

## Futurabond U – 1-Year Clinical Study: Class V Cavities

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The use of a universal adhesive allows the dentist to opt for the etching technique of his choice; total etch, selective etch or self-etch, anything is possible. Futurabond U impresses through its other advantages, the material is compatible with all dimethacrylate-based composites, regardless of whether these are light-curing, chemically curing or dual-curing. In addition, good adhesion values on metals (precious and non-precious) and ceramics (aluminium oxide, zirconium dioxide and silicate) are also achieved subject to appropriate pre-treatment. It can be used for all cavity classes. In this study from Tanta University, Egypt, a one-year clinical study was conducted by Abdalla et al. in order to evaluate the quality of the bonding layer in class V cavities based on various criteria. In the study, two universal adhesives, Futurabond U (VOCO) and Scotchbond Universal (3M, ESPE), were tested both in total-etch mode and self-etch mode.

### Study design

53 patients between 18 and 55 years of age took part in this study. A total of 120 class V cavities were prepared and restored using the corresponding universal adhesive (either Futurabond U or Scotchbond Universal) and the composite from the relevant company, GrandioSO (VOCO) or Z 350 (3M, ESPE).

- Group 1: Futurabond U: Self-etch mode + GrandioSO composite (FB U SE mode)
- Group 2: Futurabond U: Total-etch mode + GrandioSO composite (FB U TE mode)
- Group 3: Scotchbond Universal: Self-etch mode + Z 350 composite (SB U SE mode)
- Group 4: Scotchbond Universal: Total-etch mode + Z 350 composite (SB U TE mode)

Only caries lesions in maxillary and mandibular premolars and maxillary anterior teeth were selected. Each patient was given at least two restorations which were filled with one of the tested material combinations. The teeth to be treated were cleaned with a fluoride-free prophylaxis paste using a rubber cup. In each case, the buccal surfaces of the class V cavities were prepared, and standard cavity dimensions were selected: 3-4 mm occluso-gingival, 2-3 mm mesio-distal, 1 mm dentine depth. If a deeper caries had to be removed, a thin layer of a calcium hydroxide preparation was applied in advance to the bottom of the cavity.

### Study results

After completion and polishing, each restoration was checked and assessed based on USPHS criteria (see fig. 1 and table 1). Another assessment was conducted after a period of 12 months. The following criteria were assessed: Shade correlation, anatomical form, marginal adaptation, marginal discolouration and retention rate. After one year, 48 patients and a total of 114 restorations were assessed (recall rate 95%). All the restorations produced using Futurabond U demonstrated Alpha ratings in

self-etch mode for the criteria tested. In total-etch mode, one restoration was given a Bravo rating for marginal adaptation and another a Bravo rating for the marginal discolouration criterion. There was a loss of retention in one restoration produced using Scotchbond Universal in self-etch mode. One filling received a Bravo rating for the anatomical form criterion and another a Bravo rating for marginal adaptation. Furthermore, two restorations were assigned Bravo ratings with respect to marginal discolouration. In total-etch mode all restorations were given Alpha ratings. The anatomical form of one restoration was rated as Bravo and the marginal discolouration of two further restorations was also rated as Bravo.

