

Practice-based assessment of restorations placed using an adhesive in total-etch and self-etch modes

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INTRODUCTION

The purpose of this practice-based study was to evaluate the clinical performance of pairs of restorations formed in Filtek Supreme XTE™ resin composite, placed using Scotchbond™ Universal* (* 3M™ ESPE™, Seefeld, Germany) adhesive in total-etch and self-etch applications in a split mouth design study over a period of three years. The restorations were placed by practitioner (GDP) members of a UK-wide Practice-Based Research Group, The PREP Panel (Product Research and Evaluation by Practitioners), established in 1993, and has presently 33 members, has completed over 80 projects, and published over 50 papers (17 in peer-reviewed journals) reporting handling evaluations and clinical trials carried out by the group.

METHOD

After obtaining ethical approval for the practice-based multi-centre study, the five GDP members (one of whom was female) of average time since graduation 27 years (range of 19 - 30 years) were asked to place ten paired Class I or Class II composite restorations each using the Scotchbond™ Universal adhesive in total-etch mode for one restoration and self-etch mode for the other. The restorations were reviewed annually, +/- 3 months, by one independent examiner together with the practitioner who placed the restorations, using modified USPHS criteria.

MATERIALS

Scotchbond™ Universal is a mild self-etch adhesive and offers one-step, one-coat application with bonding to enamel, dentine, composites, glass ceramic, zirconia, and precious & non-precious metals without the need for additional primers. Filtek Supreme XTE™ is a nano-filled composite restorative material and the Scotchbond™ Universal Etching Gel is 34% phosphoric acid with a pH of 0.1.

RESULTS at 3 Years (to date)

To date 45 restorations (1 Class 1 and 44 Class II & mean age 36 months), 22 of each placement mode plus one extra unpaired total-etch restoration, in 18 patients (12 Female & 6 Male) have been reviewed at the 5 centres (Recall rates - Year 1: 95%, Year 2: 70%, Year 3: 70%). No secondary caries was detected and no sensitivity reported. The results are tabulated below.

Criteria	Year 1		Year 2		Year 3	
	Total-etch	Self-etch	Total-etch	Self-etch	Total-etch	Self-etch
Retention	100%	100%	100%	100%	100%	95% A, 5% B
Anatomic form	94% A, 6% B	90% A, 10% B	100%	86% A, 14% B	91% A, 9% B	86% A, 14% B
Marginal Integrity	81% A, 19% B	90% A, 10% B	65% A, 35% B	77% A 23% B	61% A, 39% B	61% A, 39% B
Marginal staining	77% A, 23% B	83% A, 17% B	74% A, 26% B	77% A, 23% B	61% A, 39% B	68% A, 32% B
% margin stained	3% (range 2 to 10%)	4% (range 5 to 10%)	2% (range 2 to 2%)	7% (range 2 to 15%)	7% (range 2 to 20%)	7% (range 1 to 15%)
Colour match	100% A	100% A	100%	95% A, 5% B	100% A	100% A
Surface roughness	94% A, 6% B	93% A, 7% B	74% A, 26% B	82% A, 18% B	91% A, 9% B	91% A, 9% B

20% (n=9) of the restorations involved the restoration of one or more cusps and 53% of the restorations were placed under rubber dam isolation.



46 47 Total-etch: Year 1



Year 3



36, 37 Self-etch: Year 1



Year 3

CONCLUSION

The results indicate that restorations placed using Scotchbond Universal in both modes were performing satisfactorily, in the patients reviewed to date, after three years.

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