

Handling evaluation

Trevor Burke and Russell Crisp present a PREP Panel evaluation of GC G-Premio Bond.

Resin composite materials are becoming increasingly used worldwide for restoration of posterior teeth, principally because of patient concerns about the poor appearance of amalgam restorations and anxieties with respect to the use of a mercury-containing filling material. However, they do not bond to teeth without the use of an intermediate dentine bonding agent. Previous bonding agents were of two principal types, the etch and rinse materials (in which both enamel and dentine are etched with phosphoric acid) and the self-etch materials (in which neither enamel or dentine were etched). These were type specific, the etch and rinse types did not provide an optimal bond if the dentine was not etched and the self-etch types did not perform optimally if the dentine was etched. Recent advances in these materials have facilitated a new group of universal bonding agents in which clinicians may employ whichever mode of etching they consider indicated, without detriment to the bonding agent's performance. In addition, two of the universal bonding agents may be employed in indirect dentistry when the resin luting agent from the same manufacturer is used.

It is therefore the aim of this article to describe how a group of practice-based researchers considered the handling of G-Premio Bond from GC.

Selection of participants

All 33 members of the practice-based research group, the PREP Panel, were sent an email asking if they would be prepared to be involved in the 'handling' evaluation of a recently-introduced universal bonding agent.

FJ Trevor Burke

is professor of primary dental care at the University of Birmingham School of Dentistry and a PREP Panel co-ordinator.



Of those who agreed to participate, twelve were selected at random. A questionnaire was designed jointly by the PREP Panel co-ordinators and the sponsors of the project in order to seek information on the handling of the bonding agent under evaluation.

Explanatory letters, questionnaires and packs of the GC G-Premio Bond were distributed in 2018 with the participants being requested to use the material provided, in accordance with its indications, for 10 weeks. The practitioners were asked to complete and return the questionnaire at the end of this period.

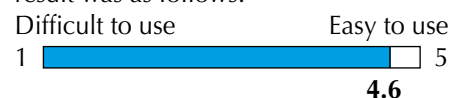
Of the evaluators, two were female, and the average time since graduation was 27 years, with a range of 15 to 38 years.

Evaluation of GC G-Premio bond

All the evaluators currently used a dentine/enamel bonding system, with a wide variety of systems being currently used. Reasons for

the choice of these materials were primarily ease of use and good results. Other reasons were familiarity, manufacturer reputation, no post-operative sensitivity, speed, "provided by practice principal", and evidence-based results.

When the evaluators were asked to rate the ease of use of the bonding system which they currently used, the result was as follows:



Six of the evaluators stated that they placed 16-20 dentine-bonded restorations per week, while two placed more than 20, and four placed 10 to 15.

Regarding the presentation of the bonding agent, 92 per cent (n=11) of the evaluators stated that they preferred a bottle presentation, with the remaining evaluator preferring a single-unit dose presentation. Seventeen per cent (n=2) of the evaluators also stated that they would be prepared to pay extra for the convenience of single-unit doses.

Clinical evaluation

The evaluators rated the presentation as follows: ➔



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



The bottle dispenser was stated to be easy to use by all of the evaluators.

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



A total of 719 restorations were placed using G-Premio Bond, comprised as follows:

| | |
|--------------|------------|
| Class I | 113 |
| Class II | 240 |
| Class III | 125 |
| Class IV | 99 |
| Class V | 142 |
| Total | 719 |

When the evaluators were asked if they used G-Premio Bond for any other applications the result was as follows:

- For bonding indirect restorations: seven evaluators
- Treatment of dentinal hypersensitivity: eight evaluators
- Repair of fractured porcelain: one evaluator
- Bonded amalgams: two evaluators

Other uses were stated to be "Bonding orthodontic retainers", and "Bonding composite in access cavity in porcelain crown".

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

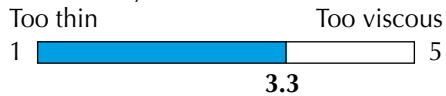
Comments included:

- "We placed it directly onto a microbrush and sometimes the drip was too large."
- "It flared well on the etched surface."
- "Patients commented on the unpleasant odour."
- "Less viscous than Scotchbond Universal – big advantage. Less chromatic so less obvious to see but not a concern."

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



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



Regarding handling of the material, 75 per cent (n=9) of the evaluators stated that the G-Premio Bond liquid stayed in place when placed on the tooth surface, and 75 per cent (n=9) stated this was an advantage over other bonding adhesives. Six evaluators (50 per cent) stated that the application of G-Premio Bond was better than the application of other bonding adhesives they had used, with one evaluator stating it was worse.

