

### **Five-Year Clinical Effectiveness of a Two-Step, Self Etching Adhesive (7/07)**

Peumans M, De Munck J, Van Landuyt K, Lambrechts P, Van Meerbeek B. Five-year clinical effectiveness of a two-step self-etching adhesive. *J Adhes Dent* 2007;9:7–10.

Adhesives have been modified in order to provide better long-term performance while some have been simplified. Along this line, self-etching adhesives were introduced to reduce technique sensitivity and application time. Both laboratory and clinical studies have supported the use of some self-etch, two-step adhesives, with Clearfil SE (Kuraray, Tokyo, Japan) being frequently evaluated. The purpose of this prospective, randomized controlled clinical trial was to evaluate the clinical performance of Clearfil SE in Class V lesions after five years of clinical service. The hypothesis tested was that additional phosphoric acid etching of the enamel would improve both the retention and marginal performance of the restorations. In this study 29 patients received two or four randomly-assigned Class V restorations (100 total restorations) with either using Clearfil SE as per manufacturer instructions or with prior phosphoric acid etching of the enamel margins. All were restored using the same restorative resin composite. After five years of clinical service the restorations were evaluated as per restoration retention, marginal integrity, and marginal discoloration. Results found that 84 percent of the restorations were available for evaluation; 100 percent retention was noted with the prior enamel acid etch group while the conventionally applied adhesive group lost one restoration. Although both groups were noted to suffer marginal deterioration over five years, the restorations with the non-additionally acid etched enamel margins were noted to have significantly less defect-free margins ( $p=0.0043$ ) but there was no significant difference in marginal discoloration between the groups. When considering overall clinical success, there was no significant difference found between the two groups ( $p > 0.9999$ ). **The authors concluded that Clearfil SE provided a reliable five-year clinical performance and while additional phosphoric etching of the enamel margin improved marginal adaptation, such selective additional enamel etching had no influence on overall clinical performance.**

**DECS Comment: The best evaluation of restorative and adhesive systems is the clinical trial, and the performance of any material over a multi-year clinical trial should be considered useful information. This study reinforced other reports and systematic reviews in that, as a whole, that some "mild" self-etch, two-step adhesives appear to provide an acceptable clinical performance. There has always been some question of these materials' ability to adequately etch enamel; this study suggests that the additional step of selectively etching the enamel margins prior to application of the adhesive does provide marginal integrity improvement. However, such additional treatment does not appear to improve marginal discoloration and has no effect on overall restoration retention.**

#### **References**

1. van Dijken JW. Clinical evaluation of four dentin bonding agents in Class V non-carious lesions. *Dent Mater* 2000;16:285–291.
2. Peumans M, Kanumilli P, De Munck J, Van Landuyt K, Lambrechts P, Van Meerbeek B. Clinical effectiveness of contemporary adhesives: A systematic review of current clinical trials. *Dent mater* 2005;24:864–881.
3. Kubo S, Kawasaki K, Yokota H, Hayashi Y. Five-year clinical evaluation of two adhesive systems in non-carious cervical lesions. *J Dent* 2006;34:97–105.
4. Peumans M, De Munck J, Van Landuyt K, Lambrechts P, Van Meerbeek B. Three-year clinical effectiveness of a two-step self-etch adhesive in cervical lesions. *Eur J Oral Sci* 2005;113:1–7.
5. van Meerbeek B, De Munck J, Yoshida Y, Inoue S, Vargas M, Vijay M, Vijay P, van Landuyt K, Lambrechts P, Vanherle G. Buononcore memorial lecture. Adhesion to enamel and dentin: Current status and future challenges. *Oper Dent* 2003;28:215–235.