

Effect of Current Density on the Microstructure and Morphology of the Nickel Coatings

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Abstract. The aim of this research work was to study the effect of deposition current density on microstructure and surface morphology of electrodeposited nickel coatings. For this purpose, nickel deposits have been synthesized by direct current from watts bath without additive, in order to limit the incorporation of pollutants resulting from surface adsorption or electro-activity of these compounds. Nickel deposits have been investigated by Scanning electron microscopy and X-ray diffraction. Cyclic voltammetry was also used to gain information on the general behavior of the deposition. The optimum conditions of deposition were established and the influence current density on the grain size, surface morphology and crystal orientation was determined.

Keywords: Nickel, Electrodeposition, Microstructure, Morphology Current Density.