

عنوان مقاله:

Characterization of Ni-SiC-CNT nanocomposite coating electrodeposited on AA2024 substrate

محل انتشار:

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خلاصه مقاله:

Aluminium alloys may be used for tribological applications for example in engine parts due to their light weight and good thermal conductivity. But their lack of wear resistance limits their utilization. Electrodeposited coatings such as Ni-SiC have been efficiently used to enhance the tribological properties of aluminum parts. Carbon Nano Tube (CNT) has excellent mechanical, thermal, and electrical characteristics. In this paper, the effect of CNT on the co-deposition process and characteristics of Ni-SiC coating have been investigated. Two coatings were produced on AA2024 sub-layer one of which was Ni-SiC (S10) and the other was Ni-SiC-CNT(SC6). X-Ray Diffraction Analysis (XRD) technique was used to examine the co-deposition of reinforcing particles. Pin-on-disk wear test were conducted to evaluate the wear properties of the coatings. Wear scars and coatings surface were investigated using Scanning Electron Microscope (SEM). Surface mechanical properties of the coatings such as nano-hardness and elastic module were measured using Atomic Force Microscope (AFM). According to the results, addition of CNT led to increase in the local deposition rate of Ni and SiC. Were resistance, hardness and elastic module of the coating were also increased by .addition of CNT

کلمات کلیدی:

Aluminium, CNT electrodeposition, composite coating, acid treatment

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