A truly universal dental adhesive?

For more on this topic, go to **www.dentaleconomics.com** and search using the following key words: *universal dental adhesive, Scotchbond Universal Adhesive, Jeff T. Blank, DMD.*

Historically, dental adhesives have been broadly **DIVIDED INTO total-etch adhesives and self-etch adhesives.** Total-etch adhesives are the flagship of enamel bonding, rendering the most pronounced etch patterns on cut and uncut enamel. However, they are the most technique-sensitive materials and likely to yield postoperative sensitivity.

Self-etching adhesives use acidic monomers of varying pH to demineralize/modify dentin and enamel while simultaneously infiltrating primers/resins into demineralized zones and dentin tubules. Many clinicians prefer self-etching materials because of their ease of use and low incidence of postoperative sensitivity. However, the integrity and durability of the enamel bond, particularly to uncut enamel, is the weak link for these materials.

More recently, clinicians and some dental adhesive manufacturers have started advocating the selective-etch technique, by which phosphoric acid is selectively placed on the enamel cavosurface only, allowed to stand for 15 seconds, then rinsed away.

The entire preparation is dried, and a self-etching adhesive system is applied and light cured. All is fine unless some of the phosphoric acid inadvertently finds its way down onto dentin, removing more dentin mineral than can typically be filled by self-etching adhesive monomers. This over-etching can reduce the integrity of the dentin bond interface.

3M ESPE recently released Scotchbond Universal Adhesive, what may be the first ever universal bonding material that works well with either the total-etch, self-etch or selective-etch technique. Scotchbond Universal Adhesive contains the acidulated monomer MDP, which has proven to create excellent adhesion to enamel, greater product stability, and significant adhesion to metal and zirconium oxide.

To further enhance ceramic adhesion, silane has been added to chemically bond to glass ceramic surfaces without the use of a separate ceramic primer. The magic ingredient seems to be the Vitrebond copolymer, a methacrylate modified polyalkenoic acid polymer that defies the typical standards for proper moisture levels during bonding.

This provides a significant margin for error when using Scotchbond Universal in the total-etch mode. What's more, when mixed with the Dual Cure Activator, the material is compatible with nearly all indirect resin cement systems.

So what does this mean for us wet-fingered dentists? It means one adhesive for every clinical situation imaginable. My product selection is based on the clinical situation. When the preparation is largely enamel, I use a total-etch adhesion. When the preparation is largely dentin, I use a self-etching system. When the preparation is an equal mix of enamel and dentin, I use the selective etch technique.

I never total etch deep preparations near the pulp and always prefer exposed enamel to be phosphoric acid etched when possible. Scotchbond Universal gives me the freedom to toggle between these adhesive techniques with one product, and given the studies and data presented, it seems to be one of the least technique-sensitive adhesives available.

No worries if etchant gets on dentin during the selective etch mode, no fear of over-drying a small patch of dentin exposed on a veneer prep. 3M ESPE even did a study on saliva contamination, and though it's wise to safeguard against it, Scotchbond Universal still delivers acceptable bond strengths. This is pretty impressive.

So I have to say "wow" on this one. Scotchbond Universal Adhesive by 3M ESPE looks to be a surefire winner and exactly what the doctor ordered. One bottle, unlimited possibilities. DE

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