

Bond strength testing – University of Sao Paulo, Brazil

Microtensile bond strengths of composite to dentine treated with desensitizer products

All restorations impose a certain risk for post-operative dentine hypersensitivity. The reasons for this are manifold. The pulp can be irritated by the opening of dentine tubuli or thermal stimuli during preparation. But also the entire process of dentine bonding can cause post-operative discomfort. The patients return unhappy with new and sufficient restorations and mostly the dentist is unable to solve the problem immediately. Most of this discomfort disappear after a couple of days or months. But patients are often not satisfied with waiting for the calming of the tooth.

GLUMA Desensitizer preventively applied on the dentine immediately after the preparation can minimise the risk of post-operative dentine hypersensitivity.

Many desensitising agents interfere with adhesives because they alter the surface of the dentine. The following study reveals that this is not the case for GLUMA Desensitizer. It is compatible with self-etch and etch-and-rinse adhesives.

Giving a hand to oral health.



KULZER
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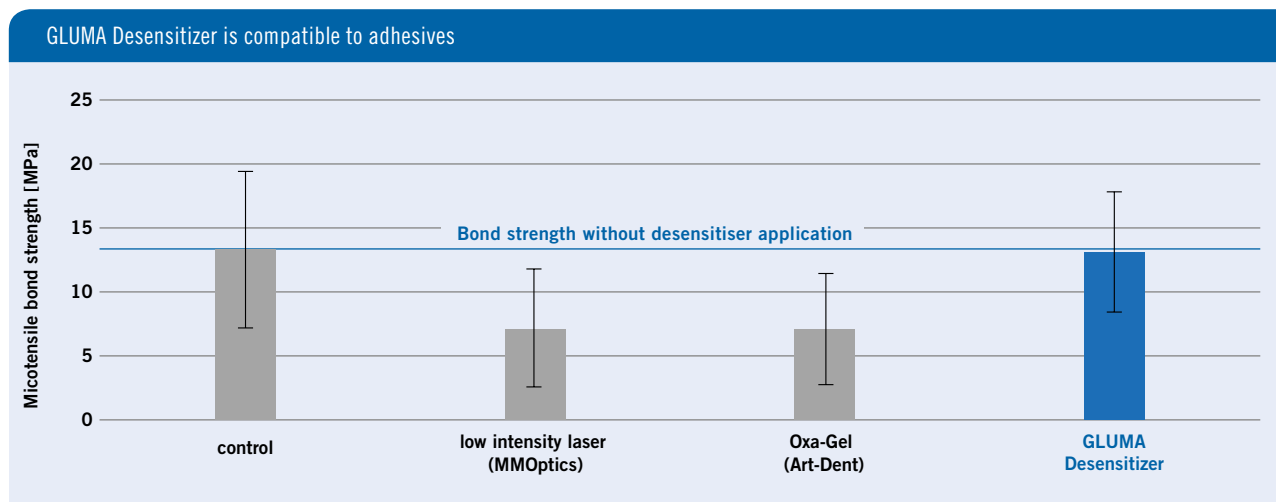
Objective

The aim of this study was to evaluate the influence of desensitising agents on dentine bond strength.

Materials and Methods

40 bovine incisors were used and divided into 4 groups (n=10): G1: control – no desensitising pre-treatment; G2: GLUMA Desensitizer; G3: Oxa-Gel (Art-Dent); G4: low-intensity laser (MMOptics). The buccal surface was wet ground flat with silicon carbide abrasive paper to expose midcoronal dentine. After the application of the desensitising agents to the dentine, the specimens were etched with 35 % phosphoric acid for 30s, and an adhesive (Single Bond, 3M Espe) was applied and light cured. A crown of composite resin (Filtek Z250, 3M Espe) was built up. Specimens were trimmed to an hourglass shape with cross sections of 1 mm². Microtensile bond strength testing of the specimens was done at a crosshead speed of 0.5 mm/min. Statistics were performed using one-way ANOVA and the Duncan test (p=0.05).

Results



Samples treated with dentine desensitisers (except GLUMA Desensitizer) caused significantly lower mean bond strengths than non-treated control specimens.

Conclusion

Among the desensitising agents tested, only GLUMA Desensitizer did not negatively influence the bond strength values. It is a useful material for dentine desensitisation.

Comment

This study confirms that GLUMA Desensitizer is compatible to adhesives. The bond strength is as high as in the non-treated control group.

GLUMA Desensitizer does only work within the dentinal tubuli. It stops the hypersensitivity by clotting proteins in these tubuli. Other desensitizing agents do only have an effect on the dentine surface which may impair the establishment of a strong adhesive layer.

Source

Aranha AC *et al.*: Microtensile bond strengths of composite to dentine treated with desensitizer products. J Adhes Dent. 2006, 2:85-90.

The study was abbreviated, summarised and commented and all diagrams and titles have been established by Kulzer.