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Investigation of electrochemical corrosion behavior of hydroxyapatite reinforced with calcium phosphate coatings on AISI 304

Buta Singh Sidhu¹, Gurpreet Singh² and Hazoor Singh²

¹MRS Punjab Technical University, India

²Punjabi University, India

The main aim of this study is to investigate the corrosion behavior of plasma sprayed hydroxyapatite (HA) and hydroxyapatite–Calcium Phosphate (CaP) coatings on AISI 304 specimen in simulated body fluid (SBF) for biomedical applications. In HA–CaP coating 10 wt% CaP was mixed with HA. The coatings was characterized by x-ray diffraction (XRD), scanning electron microscopy (SEM) and energy dispersive X-ray spectroscopy (EDS) to investigate the crystallinity, microstructure and morphology. Electrochemical potentiodynamic tests were performed to determine the corrosion resistance of uncoated and coated substrates. After the electrochemical corrosion testing the exposed samples were examined by XRD, SEM and EDS. The result of electrochemical study reveals improvement in corrosion resistance of AISI 304 after HA coating.

butasidhu@yahoo.com