

**3M** Science.  
Applied to Life.™

# Clinical Evaluation of 3M™ Single Bond Universal Adhesive

in Class V Restorations in Self-Etch and  
Total-Etch Modes

5-Year Recall

## 3M<sup>SM</sup> Health Care Academy

**Principal Investigator**  
**Nathaniel Lawson, DMD, PhD**  
University of Alabama at Birmingham  
School of Dentistry

### Aim of the Study

Evaluate the clinical performance of 3M™ Single Bond Universal Adhesive in self-etch vs. total-etch modes in non-carious Class V restorations compared to a two-component, total-etch control—3M™ Adper™ Scotchbond™ Multi-Purpose Adhesive system.

### Study Design at a Glance

**Design:** Randomized, controlled, longitudinal study. 37 patients, age 19 or older, received one or two restorations of each treatment at baseline (42 restorations per group). Restorations were reviewed at 6, 12, 24, 36 and 60 months.

#### Test Groups:

- 3M™ Single Bond Universal Adhesive/3M™ Scotchbond™ Universal Etchant; Total-Etch (TE) restorations
- Single Bond Universal Adhesive; Self-Etch (SE) restorations

**Control:** 3M™ Adper™ Scotchbond™ Multi-Purpose Adhesive (MP)

**Composite:** 3M™ Filtek™ Z350 XT Universal Restorative

**Operative:** Lesion depth at least 1.5mm. Cleaned with oil-free pumice. Short bevel placed on occlusal enamel

**Distribution:** 22% maxillary, 48% mandibular; 45% premolar, 15% incisor, 13% cuspid, 6% first molar

**Evaluation Criteria:** Modified USPHS criteria; sensitivity: 0 to 10 visual analog scale

## Results

### Sample number per group evaluated at recall:

42 at 6 months (100%), 41 at 12 months (95%), 38 at 24 months (90%), 34 at 36 months (81%), 23 at 60 months (55%).

**Number of restorations examined against USPHS criteria at 5 years (factoring retentive loss):** TE-22, SE-20, MP-17

**Marginal Adaptation:** No significant differences among groups were observed at each recall. All retained restorations were rated clinically acceptable.

**Marginal Discoloration:** Difference among the groups was statistically significant at 2 and 3 years ( $p = 0.03$  and  $0.045$ , respectively) but not at the 5-year recall. All retained 3M™ Single Bond Universal Adhesive restorations were rated clinically acceptable.

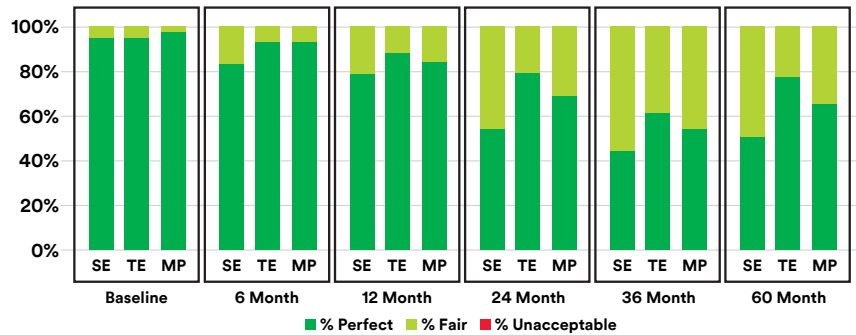
**Retention:** 6 restorations in the control group, 3 from SE and 1 from TE failed retention over 60 months. There was no statistical difference in survivability over this time frame.

**Sensitivity:** Mean sensitivity to cold was relatively low and not significantly different across all groups and time points. Average sensitivity to cold across all time points: MP  $2.2 \pm 0.3$ ; SE  $2.5 \pm 0.4$ ; TE  $2.7 \pm 0.3$

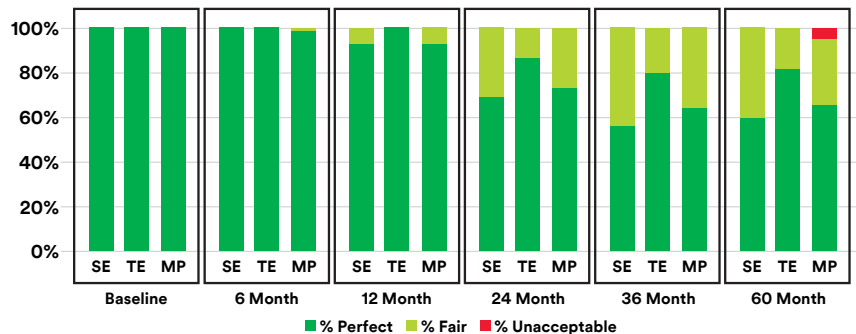
## Conclusion:

For over five years, the performance of Single Bond Universal Adhesive in both total-etch and self-etch modes was comparable to the performance of the control, the latter having a long-standing clinical record. Single Bond Universal Adhesive in total-etch mode yielded numerically higher perfect values as compared to its use in self-etch mode for marginal adaptation and marginal discoloration at all recalls. However, this observation was statistically significant only for marginal discoloration at the 2- and 3-year recalls. In self-etch mode, the observed defects were more commonly associated with enamel rather than dentin margins. Additional investigation with higher sample numbers would be needed to understand if the trends observed for marginal adaptation, marginal discoloration and retention are resolvable into significant differences between groups.

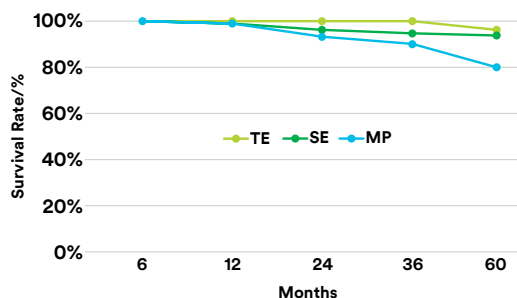
### Marginal Adaptation



### Marginal Discoloration



### Lifetime Table—Survival Curves



SE = 3M™ Single Bond Universal Adhesive/ Self-Etch  
 TE = 3M™ Single Bond Universal Adhesive/ Total-Etch  
 MP = 3M™ Adper™ Scotchbond™ Multi-Purpose Adhesive/Total-Etch (Control)

[www.3m.co.id/3M/en\\_ID/dental-id](http://www.3m.co.id/3M/en_ID/dental-id)



3M Oral Care

3M Indonesia

Perkantoran Hijau Arkadia, Tower F, 8th floor  
 Jl TB Simatupang | Jakarta Selatan 12520 Indonesia  
 Office : +621 2997 4000  
 Phone : +62 813 1554 0844

3M, ESPE, Adper, Filtek and Scotchbond are trademarks of 3M. 3M Health Care Academy is a service mark of 3M.  
 © 3M 2018. All rights reserved.