The effect of annealing on the behavior of polyetheretherketone composites compared to pure titanium

Alaa A Mohammed¹ , Emad S Al-Hassani¹, Jawad K Oleiwi¹ and Seyed R Ghaffarian¹,²

¹ Department of Materials Engineering, University of Technology, Iraq
² Department of Polymer & Color Engineering, Amirkabir University of Technology, Iran

E-mail: alaaabed960@gmail.com

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Abstract
Polyetheretherketone (PEEK) has become increasingly popular in biomedical applications due to its favorable biocompatibility, biostability, mechanical strength, and elastic modulus, all of which are similar to those of natural bones. This paper investigates the effects of annealing on the behavior of PEEK ternary composites. PEEK samples were annealed and characterized by mechanical tests, Attenuated Total Reflection Fourier Transform Infrared (ATR-FTIR), Scanning Electron Microscopy (SEM), Energy Dispersive x-ray Spectroscopy (EDS) and physical property testing. Results showed that annealing has an appositive effect on the properties of PEEK. The properties of the ternary composites were also compared with those of pure PEEK and Ti as a control.