

## Brazilian Oral Research

Print version ISSN 1806-8324

### Abstract


[BAUER, Jos?Roberto de Oliveira](#); [LOGUERCIO, Alessandro Dourado](#); [REIS, Alessandra](#) and [RODRIGUES FILHO, Leonardo Eloy](#). Microhardness of Ni-Cr alloys under different casting conditions. *Braz. oral res.* [online]. 2006, vol.20, n.1, pp. 40-46. ISSN 1806-8324. doi: 10.1590/S1806-83242006000100008.

This study evaluated the microhardness of Ni-Cr alloys used in fixed prosthodontics after casting under different conditions. The casting conditions were: (1-flame/air torch) flame made of a gas/oxygen mixture and centrifugal casting machine in a non-controlled casting environment; (2-induction/argon) electromagnetic induction in an environment controlled with argon; (3-induction/vacuum) electromagnetic induction in a vacuum environment; (4-induction/air) electromagnetic induction in a non-controlled casting environment. The 3 alloys used were Ni-Cr-Mo-Ti, Ni-Cr-Mo-Be, and Ni-Cr-Mo-Nb. Four castings with 5 cylindrical, 15 mm-long specimens (diameter: 1.6 mm) in each casting ring were prepared. After casting, the specimens were embedded in resin and polished for Vickers microhardness (VH) measurements in a Shimadzu HMV-2 (1,000 g for 10 s). A total of 5 indentations were done for each ring, one in each specimen. The data was subjected to two-way ANOVA and Tukey's multiple comparison tests ( $\alpha = 0.05$ ). The VH values of Ni-Cr-Mo-Ti ( $422 \pm 7.8$ ) were statistically higher ( $p < 0.05$ ) than those of Ni-Cr-Mo-Nb ( $415 \pm 7.6$ ). The lowest VH values were found for Ni-Cr-Mo-Be ( $359 \pm 10.7$ ). The VH values obtained in the conditions induction/argon and induction/vacuum were similar ( $p > 0.05$ ) and lower than the values obtained in the conditions induction/air and flame/air torch ( $p < 0.05$ ). The VH values in the conditions induction/air and flame/air were similar ( $p > 0.05$ ). The microhardness of the alloys is influenced by their composition and casting method. The hardness of the Ni-Cr alloys was higher when they were cast with the induction/air and flame/air torch methods.

Keywords : Metal ceramic alloys; Dental casting technique; Hardness tests.

[?abstract in portuguese](#)   [?text in english](#)   [?pdf in english](#)

### services

-  custom services
-  Article in pdf format
-  Article in xml format
-  Article references
-  How to cite this article
-  Access statistics
-  Cited by SciELO
-  Similar in SciELO
-  Automatic translation
-  Show semantic highlights
-  Send this article by e-mail



All the content of the journal, except where otherwise noted, is licensed under a [Creative Commons License](#)

*Sociedade Brasileira de Pesquisa Odontol?gica*

Av. Lineu Prestes, 2227  
Caixa Postal 8216  
05508-900 S?o Paulo SP - Brazil  
Tel./Fax: +55 11 3091-7810



[bor@sbpgo.org.br](mailto:bor@sbpgo.org.br)