Comparative study of dimensional stability between irreversible hydrocolloids of conventional cast and extended cast available in the Uruguayan market

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Resume

Objetives. To compare the dimensional stability of a conventional cast alginate with extended cast alginates available in the Uruguayan market.

Methods. Five alginates with extended pouring time were evaluated: Jeltrate Plus (Denstply Sirona), Hydrogum 5 (Zhermack SpA), Algimax (Major), Kromopan (Lascod). A conventional casting alginate was used as a reference: Tropicalgin (Zhermack SpA). For each product, 10 impressions were made that were cast in type III plaster at five different storage times (0 hours, 24 hours, 96 hours, 120 and 168 hours). All materials were handled following the manufacturer's instructions. A three-dimensional model scanner was used to digitize the plaster casts and perform the corresponding measurements.

Results. The dimensional variations ranged from 0.24 to 0.91%. At 0, 24 and 96 h Tropicalgin and Hydrogum 5 presented significantly less dimensional variation compared to the master model. Kromopan, Algimax and Jeltrate Plus presented significantly greater dimensional variation at 0, 24, 96 and 168 hours.

Conclusions. Dimensional stability depends on the product used. When stored correctly, conventional cast alginate does not seem to suffer significant changes for up to 96 hours, while Hydrogum 5 seems to maintain its dimensional stability for up to 168 hours. All commercial brands showed an expansion trend. The authors emphasize the importance of handling the materials following the manufacturer's instructions.

Key words. Dental impression materials; Alginate; Dimensional stability.

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