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# A Novel Approach for Wear and Corrosion Resistance in the Electroless Ni-P-W alloy with CNFs Co-Depositions

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## Abstract

Electroless nickel-based depositions have been considered as one of the industrially effective methods because of their deposition uniformity, good corrosion properties, high wear resistance and good electrical properties. In this study, Ni-P-W-CNF composite depositions were performed by electroless method on an aluminum substrate from an acidic hypophosphite at different sodium tungstate and CNFs contents. The main aim of this study was to deposit Ni-P-W-CNF composites and characterization of their morphology, tribological and corrosion behaviors. The Ni-P-W-CNF composite depositions were characterized using Scanning Electron Microscopy, X-Ray Diffraction analysis and Raman spectroscopy. The tribological behaviors of the Ni-P-W-CNF composite depositions were evaluated with reciprocating ball-on-disk test in dry conditions. The corrosion resistance behavior of the Ni-P-W-CNF composite depositions carried out by means of Tafel Polarization methods in 3.5% NaCl solution. The effects of CNFs and tungsten on the tribological and corrosion behaviors of the composite depositions were discussed. It was

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