Effect of Cu and Heat Treatment on the Corrosion Behaviour of a NiTi Alloy in Simulated Human Fluids

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The effect of copper contents (5 and 10 at. %) and heat treatment (800⁰C, 30 minutes) on the corrosion behavior of 45 (at.%)Ni-55Ti alloys in Hank's solution has been studied by using potentiodynamic polarization curves and electrochemical impedance spectroscopy (EIS) measurements. Results have shown that both, the addition of Cu and heat treating the alloys increased the corrosion resistance of the base NiTi alloy. EIS measurements showed the existence of a duplex passive layer which was reinforced with the addition of copper or the heat treatment.

Keywords: NiTi alloys, Hank solution, Corrosion.

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