3238 Color Stability of Different Types of Provisional Materials

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***Objectives**: In prosthodontics, some treatments require the use of provisional restorations for a long period of time. If these restorations are in the anterior sector, the color should not change dramatically of they may require changing for new ones before the final restoration is placed. The purpose of this study was to evaluate the color stability of four different crown and bridge provisional restoration materials, after they are submerged for several days in different liquids.*

***Methods**: Twenty four, 10 mm diameter and 2 mm thick disks were made for each material: Jet Acrylic, Alike, Provitec and Unifast LC., following manufacturers instructions. Six specimens of each material were placed in water, Coca-Cola, coffee, and tea for 15 days. Liquids were changed daily. CIE L*a*b* was measured using a spectrophotometer (Macbeth 7000) before and after the storage in the liquids. DE* was calculated for each specimen and means for each group also were calculated. Data were analyzed using a repeated measurement ANOVA at a 0.05 significance level. Tukey-Kramer interval for comparison of means was 1.1 also calculated at 0.05 significance level.*

***Results**: The more color stable acrylics in water, Coca Cola, coffee and tea were Provitec, jet, Jet and Unifast LC respectively. Water did not produced a significant change in color that could be appreciated by the human eye. The soft drink produced the highest color change among all drinks. Delta E* Alike Jet Acrylic Provitec Unifast LC Water 1,6 1,5 1,3 2,3 Coffee 3,9 2,1 3,1 2,6 Coca Cola 3,3 2,3 9,1 2,8 Tea 3,7 2,8 4,7 2,7*

***Conclusion**: Color change in crown and bridge acrylics depends on the type of acrylic and the kind of liquid. Funded in part by GC America.*

0457 Effect of a Second Coat of Adhesive on Bond Strenght

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***Purpose**: To evaluate and compare the shear bond strength to superficial dentin of two different dentin adhesives, using two different application techniques.*

***Methods**: A total of 20 healthy, recently extracted human molars were selected, embedded in acrylic, and polished using 600 grit SiC paper until superficial dentin was exposed. The following groups were established (n=5): (1.1) 3M Adper Prompt Self Etching System following manufacturer's instructions (1.2) 3M Adper Prompt Self Etching System two coats applied as before. (2.1) 37% Phosphoric acid and 3M Single Bond system 2 coats brushed over the dentin surface each light cured for 20 seconds. (2.2) 37% Phosphoric acid and 3M Single Bond system, two coats rubbed over the dentin surface each light cured for 20 seconds. Then composite Z-250 was light cured over the surface to form a 1mm diameter cylinder. The specimens were stored in a heating chamber in water at 37º C for a week before being tested in shear in the Universal Testing Machine (Instron 1000) at a crosshead speed of 0.1 cm/min. Data were recorded in MPa and analysed using a two way analysis of variance calculated at a 0.05 significance level. Tukey-Kramer intervals was 2.9 for comparisons between bonding agents and 22.4 between application techniques, also calculated at a 0.05 significance level.*

***Results**: Means and standard deviation in MPa using the suggested application technique were Adper Prompt 54.8 (17.6) and Single Bond 60.9 (11.3), and using a second coat the results were Adper Prompt 81.9 (25.8) and Single Bond 81.9 (35.8). If the application technique is changed, an increase in the bond strength was significant for both bonding agents. When compared by bonding agent, Single Bond showed a statistically higher bond strength than Adper Prompt.*

***Conclusion**: A second application of the dentin bonding agent increases significantly the shear bond strength.*

3121 Bond Strength of Self-Etch Adhesives Using Different Techniques

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***Purpose**: To evaluate the shear bond strength of One Up Bond F with the additional acid etching. The influence of the size of the bonded area on the bond strength was also evaluated.*

