

عنوان مقاله:

Effect of Coating Process Parameters on Corrosion Behavior of Ti-6Al-4V

محل انتشار:

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خلاصه مقاله:

Titanium and its alloys (Ti-6Al-4V) are considered to be among the most promising engineering materials due to a unique combination of high strength to weight ratio, melting temperature, corrosion resistance, and biocompatibility. Anodizing is one of the coating methods that increases corrosion resistance and wear resistance and provides better adhesion of paint primers mostly applied to protect Al, Ti, Mg, and their alloys. The novel Plasma Electrolytic Oxidation (PEO) technique is gaining increased attention for depositing thick, dense, corrosion resistant, and hard ceramic coating on valuable metals (Al, Ti, and Mg). The aim of this research is a comparison between the corrosion behavior of anodized and plasma electrolytic oxidized Ti-6Al-4V at different voltages. The surface morphology, thickness, and phase composition of coatings were investigated using a scanning electron microscope and X-ray diffraction. The potentiodynamic polarization test was used to determine the corrosion behavior of the specimens. Results indicated that increasing of corrosion resistance by tests anodized sample at 50 V at 15 minutes and PEO .sample at 375 V at 10 minutes

کلمات کلیدی:

Ti-6Al-4V, anodizing, Plasma Electrolytic Oxidation (PEO), Thermal oxidation, Corrosion Resistance

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