Study the Wear Characteristics of Al_2O_3 Reinforced Ni-Based Nanocomposite Coating Synthesized using Electroless Deposition Technique

[1]MSc. Hiba Al-Gailani, [2]Prof. Dr. Adel K. Mahmoud, [3]Dr. Hana A. Al-Qasy

[2]*University of Diyala , Department of Materials Engineering, Diyala, Iraq &*

[2]*Ankara Yildirim Beyazit University, Department of Metallurgical and Materials Engineering, 06100-Ankara, Turkey*

[1&3]*University of Technology, Materials Engineering Dept.,Baghdad-Iraq*

**Corresponding author: adel_alkayali@yahoo.com*

Abstract

Electroless Ni-based – Al_2O_3 nanocomposite coatings have found wide range of applications due to their high hardness and wear resistance. The present work investigate the influence of electroless deposition process parameters on the morphology, microhardness and wear behavior of electroless Al_2O_3 reinforced Ni-based nanocomposite coating. Four parameters, namely concentration of nickel sulphate, concentration of Al_2O_3 nanoparticles as a second phase particles, and deposition time on the morphology, microhardness and wear resistance of electroless Al_2O_3 reinforced nanocomposite coating. The compositional, microstructural, phase structure and morphological analysis are conducted using EDS-X-Ray analysis, X-Ray diffraction analyzer, and scanning electron microscope respectively. While wear behavior is investigated using reciprocating wear test machine.

Keywords— *Wear characteristics, Al_2O_3 reinforced Ni-Based nanocomposite coatings, electroless deposition technique*

Professional Biography

MSc. Student Hiba has completed his BSc at the age of 22 years from University of Almustanseria– Baghdad – Iraq and award BSc Degree in 2005 from University of

Almustanseria. She is a MSc student now in University of Technology; Baghdad-Iraq. She has been serving as a consultant engineer in University of Diyala from 2005-now.



Email Id: Hiba82algailani@gmail.com
Contact Number: 00905536671691