

# Bonding assessment

The PREP Panel evaluates the GC G-Aenial Bond system.

This article evaluates the in-practice ease of use of GC G-Aenial Bond by the group of UK-based general dental practitioners who comprise the PREP (Product Research and Evaluation by Practitioners) Panel.

The manufacturer of G-Aenial Bond (GC (UK) Ltd) and the PREP Panel co-ordinators jointly designed a questionnaire to provide background information on the current usage of dentine and enamel bonding systems by the participating practitioners, and to rate the presentation, instructions, dispensing, ease of use and handling of the new material, with the majority of responses being given on a visual analogue scale (VAS).

All the members of the PREP Panel were sent a letter asking if they were prepared to evaluate a new bonding system, with 12 members being selected at random from those who gave a positive response. Two of the evaluators were female, and the average time since graduation was 26 years, with a range of nine to 44 years.

Explanatory letters, questionnaires and packs of the GC G-Aenial Bond were distributed in mid-September 2012. The practitioners were asked to use the material for 10 weeks and return the questionnaire.

## Results

All the evaluators used a dentine/enamel bonding system. Reasons for the choice of these materials were primarily ease of use and good results. Other reasons were familiarity, manufacturer's reputation, infection control (single dose), no post-operative sensitivity, and good evidence-based results.

The evaluators were asked to rate the

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ease of use of their current bonding system, with the following result:



When the evaluators were asked how many dentine-bonded restorations they placed in a typical week, four evaluators (33 per cent) placed between 10 and 15, five evaluators (42 per cent) placed between 16 and 20, and the remainder (25 per cent) placed over 20 restorations.

The evaluators stated that they placed, in a typical week, an average of five (range 0–10) enamel bonded restorations. Ten evaluators (83 per cent) stated they employed a selective enamel etch technique with their current bonding agent. The same number of evaluators (83 per cent)

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also stated that they preferred a bottle presentation, with the two other evaluators preferring a single-unit dose presentation. Eighty-three per cent (n=10) of the evaluators also stated that they would not be prepared to pay extra for the convenience of single-unit doses.

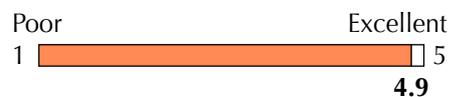
## The clinical evaluation of GC G-aenial Bond

The evaluators rated the presentation of the material as follows:

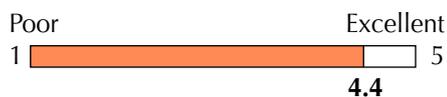


Comments on the presentation included: "Good package – especially the dispensing wells" (Similar comments by three evaluators).

When the evaluators were asked to rate the laminated instructions the result was as follows:



☛ The paper instructions were rated as follows by the evaluators:



The bottle dispenser was stated to be easy to use by 92 per cent (n=11) of the evaluators, though one of the evaluators commented "The dispensed fluid evaporated fast."

The cleanliness and ease of cleaning the bottle was rated as follows:



### Evaluation of GC G-aenial Bond after clinical use

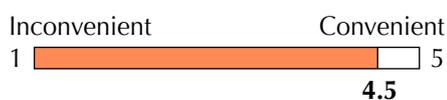
A total of 815 restorations were placed using G-Aenial Bond, comprised of 167 Class I, 161 Class II, 188 Class III, 118 Class IV, and 181 Class V restorations. Of these, 71 per cent of the restorations, the clinician had selectively etched the enamel.

When the evaluators were asked if they used G-Aenial Bond for other applications than conventionally bonding to dentine and enamel, three evaluators had used the material for bonding indirect restorations, four evaluators had used it for the treatment of dentinal hypersensitivity, and one evaluator had used it to repair a fractured porcelain restoration.

