of chemical bonds and functional groups present in the paint applied to steel.

Keywords : surface roughness of steel, shot-blasted steel (A3G), electron microscopy (SEM)