***Methods**: Twenty recently extracted human molars were embedded in acrylic and polished with 600 grit SiC paper until superficial dentin was exposed. Divided in two groups, one group received the Self-etch adhesive following manufacturerxs instructions, the other was acid etch with 37% phosphoric acid for 15 seconds before applying the adhesive. Each group was then divided in two more groups (n=5), to bond composite over them. One group had a cylinder 1 mm diameter, the other was 2 mm diameter. Specimens were stored in water for seven days at 37º C before being tested for shear in the Universal Testing Machine (Instron 1000) at a crosshead speed of 0.1 cm/min. Data were recorded in MPa and analyzed using a two way analysis of variance calculated at a 0.05 significance level. Tukey-Kramer interval for comparison of means was 14.0 also calculated at a 0.05 significance level.*
***Results**: Means and standard deviations in MPa are shown in table. The bonding area significantly influences the bond strength result. 1 mm diameter bonding area increased the result for the same adhesive bonded on 2 mm diameter bonding area. The addition of acid etching to the steps prior to the application of the dentin bonding agent did not improved the bond strength, and with the 1 mm diameter bonding area, the bond strength was statistically higher without the acid etching With Etching Without Etching 1 mm diameter 49,9 (14,3) 67,3 (23,0) 2 mm diameter 21,7 (2,6) 21,3 (2,4)*

***Conclusion**: Bond strength results were statistically higher when the bonded area was smaller. Acid etching the dentin did not improved the bond strength.*

0448 Effect on Shear Bond Strength of Different Application Techniques

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***Purpose**: this study was to evaluate the shear bond strength to dentin of different adhesive systems (Excite , Syntac) , using two different application techniques.*

***Methods**: 20 recently extracted human molar and premolar were embedded in acrylic and ground with wet SiC paper until superficial dentin was exposed. Four groups were established (n=5) All specimens were etched with 37% phosphoric acid for 15 seconds. Two groups received Syntac one had its components brushed over the dentin surface, the other had them rubbed. The other two groups used Excite, using the same two application techniques described before. Composite was cured Specimens were stored in water at 37°C for seven days before being tested in shear in the Universal Testing Machine (Instron 1000) at a crosshead speed of 0.1cm/min. Data were recorder in MPa and analyzed using a two –way analysis of variance calculated at a 0.05 significance level. Tukey- Kramer intervals for comparison of means was 6.21 also calculated at a 0.05 significance level*

***Results**: Means and standard deviation in MPa using a rubbing technique were Syntac 16(5.3) and Excite 28.5 (6.7), and using a brushing technique the results were Syntac 17.9 (5.8) and Excite 25.4 (8.5). Excite had higher shear bond strength than Syntac for both application techniques. Bond strength of both dentin bonding systems was higher when components were rubbed, but this difference was not statistically significant.*

***Conclusion**: Different application techniques did not improved the shear bond strength of both dentin bonding systems tested.*

0468 Appearance of the Hybrid Layer by Different Bonding Agents

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***Purpose**: To evaluate on the SEM the appearance of the hybrid layer of different dentin bonding agents and the change that a different application technique can produced on that image.*

***Methods**: Fourteen human molars were cut to expose superficial dentin, dentin bonding agents: One Up Bond F, Adper Prompt-l, Single Bond and Excite was applied using different techniques. Samples were cut and prepared to be observed in the SEM. Photographs were taken at different magnifications for each sample and the image of the hybrid layer was compared by thickness and regularity. Results were analyzed using the Kruskal-Wallis test for non-parametric data, calculated at a 0.05 significance level.*

***Results**: A second application of One Up Bond F and Single Bond produced a thicker hybrid layer when compared with the images produced by a single application of the adhesives. Adper Promt showed a thicker hybrid layer when two coats were applied over dentin and both were rubbed instead of just one brushed coat. Excite showed no significant difference on the image that compared one layer against two layer of bonding agent. Of all bonding systems evaluated, Excite showed a thicker hybrid layer. Hybrid layer thickness was not even along the dentin surface for all systems.*

***Conclusion**: The hybrid layer formed between composite and dentin is affected by the way the bonding agent is applied.*