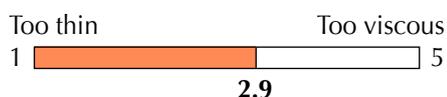
All the evaluators stated that the dispenser worked satisfactorily, that the resin liquid easily wet the tooth surface, and that the bond was easily visible on the tooth surface.

One evaluator commented that the material was "Occasionally difficult to see on virgin dentine."

When the evaluators were asked to rate their and their dental nurses' assessment of the dispensing and handling of G-Aenial Bond, the result was as follows:



The viscosity of the bonding liquid was rated by the evaluators as follows:



Ninety-two per cent (n=11) of the evaluators stated that the G-Aenial Bond liquid stayed in place when placed on the tooth surface. The absence of the need to wash off a separate etching liquid was considered an advantage by 67 per cent (n=8), and was considered to be an advantage over other bonding adhesives that use phosphoric acid.

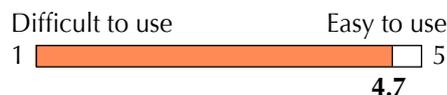
Five evaluators (42 per cent) stated that the application of G-Aenial Bond was better than the application of other bonding adhesives which they had used, with one evaluator stating it was worse.

Comments made by the evaluators included: "A little bit messier than products with a separate etch but convenience outweighs this" and "Didn't like the fast evaporation of the bonding liquid."

Ninety-two per cent (n=11) of the evaluators stated that their dental nurses did not experience any difficulties using G-Aenial Bond, though one evaluator commented that "Occasionally the nurse forgot to shake the bottle."

The one-component aspect of G-Aenial Bond was stated to be an advantage over other systems by 92 per cent (n=11) of the evaluators. Seventy-five per cent (n=9) stated that G-Aenial was as fast to use as other bonding systems they had used, with the remaining three evaluators stating that it was faster. Sixty-seven per cent (n=8) of the evaluators stated that they would purchase G-Aenial Bond if available at average price, while another evaluator answered 'possibly'.

When the evaluators were asked to rate the ease of use of the G-Aenial Bond, the result was as follows:



Final comments included: "Sometimes very fast setting in ambient light." "Really good dispensing wells – uses less bond and prevents evaporation of the carrier." "Original G-Bond so good but this felt easier to use." "Very good system and would recommend to others."

### Conclusion

The GC G-Aenial bond adhesive system has been subjected to an extensive evaluation in clinical practice, in which 815 restorations were placed by members of the PREP panel.

The presentation of the material and the laminated and paper instructions scored highly (4.4, 4.9 and 4.4 on visual analogue scales where 5 = excellent and 1 = poor). The shape of the wells attracted positive comments from three evaluators. GC G-Aenial was rated slightly better by the evaluators for ease of use when compared with the previously used adhesive system, (4.7 v 4.6 on a visual analogue scale where 5 = easy to use and 1 = difficult to use). A near ideal score for viscosity (2.9 on a visual analogue scale where 5 = too viscous and 1 = too thin) was achieved. Sixty-seven per cent (n=8) of the evaluators stated they would purchase the material at an average price.

The good reception of GC G-Aenial bond was underlined by the fact that the majority of the evaluators would purchase the material if available at average cost and the very high score for 'ease of use'.

### Manufacturer's comment

Incredibly it was seven years ago when the first PREP panel evaluation was published on the usage of GC's new resin based adhesive system G-Bond which received great reviews from the panel especially on its ease of use.

So it was with some reticence, I asked Prof Burke to evaluate our new material G-Aenial Bond, a slightly more acidic one bottle bonding system and used in a single layer. To my joy, the evaluators found the handling of G-Aenial Bond to be of a high standard and they marked it very highly.

From my perspective working for GC for over 20 years I know that our parent company is not always as quick to the market as we would like them to be, however GC prides itself on the real quality of its products and consequently when a group of clinicians give the 'thumbs up' to our new product innovation the results are well worth the wait. Thanks goes to Prof Burke and the PREP panel for their valued assessment of G-Aenial Bond.