

- **Shear Bond Strength and Micro-leakage of Two Self-etching and a total-etch adhesive systems to Enamel. *Egypt. Dent. J. Jan. 2008.*
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ABSTRACT

The aim of this study was to compare two self-etching and a total-etch adhesive systems by assessing their shear bond strength to bovine enamel and the microleakage on class V composite restorations prepared on enamel of human mandibular molar teeth. Bovine & human teeth selected and allocated in three groups according to the type of adhesive system: **Group 1:** Scotchbond Multi-Purpose; **Group 2:** Clearfil Liner Bond 2V; **Group 3:** Etch & Prime 3.0. For the microleakage test, each group was composed of ten class V restorations on the buccal surface. Two examiners attributed scores ranging from 0 (without leakage) to 3 (maximum leakage) to determine silver nitrate penetration at enamel-composite interface. Microleakage data were analyzed statistically by Kruskal-Wallis and Mann-Whitney tests at 5% significance level. For *the shear bond strength* test, ten teeth of each group were included, had their buccal surfaces flattened in order to obtain a 3-mm-diameter area to which a resin cylinder was bonded. After one week, the specimens were tested in shear strength at a crosshead speed of 0.5 mm/min. Bond strength data were treated by ANOVA and LSD tests at 5% significance level. The debonded interfaces were examined under scanning electron microscopy. No leakage was observed along enamel margins. Means (\pm SD) in MPa were: 18.75 (\pm 5.83), 22.17 (\pm 4.95) and 14.93 (\pm 6.7) for Groups 1, 2, and 3, respectively. According to the results of this study, the self-etching primer systems presented statistically similar behavior ($p>0.05$) to that of the total-etch adhesive system (used as a control), not only regarding marginal leakage at human enamel-composite resin interface, but also regarding the shear bond strength of the bovine enamel. However, the self-etching primer systems differed significantly ($p>0.05$) to each other, with better results for Clearfil Liner Bond 2V. In conclusion, the self-etching primer systems had a performance comparable to that of the total-etch adhesive system.

Key Words: self-etching primer, bond strength, enamel adhesion, microleakage.

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