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Tribocorrosion behaviour of hot pressed CoCrMo–HAP biocomposites

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ABSTRACT

Bioactivity of CoCrMo can be enhanced by incorporation of hydroxyapatite (HAP), but the poor mechanical properties of HAP is the most serious hindrance for its application on load-bearing implants, especially when exposed to corrosion and wear, simultaneously. Thus, the present work aims to investigate the tribocorrosion behaviour of CoCrMo–HAP composites. The tribocorrosion tests were performed under open circuit potential (OCP) in 8 g/l NaCl at 37°C by using a ball-on-plate tribometer. Results suggested that HAP particle addition increased the corrosion rate due to localized corrosion taking place on the pore sites near the matrix/reinforcement interface. However, under tribological action, composite samples presented relatively lower tendency to corrosion and lower coefficient of friction values.

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