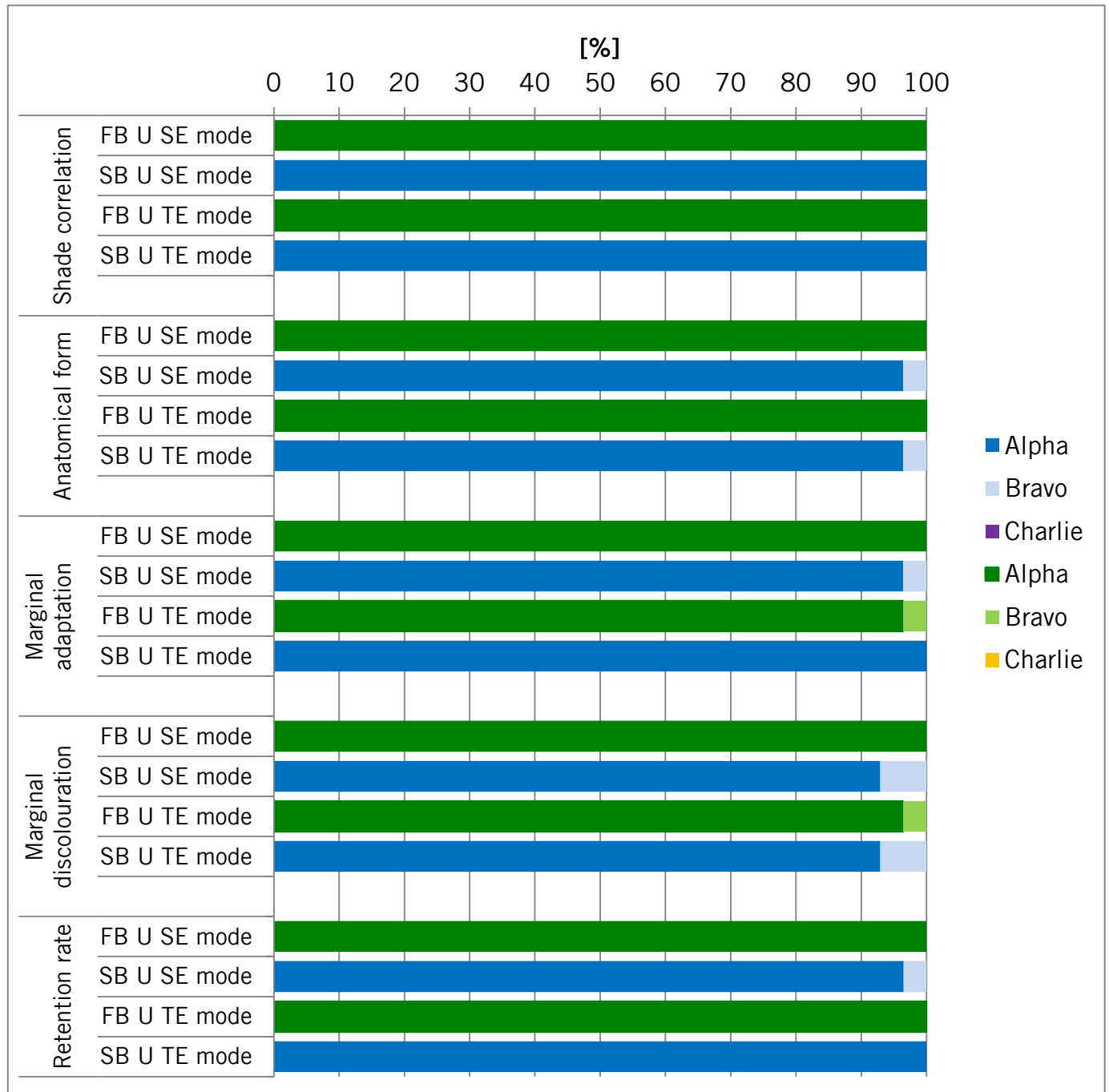


Figure 1: Results after 12 months

**Table 1:** Selected USPHS criteria

	Shade	Anatomical form	Marginal discolouration	Marginal seal	Retention rate
Alpha	No difference upon probing	No marginal step	None	Margin intact	Retention present
Bravo	Minor difference	Step formation palpable	Superficial	Marginal gap palpable	Retention lost
Charlie	Major difference	Step formation visible	Extending far downwards	Marginal gap visible	
Delta		Exposure of lining/dentine		Fracture/loss of restoration	

[1] A. Abdalla, Tanta University, Egypt, report for VOCO, December 2013

**Conclusion:** In the 12-month study outlined here, the restorations of the class V cavities which were treated using Futurabond U / GrandioSO in total-etch mode had Alpha ratings, with the exception of two categories. In self-etch mode, all class V restorations were given Alpha ratings without exception. These outstanding clinical results bear witness to the high quality of the universal adhesive Futurabond U.