

Effects of Alginate Adhesives on the Bond Strength of Alginate Impression Material to Stainless Steel

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For an accurate impression of the dental arch without any distortion, one has to be convinced of a good adherence of the impression material and the impression tray.

As alginate based impression materials does not show good or reliable bond to all types of tray materials, it is advised to use perforated or rim lock trays. Also the use of adhesives is propagated.

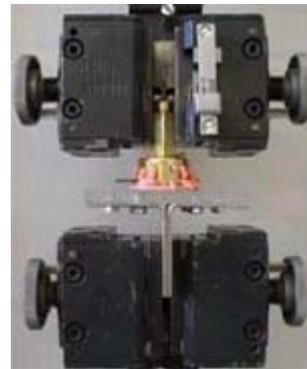
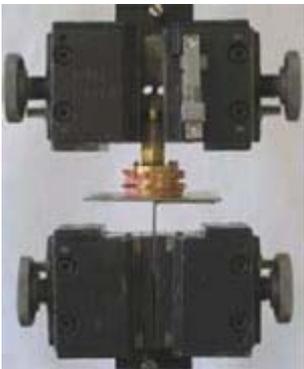
Unfortunately, little knowledge is available on the efficacy of the Alginate Adhesive on the Alginate bond to impression tray materials.

Objectives:

Therefore the aim of this study was to evaluate the effect of Alginate adhesives on the bond strength of alginate to impression tray material. In this study three different Alginate Impression Materials (Cavex CA37, Cavex Impressional and GC Aroma Fine) were combined with [8 different Alginate Adhesives](#).

Methods:

A new bond strength test was developed in which the Alginate Adhesive was applied thinly on a stainless steel testing plate or a Plexiglass testing plate (50x70mm). The Alginate Adhesive was allowed to dry for 10 minutes before applying the Alginate Impression Material on the plate by using a perforated brass ring mould as tray (25mm diameter, 20 mm height). 3 and 6 minutes after setting, the tensile force at failure was measured in a tensiometer (Zwick) at a crosshead speed of 500 mm/min. A non-adhesive group was used as control.



Results:

The bond strength increased with prolonged waiting times after setting of the Alginate Impression Material. All tested Alginate Adhesives showed significantly higher bond strength when compared with specimens in the non-adhesive group.

Conclusion:

Alginate adhesives are effective in improving the bond strength of Alginate Impression Materials to stainless steel.

The bond strength increased with prolonged waiting time after setting.

A proper combination of Alginate impression material and alginate Adhesive is of importance