All evaluators stated that their dental nurses did not experience any difficulties using G-Premio Bond.

The one-component aspect of G-Premio Bond was stated to be an advantage over other systems by all 100 per cent of the evaluators.

Forty-two per cent (n=5) stated that G-Premio Bond was faster to use than other bonding systems they had used, with the remaining seven evaluators stating that it was the same.

All the evaluators (n=12) stated that they would purchase G-Premio Bond if available at average price.

When asked if there were any changes the considered essential to the acceptability of the material the following comments were made:

- "No – a great product." (three similar)
- "It has an unpleasant smell." (two respondents)
- "Hard to tell when bottle nearly finished – shaking not very accurate."

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



Final comments:

- "It evaporated quickly after dispensing, therefore short working time."
- "The odour is more pleasant than some new bonding agents such as Optibond XTR, which does bring patient comments."
- "Saves time. I am going to order it for

both NHS and Private use, just for the time saved on a daily basis."

- "Too much plastic on bottle – red covering on black bottle unnecessary – waste of plastic and possibly misleading."

• "Fantastic results when used for sensitivity as well as bonding."

• "Great bonding agent. Wets the tooth even better than G-Aenial Bond and has more universal applications. Excellent material."

• "Nice bonding system with good application tips so less wastage."

• "A good product. Hope long term its bond strength & marginal seal is good." (two similar)

Discussion

The GC G-Premio Bond universal bonding system has been subjected to an extensive evaluation in clinical practice by members of the PREP panel, in which 719 restorations were placed.

The presentation of the material and the instructions scored very highly (5.0 and 4.9 on visual analogue scales where 5 = excellent and 1 = poor). GC G-Premio Bond was rated better by the evaluators for ease of use when compared with the previously used adhesive system, (4.9 vs 4.6 on a visual analogue scale where 5 = easy to use and 1 = difficult to use).

A near ideal score for viscosity (3.3 on a visual analogue scale where 5 = too viscous and 1 = too thin) was achieved.

This assessment builds upon a previous assessment of a GC bonding agent by the PREP Panel, G-Bond (GC) in which the bonding agent scored 5 out of 5 for ease of use in 2006. During the 25 years of handling evaluations by the PREP Panel, only another two products have achieved this maximum score. G-Premio Bond scored 4.9 for ease of use, which is a compliment to the simplicity of use of the material. In that regard, materials which are easy to use could be considered to provide clinicians with better results than those which are difficult to use. Some early bonding agents had as many as five solutions which had to be applied sequentially, so a material such as G-Premio Bond, with ☺

One bottle, should provide an error-free route to successful bonding. In addition, it contains the resin 4-META which was designed by Nakabayashi and which has been demonstrated to form a strong hybrid layer, plus the resin 10-MDP which not only provides a hybrid layer method of micromechanical retention but also chemical bonding to the hydroxyapatite of the tooth.

Conclusion

The Universal Bonding Agents have been considered to be a step forward in dentine bonding. The excellent reception of GC G-Premio Bond, which was clear from the high scores achieved and the fact that all of the evaluators would purchase the material if available at average cost, would appear to indicate that the bonding agent under evaluation in the current work is ready to join this group.

Acknowledgements

The authors thank the members of the PREP Panel for completing the feedback forms and thank GC for providing the material and funding this evaluation.

Conflict of interest

The authors do not have any financial interest in the company whose material was included in this study.

Manufacturer's comments

GC would like to thank the members of the PREP Panel in evaluating and sharing the feedback around our recently introduced G-Premio Bond Universal Bonding Agent.

With the complexities of new design modalities in the light of the advances in adhesive dentistry, it is becoming increasingly important to use the correct bonding solutions whether it is bonding to natural tooth or a milled sub-structure by way of a luting cement. With all these challenges in mind, GC Corporation has produced a wonderfully versatile product called G-Premio Bond to meet these adhesive demands. However, with all things considered and the fact that GC may be a little biased because of our impressive track record of producing high quality products, the true acid test for a new introduction relies on the basis of what dentists say when they use the material for the first time, therefore and once again we have chosen to use the PREP Panel for this purpose. We hope you find the product appraisal of great value (GC certainly does) and we would like to thank Trevor Burke, Russell Crisp and the rest of the PREP Panel for this report!

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