
Corrosion Behavior of some Ni-Cr and Co-Cr dental alloys**C.Jimenez-Marcos^{1*}, N. Florido-Suarez¹, A. Saceleanu²**¹University of Las Palmas de Gran Canaria, Las Palmas de Gran Canaria, Spain²Lucian Blaga University, Sibiu, Romania

Ni-Cr and Co-Cr alloys have been used in dentistry for porcelain-fused-to-metal (PFM) crowns due to their biocompatibility, wear resistance, long service duration, good mechanical properties, and last but not least, superior resistance to corrosion. Non-precious alloys have the benefit of an improved elastic modulus in comparison with the precious dental alloys, which allow thinner substructures to be used in metal-ceramic restorations and result in a smaller amount of tissue destruction in the crowns' preparation. The present study evaluated and compared the corrosion behavior of two NiCr- and two CoCr-based dental materials in Ringer solution, using the following techniques: potentiostatic polarization curves, (chronoamperometry), microstructural analysis and EIS (electrochemical impedance spectroscopy). Corrosion potential, corrosion rate and pitting potential measurements have been carried out. The behavior under service conditions has been evaluated by means of electrochemical impedance spectroscopy whose spectra have been fitted to an equivalent circuit which has allowed to determine the characteristic parameters of the process. The results obtained in this investigation showed that for the NiCr-based specimens the stability of the passive layer was destroyed after polarization and a development and growth of stable pits was found in the microstructural analysis after electrochemical treatment.

Keywords: dental alloys, corrosion, elastic modulus, Ni-Cr, Co-Cr, EIS**Biography:**

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