

# The Effects of Oxygen-based Disinfectant on Dimensional Accuracy of Alginates

## Abstract

**Objective:** This study evaluated the effect of an active oxygen based disinfectant, 2% Perform® (Schulke & Mayr, Germany) on the dimensional accuracy of four alginates, Alginoplast (Heraeus Kulzer, Holland), Kromopan (LASCOD, Italy), Alginmax (MAJOR, Italy) and Duplast (Dentsply, China). **Method:** A cobalt chromium master model with four cylindrical studs representing 2 canines and 2 molars was constructed. A total of 40 impressions for each alginates were taken and treated in 4 different conditions, Immediate pour (control); 10 minutes immersion in distilled water; 10 minutes immersion in 2% Perform® and 30 minutes in 2% Perform®. The impressions were then poured in Type III stone. Dimensional changes between the master model and the resultant casts were measured using traveling microscope. The % change at an antero-posterior dimension (C) and 3 different interarch dimensions (A,B and D) were noted. **Results:** Two way ANOVA showed significant interaction between alginates and treatment conditions except for dimension B and D. One-way ANOVA test and Student-Newman-Keuls indicated no significant difference ( $P > 0.05$ ) in dimensional accuracy of impressions treated with Perform® for 10 minutes compared to the control group except for Alginoplast (dimension A) and Duplast (dimension C and D). The maximum deviation in the dimension after 10 minutes Perform® immersion was 0.552% for Duplast and 0.147% to 0.213% for other alginates. Immersion in Perform® for 30 minutes produced maximum deviation of 0.591% for Duplast in dimension C whilst 0.223% to 0.235% for other alginates. **Conclusion:** Active oxygen based disinfectant has an effect on the dimensional accuracy of the resultant cast for the 4 alginates. Although some results indicated significant change, the magnitude of deviation was clinically negligible. Apart from Duplast, all the alginates indicated good stability in 2% Perform® even up to 30 minutes of immersion time. (This study was supported by University of Malaya ; R&D FO200/2003D)

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