Short Communication

Effect of Bath ZrO₂ Concentration on the Properties of Ni-Co/ZrO₂ Coatings Obtained by Electrodeposition

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Ni-Co/ZrO₂ composite coatings with different ZrO₂ contents have been prepared by electrodeposition. The ZrO₂ content was controlled by deploying different ZrO₂ particle concentrations in the bath. Micrographs, composition, microstructure, micro-hardness, and wear resistance of the composite coatings have been studied. The results showed that the ZrO₂ content in the coatings increased as the ZrO₂ concentration in the bath was increased up to 15 g/L, whereupon the highest micro-hardness and best wear resistance were obtained. When the bath ZrO₂ concentration exceeded 15 g/L, the ZrO₂ content in the coatings decreased, leading to inferior properties.

Keywords: ZrO₂, Ni-Co, electrodeposition, micro-hardness, wear resistance

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